JOINT REVIEW PANEL PUBLIC HEARING

IN THE MATTER OF Application Nos. 1844520, 1902073, 001-00403427, 001-00403428, 001-00403429, 001-00403430, 001-00403431, MSL160757, MSL160758, and LOC160842 to the Alberta Energy Regulator

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GRASSY MOUNTAIN COAL PROJECT - BENGA MINING LIMITED

VOLUME 26

VIA REMOTE VIDEO

November 27, 2020

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EXHIBITS

AQ#3 - AER - HEALTH CANADA GUIDANCE FOR EVALUATING HUMAN HEALTH IMPACTS IN ENVIRONMENTAL ASSESSMENT NOISE - AIR AND WILDLIFE TOPICS

Proceedings Taken via Remote Video

November 27, 2020 Morning Session

A. Bolton	The Chair
D. O'Gorman	Hearing Commissioner
H. Matthews	Hearing Commissioner
M. LaCasse	AER Counsel
B. Kapel Holden	AER Counsel
K. Lambrecht, QC	Joint Review Panel Secretariat Counsel
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D. Campbell	AER Staff
T. Turner	AER Staff
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M. Ignasiak C. Brinker	For Benga Mining Limited
R. Warden T. Howard	For Ktunaxa Nation

K. Poitras	For Métis Nation of Alberta Region 3
Chief B. Cote	For Shuswap Indian Band
B. Snow	For Stoney Nakoda Nations
R. Drummond S. McHugh	For Government of Canada
A. Gulamhusein	For Municipality of Crowsnest Pass
M. Niven, QC R. Barata J. Nijjer	For MD of Ranchland No. 66
B. McGillivray	For Town of Pincher Creek
D. Yewchuk	For Canadian Parks and Wilderness Society, Southern Alberta Chapter
R. Secord I. Okoye	For Coalition of Alberta Wilderness Association, Grassy Mountain Group, Berdina Farms

		Ltd., Donkersgoed Feeder Limited, Sun Cured Alfalfa Cubes Inc., and Vern Emard
	R. Cooke	For Crowsnest Conservation Society
	G. Fitch, QC C. Agudelo	For Livingstone Landowners Group
	M. Sawyer	For Timberwolf Wilderness Society and Mike Judd
	(No Counsel)	For Barbara Janusz
	(No Counsel)	For Jim Rennie
	S. Elmeligi A. Morehouse S. Milligan M. Boyce	For Alberta Chapter of the Wildlife Society and the Canadian Section of the Wilderness Society
	J. Gourlay-Vallance	For Eco-Elders for Climate Action
	L. Peterson	For Trout Unlimited Canada

R. Campbell	For Coal Association of Canada
(No Counsel)	For Alistair Des Moulins
(No Counsel)	For David McIntyre
(No Counsel)	For Fred Bradley
(No Counsel)	For Gail Des Moulins
(No Counsel)	For Ken Allred
(Not Present)	
(No Counsel)	For Monica Field
S. Frank	For Oldman Watershed Council
A. Hurly	
A. Porco, CSR(A)	Official Court Reporter

(PROCEEDINGS COMMENCED AT 9:00 AM)

Discussion

THE CHAIR: Good morning, everyone.

Just a reminder that live audio and video streams and video recordings of this proceeding are available to the public through the AER's website and YouTube.

Anyone in the virtual hearing room with their camera or microphone turned on will be captured, and images and recordings of you and your surroundings will be broadcast to a publicly available YouTube video. If you have concerns about this, please contact counsel well in advance of the time you are scheduled to participate to explain your concerns. We'll make best efforts to try and accommodate your concerns considering the need for an open and transparent public process.

I have one preliminary matter. Just a follow-up to the discussion yesterday about final argument. I think I've heard from the majority of the participants so far, but I did say I'd provide an opportunity if there was anyone I hadn't heard from who wanted to make an oral submission on the timing of final argument in this nature this morning.

Since yesterday, we did also hear from the MD of Ranchland via an email, who indicated a preference for January the 15th for participant submissions due to issues associated with the pandemic and Christmas holidays.

Is there anyone else who I haven't heard from who wants to speak to this issue?

MR. IGNASIAK: Mr. Chair, it's Martin Ignasiak. We would like to make submissions on some of

the timing that's been proposed.

THE CHAIR: Okay. Go ahead, Mr. Ignasiak.

Submissions by Benga Mining Limited

MR. IGNASIAK: So, you know, we're fine with written argument. However, having argument dragged into mid or late January is unacceptable. First, I'd like to put that in perspective. Mid-January is seven weeks from now. Even if we factor a full week for the holidays, that's six weeks. That's a very long time to prepare argument. As a matter of fact, it's extremely rare in any regulatory proceeding to see written argument processes, including applicant's argument, respondent's argument, and reply argument, drag on for longer than four weeks. So, sir, a schedule that goes any later than January 4, in our view, is not acceptable.

To the extent some may argue several more weeks is of no consequence, that's just incorrect. First, one of the express purposes of both CEAA 2012 and the Impact Assessment Act is to ensure that an environmental assessment is completed in a timely manner.

There are other purposes regarding environmental protection and sustainability, all of which are extremely important to this process, but none of them are engaged by your decision regarded the length

afforded for argument.

Second, Benga is materially prejudiced by unnecessary delays in schedule. As the evidence shows, Benga is already employing dozens of employees and many more consultants in expectation of constructing a project. Benga, therefore, incurs significant and unnecessary costs if an assessment process is prolonged.

Third, arguments shouldn't be delayed because some people would prefer more time. There is no reason why parties could not have been preparing argument during the course of the last five weeks. It's no excuse to say they thought argument would be oral. You still have to write it down.

Fourth, Benga's already materially contributing to one party's costs for participating in this process. It may be paying for others depending on the cost claims submitted and the AER's determination on those. In addition, Benga's contributing materially to the cost of this Review Panel. So Benga's views should be given some significant weight when making this decision.

So, therefore, again, we request the written argument process conclude no later than January 4, which is over five weeks from now. Here is what we propose: Benga will file its argument by end of

business on Wednesday, December 9; will copy all parties who confirm they want us to send them a copy by email so they don't have to wait for the public posting on the registry. All other parties to have until December 26th to file intervener argument. That's two weeks and three days from when they will receive Benga's argument. More importantly, it's over four weeks from now. Any parties who haven't started preparing argument yet can start now.

I do acknowledge that the December 26th date is a Saturday and Boxing Day. But that doesn't matter because parties can choose to file earlier, on the 19th or 23rd or whenever. The 19th is over three weeks from now, and the 23rd is over four weeks from now. Parties don't need to wait for the deadline to file if they prefer to file earlier because of the holidays. Benga doesn't gain any unfair advantage from earlier filings.

Also, we respect that the JRP members and staff may have holiday plans. This can be addressed by the JRP directing all parties to copy me and Mr. Brinker with their argument so that JRP staff who run the registry don't need to sacrifice holidays around Boxing Day if that's an issue. And then Benga would file its reply before January 4 so that those JRP members and staff who are returning to work that week can start the review.

So that's what we would propose for the schedule, sir. We think it's entirely reasonable and strikes a proper balance between providing a reasonable amount of time to complete argument but keeping this process moving.

Thank you, sir.

THE CHAIR: Thank you, Mr. Ignasiak.

Any other comments?

Submissions by Livingstone Landowners Group

MR. FITCH: Yes, Mr. Chair. I'd like to respond to some of my friend's submissions.

Firstly, the EIA in this matter was filed in April 2016. It's now November 2020, so it's been four-and-a-half years. The idea that an extra two weeks is in any way material is laughable, I would submit.

Secondly, my friend asserts that there's no reason why we all couldn't have been writing argument during the last five weeks while this hearing has been going on. That may be true for the proponent and his law firm, Osler, who have no -- who don't have to apply for local intervener costs. You know, when you're acting for interveners, you can't have three or four lawyers working on the file. It just doesn't work that way. I certainly -- and Mr. Agudelo have not had any time during the last five weeks to write argument. We've

had several cross-examinations to prepare, several witnesses to prepare. It's been full-time just doing the hearing. So the idea that we could have been, in our -- all our spare time, writing argument in the last five weeks is not correct.

Third, you know, the idea that there would be a filing deadline of December 26th is almost insulting, I would say. A Saturday, a Boxing Day, that's not workable; it's not fair to interveners.

So I guess I would submit -- and I'm just thinking out loud now, but if Benga were to file its written argument -- let me search my calendar here -- say, on the 21st of December, which is a Monday of the last week before Christmas. And we essentially said that there's about a two-week period during the holidays, then I think Ranchland's suggestion that interveners file on the 15th of January would make perfect sense.

So that's our suggestion in response to what we heard from Benga. Thank you.

THE CHAIR: Thank you, Mr. Fitch.

Any other comments?

Submissions by Canadian Parks and Wilderness Society

MR. YEWCHUK: Drew Yewchuk for CPAWS. I think the January 15th date is pretty reasonable. Even the federal courts close, and timelines don't run in federal courts from December 21st to January 7th. It's

a pretty normal approach. And I'm not sure finishing final argument speeds up the final report from the Joint Review Panel, as much as Mr. Ignasiak thinks it does. I think the Joint Review Panel is able to start preparing the report before they've seen the last of final argument. That's all.

THE CHAIR: Thank you, Mr. Yewchuk.

Anyone else?

Okay. Hearing none, the Panel will take all that into consideration, and we'll communicate the timeline once we've had a chance to think about the submissions.

Any other preliminary matters?

Okay. Hearing none, Mr. Fitch, do you want to continue with cross?

MR. FITCH: Yes. Thank you, sir.

GARY HOUSTON, MIKE BARTLETT, RANDY RUDOLPH, JANET BAUMAN, DANE MCCOY, Previously Affirmed
STEVE BILAWCHUK, IAN MITCHELL, JOHN KANSAS, LINDSEY MOONEY, Previously Affirmed

(Dust, air quality, greenhouse gas emissions, noise, and light; wildlife, including migratory birds and species at risk, wildlife health, and human health risk assessment)

Q MR. FITCH: Good morning again, Benga panel.

Mr. Rudolph, I just wanted to revisit, hopefully

fairly briefly, the issue of the 35 hectares that you used in your modelling for wind-driven dust emissions.

MR. FITCH: So if, Zoom Host, we could call up again Consultant Report 1A and go to PDF page 194. That's not the page I'm looking for. Are we on PDF 194? Oh, no. We're not. Okay. There we go.

Q MR. FITCH: All right. So, Mr. Rudolph, this is the table we talked about yesterday that shows in the right-hand column the figure of 35 hectares, which is what you used in your modelling; correct?

A MR. RUDOLPH: It is, yes.

Q Yeah. Okay.

So let's back out -- for the sake of this -- these questions, let's put to one side the coal pile and the haul road and focus on, I guess, what you would call the "active mining area". So the coal pile is roughly 5 hectares; the haul road is 18; so that's 23. So we're talking about 12 hectares for the -- what you would call the "active mining area"; is that right?

A Yes.

Q Okay. So Year 19, I think we heard yesterday, is 2042, likely. So let's pick a date in 2042. Let's say June 1st. So on that day, you're saying your model assumes there would be 12 hectares actively being mined and, therefore, generating dust; correct?

A That's what we've assumed, yes.
Q Okay. So then let's go to June 15th, so two weeks later. And let's assume that now Benga has moved on, either wholly or marginally, to a different 12 hectares. So the 12 hectares that they were mining on June 1st, they've completed. They've now moved on to a different area, presumably adjacent to what they were just doing.

Do I understand, sir, that your assumption is that the area that Benga had -- had just finished mining from June 1st to June 15th, that's an area that would not be active for wind-driven emissions, based on your assumption?

A I think what we're saying, Mr. Fitch, is that there's -- in your -- in -- in your numbers here, that there's 12 hectares of area that would be subject to -- to windblown emissions. Now, is 12 hectares the active area? To me -- again, to the -- to the mining engineers and air quality folks that made the assessment back in the day, that was the area that would seem to be reasonable for emissions for windblown dust for that mining activity.

And, you know, whether -- again, it doesn't seem to me -- and -- and others -- Mr. Houston could pop in here, but 12 hectares is a fairly large area to be operating -- to be loading and unloading for an active

mine. And so I -- I do believe that that 12 hectares is reasonable to be considering the active location plus a short period of time before that, which I agree would still be subject to dust settling on it and would be subject to windblown dust. So it's --

Q Okay. So --

A -- not necessarily just the area, you know, in which the shovels are operating. 12 hectares is a fairly large area for current and, you know, recent activity to be occurring on.

Q Okay. No. You understood what I was getting at.

A Yeah.

Q So that's fine. I think I have your position.

Mr. Mitchell, again, just revisiting something you and I talked about yesterday. I put to you that paper on cytotoxic and inflammatory potential of particulate matter, which has been marked as Exhibit 916. And we had a bit of a back-and-forth on that. I'm sure you will remember that, sir.

A MR. MITCHELL: Yes, I do.

Q And you said, when I asked you to comment on that report -- among other things, you said that it was only a lab test; it was not a study of people actually breathing in those particles. Do you recall saying that?

A Yes, I believe that's what I said.

Q Okay. And, sir, was your point that the conclusions of the study would have been more robust if it had not been a lab test?
A There are different types of studies that tell you different things. I don't think I would necessarily say that the conclusions would be more robust. It -- each type of study provides part of the picture.
Q Then what was the point of telling me that it was just a lab test?
A The -- the point is that it doesn't -- it -- it -- the study demonstrates that when these particles come in contact with -- with cells, they do cause effects, but it doesn't necessarily reflect the actual exposure conditions. So it talks about the -- I guess the -- the inside-the-body toxicity part of it, but it doesn't sort of talk about the -- all the processes that happened before that. So, again, it provides valid conclusions for part of the picture, but it doesn't give you the whole picture by itself. That's why you have --
Q I see.
A -- multiple lines of evidence and different types of studies.
Q Would a study of people actually breathing in the particles be more robust?
A Again, each study provides part of the picture, and you

do look at the weight of the evidence from all of the different types of studies and all of the data available.

Q Well, we heard in a different context this notion of starting with a trial and then going to a pilot study and then a, you know, full scale, et cetera, et cetera. I would have thought that you would start with something like a lab test, but that if you really wanted to get the best data, you would do a study of the actual effect if people breathed in these particles; isn't that correct? Isn't that right?

A Not always, because it often isn't easy to get good data from that type of study. So, again, we need to look at the broad -- all of the -- all of the lines of evidence and not limit ourselves to one type of evidence.

Q Would you agree, sir, that an epidemiological study when we're talking about health effects would be considered the gold standard? If you could get that type of a study, that would be the ideal?

A Not necessarily, because epidemiological studies often don't have very controlled conditions, so, again, epidemiological studies are certainly one of the lines of evidence that we use, but we rarely use them in isolation.

Q Okay. That's fine. So you want to have, I think you

said, multiple lines of research, if I could put it that way. So it would certainly be better if, in addition to lab studies, you also had epidemiological studies. Would you agree with that?

A Yes, where we have good epidemiological studies. And, in fact, our PM 2.5 targets, for example, are based in -- at least in part -- a large part on epidemiological data. Again, often it's not just one epidemiological study. You need to -- you need to look at multiple studies there as well.

Q Okay. Mr. Rudolph, yesterday when you and I were talking about the on-site monitoring stations, you said that the stations were not intended to be used in an assessment of meteorological conditions on-site but rather to determine, among other things, how the terrain affects the winds in that location, something like that, anyways.

A MR. RUDOLPH: Something like that, yes.

Q Okay.

A Yeah. They weren't -- they weren't meant to be used in our modelling study.

Q Right. And I think you went on to say that what you did use was that five-year data set that Alberta Environment basically says people should use from 2002 to 2006?

A That's right.

Q Okay. And I'm told that you used that data to generate something called a "wind set". Is that right?
A We use it to generate a CALMET wind file or meteorological data set, yes, a 3D -- a 4D data set, yes.
Q Okay. And that data set, sir, is it specific to the site?
A It is, yes.
Q Okay. And what's the spacing used in the model?
A The grid spacing over the -- over the mining area is a half a kilometre.
Q That's what you used, half a kilometre?
A That's what we used.
Q Okay.
A And that's -- that's based on terrain data that's available to us for modelling, which is available on about a 30-metre-or-so spacing in the area.
Q Okay. And then just to move to the discussion that you and I had yesterday about the assumption that in the winter you'd be able to achieve 90 percent dust control efficiency because roads will be iced or snow-covered. So, firstly, that's from November to April; correct?
A Approximately, yes.
Q Okay. So have you assumed in your modelling that from November to April, the haul roads will be snow-covered or iced 100 percent of the time?

A That's what the modelling assumes, yes.
Q Okay.
A What the modelling doesn't discuss is whether there's additional snowfall during that period, which would tend to continue to maintain those conditions. We don't have the -- the ability in the model to -- or the -- the -- the guidance from Alberta Environment that we don't consider the effects of precipitation itself --
Q Right.
A -- which obviously occurs in the winter and in the summer.
Q So this next question is for either you or Mr. Mitchell. I'm not sure who will want to answer it. But would you agree with me that air quality objectives or standards should not be construed as limits to which polluting up to is allowed?
A I think the -- the goal is to have those concentrations in air be as low as reasonably possible, but the standards are in place that are meant to be protective of health.
A MR. MITCHELL: I would agree with Mr. Rudolph's answer.
Q Would you acknowledge that health risks exist below guideline levels for some contaminants?
A There are -- there are some -- some contaminants for

which there may not be a threshold level below which there are absolutely no health effects or no probability of health effects. Again, often it is dealing with not only probability, but magnitude and duration of these effects. For example, for some of the carcinogens, we assume -- and it may not be fully accurate, but for purposes of risk assessment, we assume that there is a -- you know, essentially, a linear relationship between cancer risk and level of exposure, so we set our targets based on a level that is a really negligible level of risk as opposed to zero risk.

Q So I just want to go back, Mr. Rudolph, 'cause I'm not sure I really understood your answer. Let me ask again: Do you agree that air quality objectives or standards should not to be construed as limits up to which someone is allowed to pollute?

A MR. RUDOLPH: I think the goal and -- is -- is to continue to reduce emissions as much as possible. Again, the standards are in place that allow applications to measure their predictions against the standards in this case, and the goal would be to have those emissions be as low as reasonably possible, I think, and -- and the results in concentrations be as low as reasonably possible, but the standards are there as guidance to what -- what may be -- for compliance

purposes, what may be achievable.
Q Okay. Just going back to my discussion just a moment ago with you about the grid that you used. I'm told there is a different grid for meteorology and air quality. So when you told me that the grid you used was 0.5 kilometres, was that the meteorology grid or the air quality grid?
A It was the meteorology grid.
Q Okay.
MR. FITCH: Zoom Host, could we turn to the Consultant Report Number 12, which is the human health risk assessment. PDF 7, please.
A MR. MITCHELL: I would point out, I believe that is a superseded version.
Q MR. FITCH: Well, my understanding is the part I'm going to refer you to, Mr. Mitchell, is not superseded, but if it is, you can let me know. All right? I mean, I appreciate there's an updated document, but the content, I am told, is the same. So I'm just going to proceed, if you don't mind.
Mr. Mitchell, I assume --
A Okay.
Q You are the one who spoke; is that right?
A Yeah. You -- you can proceed, and if what's in there is --
Q Thank you. Yeah. Thank you.

All right. So you talk about data being -- data on current health. So we're looking at Section 3.1, "Current Health Status in the Region". And you state that the data on the current health status is from a 2006 report from Alberta Health; correct?

A That is the report that was used for that section, yes.

Q Okay. And that report actually used 2003 data; correct?

A Correct.

Q Okay. So that doesn't seem to be particularly current. So when you did your updated health risk assessment, did you use more current data?

A Well, even in the original, there is a comment later on in that paragraph about similar but more recent data from Statistics Canada. Again, there are different data sources that are based on studies in different years, and we look at all of those.

Q Did you look at any more current data when you updated your report?

A No, I do not believe that section of the report was updated. There weren't any --

Q Right.

A -- series that required an update on that.

Q Okay. And the data you looked at is for something called the "south zone"; correct?

A Yes. So at least the Alberta Health and Wellness study

referred to that as the "south zone".
Q Yeah. And that does not include data specific to smaller populations such as specific towns; correct?
A No. I -- I believe that data set is based on administrative zones.
Q Yeah. Would you agree with me that the south zone is quite large?
A Yeah. They're a relatively small number of zones, so they -- they do reflect an area of the province as opposed to a specific municipality.
Q Right. And if one were to go on the Alberta Health website and search for "south zone", would you agree with me that you would see that it stretches from Oyen in the northeast to Medicine Hat and Cypress Hills in the southeast to Crowsnest Pass in the southwest? Does that sound right to you?
A I'll take your word for it, but it doesn't sound unreasonable.
Q Okay. I assume you're aware that Alberta Health says that in the south zone, there's a population of approximately 300,000 people?
A Again, that number sounds in the right ballpark to me.
Q Okay. So, then, based on that, I take it you would agree with me that when you prepared your human health risk assessment, Benga had no information on the incidents of respiratory diseases, including asthma, in

Blairmore and the Crowsnest Pass?
A I can -- you'd have to check with the people that wrote that section, but I don't think the data is available on that scale, at least not with any high level of reliability. It's usually once you get to the smaller scale, you get a lot of noise in the data.
Q Okay. Well, do you need to check, or do you, in fact, know?
A If you need confirmation on that, I'll need to check.
Q All right.
A I just got the answer. No, we do not.
Q All right. So, Mr. Houston, a long time ago, in Topic Session Number 1, you probably were listening when one of my clients, Bobbi Lambright, testified?
A MR. HOUSTON: Yes.
Q Okay. And do you recall her referring to something -- a document called the "Sparwood Livability Study"?
A I don't specifically recall that comment.
Q Okay. Well, what she said was that the Sparwood livability study, among other things, stated that 74 percent of respondents in Sparwood agreed or strongly agreed that mine-related dust in Sparwood was affecting their quality of life. Do you recall that?
A Well, I've -- I've looked at the Sparwood livability study, and -- and I can't recall that specific statistic, but I believe that's representative of what

I -- I remember reading.
Q Okay.
MR. FITCH: Okay. Well, Zoom Host, can we call up Aid to Cross AQ7, please. And could we go to PDF page 42. Zoom in a little bit. That's good. And scroll down just a short way. That's fine. Thank you.
Q MR. FITCH: So you can see, Mr. Houston, that in the part of that page we're looking at, that is titled "The Community is Saying": (as read)

> We can agree that 73.7 percent of survey respondents agree or strongly agree that mine-related dust in Sparwood is affecting their quality of life.

Correct?
A MR. HOUSTON: Yes, I can read that.
MR. FITCH: Okay. So can we now turn to PDF page 36, please. And scroll down farther. That's good.
Q MR. FITCH: So with respect to air quality, again, we read that the community is saying: (as read)

> 75.4 percent of survey respondents either disagree or strongly disagree that the air they breathe in Sparwood is clean and healthy.

Do you see that?

A MR. HOUSTON: Yes, I do.

MR. FITCH: All right. And then can we go to PDF page 56 in the document. Scroll down farther, please. That's good. Thank you.

Q MR. FITCH: So here again, this is a section of the report summarizing what the study authors heard from people living in Sparwood, and they say that: (as read)

> The issue of air quality was raised more often than any other topic throughout the engagement period, with numerous stakeholders being concerned about the coal dust and air quality in and around Sparwood.

Do you see that, sir?

A MR. HOUSTON: Yes.

MR. FITCH: And then if we go to PDF page 57, next page, please. The bottom.

Q MR. FITCH: Okay. So there we see a discussion about respiratory health, and it talks about the fact that: (as read)

> Many comments were received about air quality and the impact of coal dust on respiratory health.

And then if we go to the next page, 58, there's quotes at the top of the page, Mr. Houston, from survey respondents talking about: (as read)

There's so much dust. It can't be good for our lungs. People have developed asthma. So my question for you, having just briefly looked at the Sparwood livability study, is: Why should we expect things to be any different in Blairmore than they have turned out to be in Sparwood?

A MR. HOUSTON: So -- so, Mr. Chair, you know, this -- this study -- this Sparwood livability study was conducted by the District of Sparwood and -- very recently, in 2019, as -- as a means of understanding how the community felt about the -- the mining projects in the area. And -- and those mining projects, as a reminder, have been in the area for decades. I'm not going to put an exact number on that, but 30 or 40 years.

I think the advantage that Grassy Mountain has is that we've committed to engage with the community from the get-go, forming a committee and having these issues on the table from -- from the first day. And so I think that, again, learning from the past, learning from what has happened in other areas, adopting modern technology, I think we have an opportunity with this Grassy Mountain Mine to set -- set the bar for other projects of a similar nature.

Q Would you agree with me, sir, that the Sparwood livability study was essentially required as a

condition of the Baldy Ridge expansion of -- of the Teck mine?

A That's my understanding, yes.

Q Okay. Is it your position that Teck is not committed to engage with its community?

A No. I think Teck probably has a very robust program to engage with the community.

Q And, yet, there's clear unhappiness in Sparwood with the quality of their air and the dust that they breathe?

A I -- I think, Mr. Chair, at -- at this stage in Sparwood, having lived next to a number of mines for a number of decades, that it's appropriate to do this kind of study to take stock of where the community and -- and the mining company stand and to identify which are the topics of -- of most concern. This -- this seems like a reasonable thing to do given the -- the situation in Sparwood.

I -- I think in Crowsnest Pass and Blairmore, we're at the different end of the project, and -- and I think, based on what we've established with the community to date and what we've committed to, we -- we stand a really good chance of being in front of a lot of the issues that are in this report.

Q Okay.

MR. FITCH: Mr. Chair, can we please mark

this document as the nest exhibit.

THE CHAIR: Mr. Ignasiak, any concerns?

MR. IGNASIAK: None, sir.

THE CHAIR: Okay. Can we get a number please?

MS. UTTING: Mr. Chair, that would be CIAR 920.

THE CHAIR: Thank you.

MR. FITCH: Thank you.

EXHIBIT CIAR 920 - AQ#7 - LLG - SPARWOOD LIVABILITY STUDY - AIR AND WILDLIFE TOPICS

Q MR. FITCH: So this panel is the last cross-examination of the LLG, so I want to conclude by having us go to CIAR 360. That should be Addendum 12, PDF page 83.

So, Mr. Houston, Addendum 12 was filed in June 2020, as we just saw; correct?

A MR. HOUSTON: That's right.

Q So as I understand it, what we're looking at here is an explanation that Benga is providing in this document, its, I guess, ultimate conclusions about residual effects in that series of tables that starts with Table 2-1, and I think it goes all the way down to 2-11 or 12.

A Mr. Chair, we were asked to make a summary of all the commitments and mitigations that we've made throughout

the various filings for this project.
Q Okay. So if we could go to Table 2-1, so the first of those tables. So you talk about mitigations. You were asked to summarize mitigations, and one reason for that is because your residual effects assessment can only be undertaken in the context of what are the mitigations you're proposing --
A That's --
Q -- correct?
A -- right. That's right, Mr. Chair. Residual effects are after mitigations.
Q Okay. So we don't need to go through this entire set of tables, but, sir, would you agree with me that for all residual effects, be it air, noise, groundwater, surface water, fish, wildlife, soil terrain, vegetation, socioeconomics, health, you name it, Benga has concluded that there are either no residual effects or the residual effects are not significant?
A I -- I don't think that's entirely true, Mr. Chair. I don't -- I don't think that's entirely true. I -- I remember, for example, in the Indigenous -- some of the Indigenous sections, that the residual effects are not -- not classified in that way.
Q Well, I -- I didn't think we were going to have to do this, sir, but do you want to take a minute and go through every one of those tables and point out to me a

single one where you conclude that residual effects are significant?

A I -- I'm just looking for the Indigenous section, Mr. Chair.

Now, I -- I realize, Mr. Fitch, that the -- the Indigenous section isn't included in -- in this table, so I -- I think you're probably right.

Q All right. So for this 15-square-kilometre, open-pit, mountaintop-removal coal mine, which, among other things, will destroy 21,000 whitebark pine and impact the last remaining westslope cutthroat trout-bearing streams in the Eastern Slopes, no significant residual effects; that is Benga's conclusion; correct?

A And, Mr. Chair, I think that's not only the inclusion -- conclusion, but that's -- that was the intent of our project design to -- to date, was to look for areas where there could be residual effects and then to implement design modifications and mitigations to reduce those effects to acceptable levels. So that -- that was the intent of the process up to this point.

Q Thank you, Mr. Houston. Thank you, Benga panel members. That concludes my cross-examination.

THE CHAIR: Okay. Thank you, Mr. Fitch.

Mr. Yewchuk, you're up next.

MR. YEWCHUK: Perfect. Thank you,

Mr. Chairman.

Mr. Yewchuk Cross-examines Benga Mining Limited

Q MR. YEWCHUK: Mr. Houston, good to see you again. I've only got 45 minutes today, so I won't [sic] have time to ask you what is important here.

Mr. Bartlett, are "bioaccumulation" and "bioconcentration" the same thing? Is Mr. Bartlett on the panel?

A MR. BARTLETT: Hi. That might be better for me to hand that over to one of our risk assessors.

Q Sure. Who would that be?

A Mr. Mitchell -- Mr. Mitchell or Ms. Mooney.

Q Either of those is fine with me.

A They're just caucusing.

Q Okay.

A MS. MOONEY: Hello. Lindsey Mooney here. So "bioaccumulation", I think, typically refers to concentrations aggregate near the top of the food chain, whereas "bioconcentration" refers to the processes where contaminants or compounds are concentrated near the lower part of the food chain and -- and concentrate up through the system that way.

Q Thank you.

What is an "ecological trap"?

A Pardon me. Can you repeat that?

Q What is an "ecological trap"? Are you familiar with that term?
A An "ecological trap"?
Q Yes.
A I'm not familiar with that term.
Q Is anyone on the panel familiar with that?
A (NO VERBAL RESPONSE)
Q Okay. Can selenium bioaccumulate from aquatic species up into terrestrial species?
A Yes.
MR. YEWCHUK: Can we get the 11th Addendum? That's Number 313, PDF 1287.
Q MR. YEWCHUK: If I have the right page, this will be a table that explains how Benga decided which metals to consider as chemicals of potential concern. That is what this is? This table was used to explain how Benga decided which metals to consider as chemicals of potential concern?
A MS. MOONEY: So this -- this table presents the process for identifying bioconcentration factors, which is aligned with the Canadian Environmental Protection Act's definition on how to define "bioaccumulation". So according to the CEPA definition, selenium doesn't qualify. However, selenium was considered as a bioconcentrating substance within the risk assessment.

Q But on the table, it says selenium doesn't bioconcentrate?
A It doesn't meet the CEPA definition.
Q Now, this table shows bioconcentration; right?
A So the process of identifying or labelling a compound as bioaccumulative has three components. You can see the -- the top -- the bottom two are listed. So Number C, as part of the CEPA definition, identifies a bioaccumulation factor, or its bioconcentration factor can be determined in accordance with a method that they referred to, and so that -- that is what that table refers to.
Q Sorry. You used Option C to make this table?
A That's just the definition of the -- what the Canadian Environmental Protection Act considers as how they determine if a substance is bioaccumulative.
Q Sorry. When you say "that", you mean Section C is how they determine if it's bioaccumulative?
A One moment, please.

Hello.

Q Hey.
A Hi. Yeah. I think there was maybe a little bit of a misunderstanding on the question. So Section C listed above refers to using the law of Kow, which wasn't how Table 2.1 was put together.
Q Okay. So Table 2.1 shows the bioconcentration factor

for each of these metals?
A Correct.
Q Okay. So you used Option B from the CEPA guidelines on this page; right?
A One moment, please.
So the Table 2.1 is presenting bioconcentration factors that were identified from regulatory agencies or primary scientific literature.
Q And that's using the Option B at the top of this page; right?
A That table is presenting Option B, but we did consider bioaccumulative as well.
Q So this table shows bioconcentration, but Millennium did consider bioaccumulation?
A (NO VERBAL RESPONSE)
MR. YEWCHUK: Zoom Master, can we just scroll up so I can see Option A on the screen above? Perfect.
A MS. MOONEY: So all three of those criteria were applied. If they met the criteria, they were included, but Table C specifically presents the bioconcentration factors.
Q MR. YEWCHUK: Can you tell me where the table setting out the bioaccumulation factors is?
A My colleague is telling me it's on -- see Table 5-1-2 in Addendum 10, PDF page 468.

Q Can we go to that for one moment?
A CIAR 251, Package 4, page 468. Oh.
Q Where's the bioaccumulation?
A One moment, please.
So what this table is showing is the physical chemical properties of the substances that indicate whether or not it has an affinity for bioaccumulation, but how the compound was screened into the assessment was based on its bioconcentration factors that is presented in Table 2-1.
Q Is that not actually complying with the approach of the guidelines that you said you were following because the first step would have been determining the bioaccumulation?
A So it says in the guidance if the bioaccumulation factor cannot be determined, if its bioconcentration factor is equal to or greater than 5,000, it would be considered bio -- bioaccumulative, which is what we've done.
Q So you weren't able to determine whether any of those metals were bioaccumulative because you didn't provide any numbers, apparently, anywhere?
A What we did screen against was the bioconcentration factor, which is part of the CEPA process.
Q It's the second step if you can't use the first step, and you didn't do the first step?

A There isn't bioaccumulation factors available for all of these metals.
Q Is there bio --
A A consistent process of evaluating bioconcentration factors across compounds was applied.
Q That's not what the guidelines recommend, though. You should have started by checking the bioaccumulation, where available?
A I think at the end of the day, because we have screened through multiple methods, including the chemical properties and the bioconcentration factors, that we're confident that we've carried compounds in the assessment that would be considered bioaccumulative.
Q But was selenium considered bioaccumulative under your approach?
A So selenium doesn't meet the CEPA definition of bioaccumulative, according to the BCF factor evaluation. However, it was carried in the assessment as a bioaccumulative -- or bioconcentrating compound.
Q Does selenium bioaccumulate?
A So selenium bioconcentrates at the lower part of the food chain -- aquatic food chain. So it concentrates in periphyton and subsequently can concentrate in the trophic levels that lay on top of that, so in invertebrates and then up to fish.
MR. YEWCHUK: Okay. Zoom Master, can we go

back to the page we had before?
Q MR. YEWCHUK: Now, I'll suggest to you, on the approach that you took, you would have determined selenium was not a bioaccumulation risk because you were looking at bioconcentration instead of bioaccumulation; is that what happened on that table?
MR. YEWCHUK: If we go down one page, please. I guess one more 'cause I need selenium -- selenium.
Q MR. YEWCHUK: You can see it's below your 5,000 threshold for selenium?
A MS. MOONEY: That's correct. That's what the bioconcentration factor reported for selenium is, but we've taken a conservative approach and included selenium based on the literature and our understanding of the transfer of selenium in the aquatic food web.
Q What about all the other metals? Did you try to check the bioaccumulation factors?
A We applied, as I stated, multiple screening methods, including a review of chemical properties as well as an evaluation of bioconcentration factors for all metals.
Q So your conservative approach consisted of skipping a step, the first recommended step, bioaccumulation factors?
A As I said, bioaccumulation factors aren't available for all compounds, and an evaluation -- a consistent

evaluation of bioconcentration factors across metals was applied.

Q Is that the wrong approach?

A MR. MITCHELL: Factors that were used --

A MS. MOONEY: We did have bioaccumulation factors that were considered in our multimedia models. So although they're not used in this screening process, where available, they were applied in our modelling.

Q But there's no table of the bioaccumulation factors anywhere in your EIA material that you can find?

A That's correct, because, again, the evaluation had a multilayered approach where we included compounds based on their physical chemical properties, evaluating the law of Kow to identify if those compounds had an affinity for soil and organic material as well as understanding the bioconcentration factor of those compounds.

Q And I think the next one is for Mr. Rudolph. Does the saturated backfill zone release gases of any kind? Was any gas released from the SBZ included in the air modelling?

A MR. RUDOLPH: There are no gases from that zone included in air modelling.

Q Were there none included because it doesn't release any or because you didn't check if it would?

A MR. HOUSTON: Mr. Chair, I would suggest

that our assessment of the SBZ indicated that aside from, perhaps, nitrogen, there wouldn't be significant emissions.

Q Is that assessment somewhere in the environmental impact in your materials, or did you just do that and not -- not write it down?

A Based on the chemistry that we are looking at in the -- in the SBZ, the biochemical reactions that we're looking at, we -- we do expect a nitrogen gas to -- in small quantities, to be emitted, but we -- we don't anticipate, based on that chemistry, to have any other gases in significant quantities.

Q The methanol you put into the saturated backfill zone won't release any carbon monoxide when it breaks down?

A Not -- not -- not in significant quantities.

Q Do you know what your threshold for significant quantities was?

A Not -- not precisely, Mr. Chair.

Q Benga used the 20 percent threshold for habitat change to determine if habitat loss was significant to valued species?

A MR. KANSAS: Yes, for the cumulative effects assessment.

John Kansas here.

Q And that was for 20 percent of the wildlife regional study area?

A No. It was 20 percent of -- yeah, the wildlife regional study area, yes.
Q What percentage of the wildlife regional study area is within the mine permit boundary?
A Perhaps Mr. Bartlett knows the mine plan a little bit better than I do.
Q So, Mr. Bartlett, I'll suggest to you an answer: The mine permit boundary is 28 square kilometres, and the wildlife regional study area is 735 square kilometres, so the answer is 3.8 percent; right?
A Correct.
Q Unless an area five times larger than your mine permit boundary is lost as habitat, you determined there was no significant impact due to habitat loss?
A Correct.
Q Okay. And using that approach, Benga concluded the project had no significant habitat loss impacts for any species?
A That's -- that's correct.
Q Great.
A But we didn't use that approach for -- for all species, and coming up with a significance determination was more than just looking at the 20 percent and doing math that way. It had to do with the effects rating criteria, irreversibility or reversibility, analogue studies from other similar ecological conditions. So

the 20 percent rule, if you will, was a -- a precautionary guideline for us. It -- it wasn't a binary thing: Yes, no, you're significant, you're not. That involved many other aspects.

Q Were there species that lost less than 20 percent of their habitat but you determined there would be significant adverse impacts on them?

A Could you -- sorry. Could you repeat that question, if you would?

Q You said there were a bunch of other factors other than the 20 percent habitat loss rule. Was there any instance where a species lost less than 20 percent of the habitat and you still determined the impacts on it were significant and adverse?

A No.

Q So in no case did those factors actually change your answer?

A Well, excuse me. If I could talk to my colleagues here for one second.

Q Sure.

A Thank you.

No, there were no cases.

Q Thank you, Mr. Kansas.

Is there going to be any life in the end-pit lake? And it doesn't have to be Mr. Kansas. Whoever from Millennium can answer that.

A MR. HOUSTON: So let me answer, Mr. Yewchuk. Yes, we've talked about having --

Are you muted, John?

We talked about having a literal zone, and so certainly there's going be life in the end-pit lake, vegetative life, and -- and other life as well.

Q And how long will it take for that life to get there? What year after you start mining is there life in the end-pit lake?

A Well, the end-pit lake is a feature that's formed after the mine is finished operations. And -- and then we -- we expect to have the basic work done to restore that area two or three years after end of mining, and then we expect to be monitoring the end-pit lake for a number of decades afterwards to monitor the establishment of -- of vegetation, for example.

Q So the end-pit lake has vegetation?

A It will have, yes.

Q Will it have algae?

A Yes.

Q What will live in the lake that eats the algae?

A I -- I don't know that anything needs to eat the algae, Mr. Yewchuk.

Q Will there be invertebrates living in the end-pit lake, buttons [phonetic]?

A I presume so, yes.

Q Will there be amphibians in the end-pit lake?
A I presume so, yes.
Q Will there be waterbirds?
A Yes.
Q Will it be safe for waterbirds to nest and live on the side of the end-pit lake, eating aquatic life from the end-pit lake?
A One -- one minute, Mr. Chair.
A MS. MOONEY: Hi. Lindsey here.

I can answer this from the perspective of the wildlife risk assessment. So the initial stages of a wildlife predictive risk assessment are to not underestimate exposure. To align with this, conservatism is layered into the assessment. So under conservative assumptions, including the upper distribution of predicted exposure, specifically the upper case for the numerical modelling output for surface water concentrations in the end-pit lake, assuming species spend all of their -- their time, 365 days a year, foraging exclusively from the end-pit lake, you know, despite their preference for different habitat types or, you know, a migration factor, risk low in magnitude for selenium exposure is predicted for insectivorous, piscivorous, and omnivorous birds.

When exposure rates are greater than 1 doesn't necessarily indicate the potential for adverse effect.

It often indicates the need for a re-evaluation of conservative assumptions. So the intent here isn't to make the risk output match an acceptable threshold. This is a tool. It's not a crystal ball. Risk assessment enables an understanding of where mitigation may be required, and it highlights exposure pathways that -- that should be monitored.

Q So you use a conservative approach, and then when it says -- when the conservative approach tells you there will be risks, you reassess that approach and adopt a less conservative approach. Is that generally how Benga and Millennium approach this?

A That's not what I said. What I said was: The evaluation that's been applied for the end-pit lake is believed to be conservative based on the receptor characteristics and the concentrations applied in the assessment. But what is important to remember is that under a conservative assumption, when you predict an exposure ratio greater than 1, that doesn't necessarily indicate the potential for adverse effect. It can indicate that you need to revisit that assessment and -- and re-evaluate some of those conservative assumptions, but it does -- as a tool, it's intended to be used to highlight areas where monitoring may be required and where mitigation may be required.

Q So which conservative -- that's all right. I'll leave

that one.

So I don't think we'll need to pull this up, then, but the American dipper example from the side of the end-pit lake, that American dipper gets selenium poisoning?

A MR. HOUSTON: So, Mr. Chair, I -- I think that what -- what Ms. Mooney has already said is that the -- the evaluation that's been done has been done on a very conservative basis. For instance, that American dipper would have to live in the end-pit lake for its entire life. And -- and I -- as we've discussed earlier, I -- I would also point out that the concentrations of chemicals of potential concern in the end-pit lake are also based on very preliminary conceptual designs and conservative assumptions. So those -- I think what's identified here is a need to pay attention and monitor, develop an end-pit lake eventually during the life of this project that avoids any potential concerns.

Q So, Ms. Mooney, for the American dipper example, does the American dipper get 78 percent more selenium in its dietary intake than it should, than its upper threshold, I think?

A MS. MOONEY: I haven't specifically evaluated that percentage. Remember that the American dipper is a surrogate species.

MR. YEWCHUK: Can I get CIAR Number 360. This is Addendum 12, and I'd like PDF page 241.

Q MR. YEWCHUK: That's where I got this 78 percent more than its daily threshold exposure. Am I reading that wrong? I'm not a scientist.

A MS. MOONEY: That is the predicted exposure ratio whereby the exposure is estimated, and it's divided by the daily threshold exposure dose, and that value of 1.78 is produced.

Q So if the American dipper lives on the side of the project and eats out of the end-pit lake for years on end, 'cause I know that's a very conservative approach, what would happen to it?

A As I indicated, select feeding compartments for avians within the end -- end-pit lake do have exposure higher than the daily threshold exposure dose.

Q What will that exposure -- that selenium exposure do to the bird?

A One moment, please.

So the toxicology end point for selenium applied is based on hatchability.

Q So to make this clear, if that American dipper lays an egg, will that egg produce a new American dipper?

A No.

Q No, it will not.

Can --

A Agreed. It's not an absolute no. What it's indicating is the potential for adverse effect under these conservative assumptions. Toxicology itself has a conservative layering within to the daily threshold exposure dose that's applied, so the "no" is qualified with the -- with the condition that exposure within the end-pit lake would need to match the exposure conditions that were tested to derive that daily threshold exposure dose.

Q Does the daily threshold exposure dose include the dipper eating any fish out of the end-pit lake?

A So the American dipper is an insectivore.

Q Are you certain? Because I thought --

MR. YEWCHUK: Can we scroll up just a little bit?

Q MR. YEWCHUK: Yeah. It says -- notes: (as read)

> American dipper do not eat plants. There are no fish in the EPL.

So I kind of thought that it could eat fish, but you were just expecting there to be no fish in the lake?

A MS. MOONEY: So fish as an exposure pathway was not considered within the end-pit lake.

Q And if there were fish in the end-pit lake, which I know the plan is that there will not be, that would actually introduce more bioaccumulation; right?

A That is a hypothetical. No fish are currently planned or predicted in the end-pit lake.
Q Can the people of Blairmore expect to see some birds with some twisted spines in about 40 years?
A MR. HOUSTON: So, Mr. Chair, I think what we've talked about is a conservative assessment on a conceptual end-pit lake plan. Obviously these calculations highlight that attention needs to be paid to certain species, and we would intend to do that.
Q Ms. Mooney, do you think it's likely that the people of the nearby town will see some birds with twisted spines in the next couple decades if you build this project?
A MS. MOONEY: No.
I would also like to highlight that that -- the -- the toxicology end point that's been applied for birds is different than what you stated.
Q Sorry. I don't understand that. Can you explain what that meant?
A You referenced something different than I had noted as the toxicology end point that's been applied in this assessment.
Q Now, when you -- you said the -- the egg might hatch; right? The American dipper's egg in this case might hatch and make an American dipper; is that correct?
A So the toxicology end point is based on the hatchability, so eggs are considered nonviable if they

don't hatch or have problems hatching or deformities.
Q Okay. Oh, a deformed one actually counts as a nonhatched to you?
A The toxicology information, as per the end point that's been applied for the daily threshold exposure dose, lists hatchability, which would include nonviable eggs.
Q Does an American dipper with a twisted spine count as a hatched American dipper, or does it count as a nonhatch?
A Again, I think that's a hypothetical, and it would depend on the specific instance.
Q The hypothetical here being that you would build the mine, build the end-pit lake, and that birds would exist?
A MR. HOUSTON: Mr. Chair, you know, we've -- we've talked about a conservative assessment, and -- and there's a reason for doing a conservative assessment to screen which areas are important for the future design of the end-pit lake. We're going to keep this in mind as we move forward. We're going to monitor chemicals of potential concern in the end-pit lake, and we're going to, in the time between now and then , learn a lot more about the -- the tendency for chemicals of potential concern to leach into the water.
So we -- we've got a long ways to go to this hypothetical situation that we're talking about, and I

would suggest that, you know, Benga understands its responsibilities here and will take steps to avoid a -- a problem with the -- the dipper -- the American dipper.

Q And the American dipper is just a stand-in for all the waterbirds here; right?

A That's right. The same argument would go for -- it -- it's a -- it's a surrogate, as we've discussed. So that -- it's a surrogate, and that -- that's how we're treating it in the screening study, and -- and that will help inform the path forward.

Q Does it inform you that the path forward includes some birds with twisted spines?

A Mr. Chairman, I think that situation's entirely avoidable, and what it does is it tells us we need to take care in our monitoring, mitigation, and design of the end-pit lake.

Q You would never have that situation if you never had an end-pit lake; right?

A I guess that's -- that's obvious, Mr. Fitch -- or, sorry, Mr. Yewchuk.

MR. YEWCHUK: Okay. Mr. Chairman, it's about 10:30. Would it be okay if we took about a 10- or 15-minute break, and then I will wrap up the second half of my cross?

THE CHAIR: Sure. That's fine. It's,

yeah, just before 10:30. So let's break to -- until 10:45.

MR. YEWCHUK: Thank you.

(ADJOURNMENT)

THE CHAIR: Okay. Please continue, Mr. Yewchuk.

Response to Undertakings by Benga Mining Limited

MR. IGNASIAK: Mr. Chair, it's Martin Ignasiak. Just on the issue of undertakings, Mr. Rudolph's prepared to respond to Undertaking Number 26. So he'll read a response into the record. And then after that, I'd like to just address one more outstanding undertaking.

THE CHAIR: Okay.

MR. IGNASIAK: Go ahead, Mr. Rudolph.

A MR. RUDOLPH: Mr. Chair, yesterday when I was talking with Mr. Fitch, I undertook to update haul road dust control efficiencies found in CIAR 70 at PDF page 41, in Table ECCC 12-1, entitled "EC Recommended Dust Control Efficiencies". The footnote to the table references a 2008 Environment Canada emission calculator, which I understood had been updated at the Environment Canada web page link to the Environment Canada 2009 Pits and Quarries Guidance website.

In testimony, I referenced dust control

efficiencies in the range of 50 to 95 percent that I read from this web page and stated these control efficiencies applied to haul roads. In fact, these control efficiencies apply to reduction of windblown emissions from open areas and stockpiles, not haul roads. The information in CIAR 70, Table ECCC 12-1 at PDF 41, for reporting haul road emissions to the National Pollutant Release Inventory remains current.

THE CHAIR: Okay. Thank you, Mr. Rudolph.

MR. IGNASIAK: So I think that completes that undertaking, Mr. Chair.

And then I just wanted to raise, when you went through the undertakings the other day, there's an outstanding undertaking from Dr. Rasouli regarding providing the reference to one of the dam failures he referred to. I'd just like to raise that, in our view, to the extent that he doesn't answer that by the close of the evidentiary period, which may be Tuesday, it should just be recorded as not responded to, but I'd ask that we be clear that it shouldn't delay the evidentiary record simply because he hasn't responded.

THE CHAIR: Okay.

MR. IGNASIAK: Thank you.

THE CHAIR: Thank you, Mr. Ignasiak.

Okay. Sorry. Back to you, Mr. Yewchuk.

Mr. Yewchuk Cross-examines Benga Mining Limited

Q MR. YEWCHUK: Did anyone on the expert panel look up "ecological trap" during the break?

THE CHAIR: I think that's a --

A MR. BARTLETT: I was going to say, I did hear from -- from a wildlife colleague, if that's necessary to provide that response.

Q MR. YEWCHUK: Sure. What is an ecological trap?

A An "ecological trap" would be another way of referring to habitat displacement of species from preferred or high-quality habitats to lower-quality habitats resulting from anthropogenic disturbances, which would affect wildlife in various ways.

Q Okay. Can I suggest to you instead that an "ecological trap" is a scenario in which rapid environmental change leads organisms to prefer to settle in poor-quality habitats? So it's actually that the change in habitat creates a situation where the animals attempt to return to a place that is no longer a good habitat?

A (NO VERBAL RESPONSE)

Q What would be the "trap" in your definition?

A I -- I can't really speak to whether there's a specific trap. Yeah, I'm just -- kind of just going off a little bit of information that's been provided, so I'm not able to address your question.

Q Thank you.

The Columbia spotted frog and western toad were valued components for the project assessment?

A MR. KANSAS: That's correct.

Q Western toad and Columbia -- Columbia spotted frogs require wetlands and fishless aquatic habitats for breeding?

A Correct.

Q Okay. Millennium concluded final project impacts on the western toad and Columbia spotted frog were not significant?

A Yes.

Q The frog and toad are wetland-dependent species?

A Yes. The Columbia frog -- spotted frog a little bit more dependent on water bodies than -- than toads, but they're both aquatic species.

Q Does the western toad have high breeding-site fidelity?

A Not as high as the Columbia spotted frog. They tend to disperse more, but they'll go where the habitat keeps them safe and -- and -- and warm, and that -- that's all.

Q Do you know if the management plan -- the Species at Risk Act management plan for the western toad says if they have high breeding-site fidelity?

A I have no reason to disbelieve that.

Q So the western toad does, and the Columbia spotted frog has even higher breeding-site fidelity, you said?

A That's right.
Q Did Millennium locate frog and toad breeding habitat on the project site?
A Yes.
Q Okay. Where is it?
A It's very scattered, first of all, distributed widely. It's in -- primarily in treed fens and shrubby fens.
Q Benga committed to pre-disturbance surveys to find those breeding sites; right?
A Yes, yes.
Q And Millennium's search consisted primarily of acoustic surveys?
A Yes. There was two -- two summers of -- of survey. 2014, they used acoustic primarily at 40 sites. And in 2016, they used a mix of acoustic and visual at 20 additional sites.
Q Did Millennium do acoustic surveys for the frog and toad all year?
A No. Just in May and June, when -- when they're actually calling.
Q Why are they only calling in only May and June?
A It's just their life -- life history.
Q Is that their breeding season?
A Yes.
Q Did you locate 11 amphibians in the 2014 search?
A 11 amphibians, you said?

Q Yeah. Is that how many you located?
A I think that's a little high. The first -- the -- in June, one call and six visuals is what I have.
Q Sorry, that was the entire 2014 search? You found seven amphibians?
A Yes. They're widely distributed, as I -- as I said. Their -- their habitat is -- is distributed widely.
Q Okay. And how many did you find in 2016?
A 2016, there was -- 6 of the 20 sites had -- had Columbia spotted frogs. And at one of the sites, there was 25 adult frogs at one site, and it was at the old historic mine lakes in the -- in the centre -- approximate centre of the study area.
Q Perfect.

Did Millennium consider that losses of effective habitat for western toad and Columbia spotted frog will be offset by reclamation and mitigation, which includes construction of wetlands?

A Yes. The first thing that has to happen with the Columbia spotted frog is -- is -- and the western toad, we need to salvage those -- those species when -- before the mining happens and move them into a -- a source area or a salvage area such that they're -- they're not -- they're not killed.

MR. YEWCHUK: Can we get Consultant Report Number 8, PDF page 282.

Q MR. YEWCHUK: And this will hopefully be a map of the wetlands showing the large patch of shrubby open fen.
A MR. KANSAS: Okay. And thank you for the aid to cross, by the way.
Q You're welcome.
And so when this map comes up -- but you might know already -- the large area of shrubby open fen abuts against old-growth forest?
A I -- I'm not familiar with -- with that old-growth forest, but I'll -- I'll take your word for it.
Q It's on PDF 277, if you want to double-check it, but that's okay.
A Okay.
Q And the -- the little blue spots in between the lime green and the orange, those are the historic pit lakes you were talking about; right?
A Yes. Could -- could the Zoom Master -- yeah. Thank you. You're a step ahead of me.
Yes, to the -- to the west, about a kilometre, is the three lakes, yeah.
Q And the lime green area is the large shrubby open fen?
A Yes.
Q Okay. Is that the largest wetland on the project site?
A That's a significant wetland, yes.
Q Is it the largest wetland?

A I think if you go south down to the -- the river, Crowsnest River, there's a -- maybe a bigger one, but it's -- it's a big -- big wetland, yes.
Q Let's scroll down here a little and check. I'm not seeing it.
A You're right. Yes.
Q Okay. That's a big one.
So those small ponds in the middle, those are actually in the legacy mine disturbance area; right?
A Yes.
Q And the small ponds have plant and amphibian life?
A Indeed, yes. They have a -- a 2-to 3-metre littoral zone of cattail around the edges, for the most part.
Q And those small ponds are where Benga found most of the amphibians during the site searches?
A That was a particular hot spot for -- for Columbia spotted frogs, western toads, and long-toed salamanders.
Q Are the small pond and the large shrubby open fen breeding wetland for the frog and toad?
A Yes.
Q Benga plans to replace the large shrubby open fen with the southeast surge pond?
A Yes. The -- my understanding is that in the conservation and reclamation plan, the -- the habitat that will be replaced is at -- and by creating new

wetlands is at the settlement ponds, where treed wetlands would be created.

Q And the set of small ponds are removed entirely by the project?

A Yes. But that's -- that's where it's especially important for us to salvage those -- those live animals and move them to somewhere, either on or off the property, to a safe place.

Q Okay. Was the large shrubby open fen within any of the amphibian detection zones for the amphibian surveys done in 2014 or 2016?

A No. I noticed that you said the -- the cross thing looked at -- aid to cross. I see that the -- notwithstanding the size of that wetland, that there -- there wasn't a -- a detection point -- a sampling point around that wetland. But the important thing for me is that it wasn't like we were trying to hide it. The -- you can see in our subsequent work in our habitat mapping that we identified that shrubby fen as -- as habitat, and it went through the whole process of -- of impact assessment from a negative point of view for the -- for the frogs, and so -- yeah.

Q Since --

A I don't know. I can't explain why it wasn't done. Might have been a dry -- a dry year. I'm -- I'm not sure.

MR. YEWCHUK: Let's get Aid to Cross 3 so we can see -- we can see what he's talking about.

Q MR. YEWCHUK: This is an overlay map I made by combining the -- the shrubby open fen area with the amphibian survey. And if you just zoom in on the little lime green dot -- or the lime green spot, those circles show the areas that were searched for amphibians. You didn't search the largest wetland on your project site?

A MR. KANSAS: Yes, you're -- you're correct.

Q And the shrubby open fen is the best-quality habitat for both the frog and toad in the mine permit boundary?

A I would say for breeding, it's the historical lakes. And the historical lakes, it's -- it's -- it's quite remarkable, actually, that these -- these toads -- it's a testament to their dispersal capabilities that they -- that they moved and found those ponds and are -- are thriving in them.

Q Why do you think the small ponds are a better habitat than the fen?

A Because it's more of an open-water situation with -- shrubby -- shrubby fens can be a -- a bit of an ecological trap themselves. If -- if they dry out, which they're more -- obviously have a greater tendency to dry out than those end-pit lake or pit lakes, the larva, before they sprout legs and can disperse, they

can -- they can be dried out by a -- a particularly dry -- dry year.

So I would say, all in all, even -- even if the shrubby fen is a natural ecological feature, sometimes manmade features provide as good or better habitat. And in this case -- you -- you brought it up yourself -- the breeding habitat, Columbia spotted frogs need semipermanent or permanent water bodies for -- for breeding.

Q Is there a little permanent water body in the middle of the fen?

A I see that there -- there is one, yes, but it's very, very small.

Q And you see it on the map; right?

A Yes.

Q Have you seen it in person?

A Yes.

Q Okay. Have you seen it during the frog and toad breeding season?

A No.

Q No. Okay.

The project involves removing 9.7 hectares of wetland?

A That sounds about right, yes.

Q That's a 57.2 percent loss of wetland habitat before mitigation?

A Yes.
Q And Benga plans to replace the lost wetland?
A Yes. With -- primarily with the -- at the sediment ponds in addition to, potentially, the end-pit lake, depending on -- on how that goes, yes.

And the other thing to -- to remember here is that amphibians, and specifically spotted frogs and western toads, are very readily -- very readily colonize created wetlands, constructed wetlands, as the -- the fact that they moved involuntarily into those wetlands where they're so, so abundant in the middle of the study area just west of the shrubby fen. But there's -- there's a high, high level of success, and quickly, if the habitat is right. But you've got to get the habitat right. You have to have an appropriate hydro period so the larva don't desiccate. But it's -- it's pretty clear that it's doable to create habitat for these -- these critters.

Q So the frogs and toads would be trying to get back onto the water features on the mine permit pretty quick?
A They -- they may, yes, and they'll do it in a -- in a way that they feel is safe.
Q Do frogs and toads do a lot of water quality testing?
A Not that I'm aware of.
Q Did Benga conclude the project will have a positive contribution to wetlands following planned reclamation

in the LSA?

A Mr. Yewchuk, could you repeat the question, please.

Q Did Benga conclude the project will have a positive contribution to wetlands following planned reclamation in the local study area?

A I would have to -- that's a wetland-specific question, and I don't know if Janet Bauman is still here, but I don't -- I don't personally know if that statement is true or not because I'm not a wetland specialist for this EIA.

Q Ms. Bauman, do you know offhand?

Is Ms. Bauman there? Mr. Houston or Bartlett, do you know?

A MR. BARTLETT: I believe so. And I can't state -- okay. Go ahead, Janet.

A MS. BAUMAN: Sorry. I'm just wondering if you could repeat the question. I didn't have my microphone down.

Q Did Benga conclude the project will have a positive contribution to wetlands following the planned reclamation in the local study area?

A I believe so.

Q Perfect. Thank you.

And to replace the wetland loss at the end of mine life, Benga adds 20 hectares of wetland, being 18.2 hectares of treed wetland and 1.8 hectares of

end-pit lake littoral zone?

A MR. KANSAS: Sounds right, yes.

Q Do the southeast surge pond, raw water pond, and northwest surge pond make up 13.6 of the 18.2 hectares of treed wetland at the end of mine life?

A I can't answer that. I would like some help from the team here. Maybe Mike.

A MR. BARTLETT: Those -- those would be the areas that will be slated to be wetlands at final closure.

Q Are there residual water quality issues impacting wetland function associated with the project?

A So the sedimentation ponds will be finished into treed wetlands, and once -- and at the conclusion of the selenium management plan for the surge and raw water ponds, there will not be an anticipated impact to water quality from selenium, and that's when those would be converted into treed wetlands as well.

Q And when will that be?

A MR. HOUSTON: Yeah. So I've -- I'd just add to what Mr. Bartlett said.

Mr. Kansas, can you turn off your microphone?

Just adding to what Mr. Bartlett said, that the -- as the water management plan progresses, we'll -- we'll remove the -- the surge ponds as -- as it becomes possible. We expect that -- that the reclamation of

those features will be progressive in the years after the mine is closed, depending on -- on need for maintaining those larger structures.

Q Mr. Kansas, a moment ago, you said that most of the new wetland would be sedimentation pond. Did you just realize this morning, as I've been talking to Mr. Bartlett, that it's mostly surge pond and raw water pond?

Mr. Kansas, sorry, your mic is off now.

A MR. KANSAS: I think I -- you know what? I'm one of the guys who said he works with computers.

Could you repeat the question? I'm sorry.

Q A moment ago, you told me most of the new wetland would be in the sedimentation ponds. But it looks like it's mostly surge pond and raw water pond. Was today the first time you realized that?

A Yes.

Q Okay. The end-pit lake has elevated selenium from 2042 to beyond the year 2090?

A I'm not a toxicologist. That will have to go to someone else.

Q Mr. Houston?

A MR. HOUSTON: Again, Mr. Yewchuk, Mr. Chair, we've -- we've used conservative inputs to -- to predict what the end-pit lake water quality may be. We expect that those modelling results will be informed as

we go through the project with actual data from the water treatment process and that that will inform the final design of the end-pit lake. So those are our early indications, Mr. Yewchuk, Mr. Chair, but certainly not the final word.

Q Water in the end-pit lake isn't treated in the saturated backfill zone before it gets into the end-pit lake, is it?

A No, it's not, and -- but I -- I -- in our reclamation -- conservation and reclamation plan, we've talked about various measures to reduce selenium uptake into the water that eventually flows into the end-pit lake. And, again, as we get further into the project, we'll -- we'll be able to refine those -- those designs and mitigations to reduce selenium concentrations in the end-pit lake.

Q The southeast surge pond, raw water pond, and northwest surge pond have elevated selenium, cobalt, and zinc?

A Yes, that's the prediction, yes.

Q Okay. The southeast surge pond has especially high selenium?

A Yes, it will have high selenium in it.

Q The southeast surge pond, raw water pond, northwest surge pond, and end-pit lake are all lentic systems?

A Yes.

Q Are amphibians sensitive to heavy metal contaminants?

A Yes.
Q Will the end-pit lake, southeast surge pond, raw water pond, and northwest surge pond be toxic to amphibians for an amount of time you cannot determine?
A We're just going to consult for a minute on this, Mr. Chair.

So, Mr. Chair, during the operation of the mine and operation of the water -- water treatment facilities, we -- we would put in place operational controls to limit the -- the persistence of wildlife around those features.

Q Sorry. Was the answer to the actual question "yes", though?
A Yes.
Q Perfect. Okay. I got the follow-up and missed the answer.

How are you keeping the frogs and ponds out of the surge ponds during mine life? And Mr. Bartlett might be the most suitable guy for this, I think, unless it's John Kansas.

A MR. BARTLETT: I don't know if it's me.

John, do you want to -- well, my understanding is it would be -- you can set up different wildlife deterrents, and I believe you can set up amphibian traps to prevent them from getting in there. But a little bit out of my expertise. It's just at a very

high level.

Mr. Kansas, can you speak to that?

A MR. KANSAS: I -- I would say that it would be necessary to have a salvage plan. I have not personally been involved in an amphibian salvage plan, so I can't speak with authority about that. But it seems to me there are -- I know there are specialists in that area, and Benga could consult those specialists to come up with an appropriate plan to -- to keep amphibians out of the -- those areas.

Q Does anybody on the panel have experience with these amphibian deterrent, amphibian trap hole plans?

A (NO VERBAL RESPONSE)

Q No. Okay. Hearing nothing.

In one of your documents, I found what appeared to be a discussion of building pitfall traps for them. Is that a thing you're considering doing? It's "amphibian pitfall traps".

A MR. KANSAS: That's a new term to me.

Q Addendum 6, PDF 69, please, on the bottom of the page, I'd like to look at this 'cause I'd like someone from Millennium to explain to me what that is.

A MR. BARTLETT: I'm aware of them from some of the work that I was part of a long time ago in Parks Canada. But, again, that's -- I'm at a very high level. I think really what those are -- are low-lying

depressions or -- or trenches or holes, and the amphibians will -- will get in there, and they're unable to get out, and then -- but that requires active management, and that would potentially be something that could be put in place during operations.

And, sorry, Ms. Court Reporter. It's Mike Bartlett speaking.

Q So you really are going to dig trap holes to catch frogs and toads?

A My understanding is that it's a -- it's a technique that's been used in scientific papers. And, again, Mr. Kansas will support that; some specialists in this -- in this matter could be brought on in addition to including other -- other measures, such as silt fencing and -- and other ways to keep the amphibians away from the -- the edges of the surge pond and the raw water pond.

Q Where will you put them if you catch them -- when you catch them, I guess?

A Well, I think those details would be defined in the -- in the mitigation and monitoring plan, but there would be -- the wetlands are -- yeah, I would think that would be identified further in the mitigation and monitoring plan to an appropriate equivalent habitat, whether it's in the Gold Creek drainage or the Blairmore Creek drainage or whether they could be

placed down into the larger wetland complexes down around the Crowsnest River.

Q So, Mr. Kansas, are the frogs and toads going to try to keep returning to their breeding ponds on the project site because of their fidelity to it as a breeding site?

A MR. KANSAS: I just -- it's a hard question to answer.

Q Does -- does --

A I -- I have not -- I have not seen a mine work through its entire life cycle and watched the amphibians, so I -- I really can't answer that question with authority.

Q Now, breeding-site fidelity means they try to come back to the same breeding site every year; correct?

A That's correct, yes. A lot of wildlife species have fidelity to their -- their maternal range, usually.

Q And there's some breeding sites for these frogs and toads in the project footprint?

A Yes.

Q And can Benga commit to monitoring and maintaining the amphibian trap holes and deterrents for as long as the metal and selenium levels in the surge ponds and raw water ponds (AUDIO FEED LOST)?

A MR. HOUSTON: I -- I would think, Mr. Yewchuk, that that would be dependent on whether

those -- those installations or those amphibian traps were -- were actually encountering amphibians, so I -- I think it would be a -- something that we would have to manage on a year-to-year basis, as the project goes forward and as we progressively reclaim those sites.

Q What about waterbirds? What keeps the waterbirds out of the surge ponds and the raw water pond?

A MR. KANSAS: Well, there's standard methodologies to prevent birds from getting themselves into trouble on industrial sites. Sometimes the simplest things are the best, just flagging tape on rope across the wetland, effigies, scarecrows. There's a wide range of pretty standard measures.

Q Okay. Can insects or amphibians that may get into the southeast surge pond travel from there as far as Gold Creek?

A My understanding from reviewing the literature is that dispersal distances are finite for -- for amphibians, around 6 to 8 kilometres for juvenile frogs -- spotted frogs. So that -- that's it for me.

Q So could they get from the southeast surge pond into Gold Creek?

A That's less than 6 to 8 kilometres, so, yes, they could.

Q And if there's any kind of insect life in the southeast surge pond, it might get as far as Gold Creek?

A It's possible. It seems that birds would be more of a vector for that than an amphibian.
Q And if those amphibians or insects from the southeast surge pond get as far as Gold Creek, anything that eats them will (INDISCERNIBLE)?
THE COURT REPORTER: I'm sorry, sir. Excuse me. You cut out. "Anything that eats them will"?
Q MR. YEWCHUK: Bioaccumulate the heavy metals from those amphibians and insects?
A MR. KANSAS: I'll have to ask Lindsey to comment.
A MS. MOONEY: Yes. If insects or invertebrates left the southeast surge pond and went to other habitats, they could be consumed by other forms of wildlife.
Q Does Benga materials include an assessment of the risk of that happening and what that would contribute in terms of metals and selenium to life in Gold Creek?
A The risk assessment was focused on habitats that will remain post closure. I think we've also discussed that amphibians with -- within the mine footprint during operations would be captured and moved to a -- a different location.
Q And then when you say "within mine operations", you mean within the time in which the surge pond needs to be monitored because it has high metals and selenium?

A MR. HOUSTON: That would be right, Mr. Yewchuk.

MR. YEWCHUK: And my last order of business. Can I get my Aid to Cross Number 3 marked as an exhibit, 'cause I think it's kind of useful?

THE CHAIR: Mr. Ignasiak, any concerns?

MR. IGNASIAK: No, sir.

THE CHAIR: Number, please, staff?

MS. UTTING: Mr. Chair, that would be CIAR 921.

THE CHAIR: Thank you.

EXHIBIT CIAR 921 - AQ#3 - CPAWS - SMALL AMPHIBIANS SEARCH WETLANDS OVERLAP - AIR AND WILDLIFE TOPICS

MR. YEWCHUK: And that is it. Thank you to the expert panel for answering my questions.

And thank you to Mr. Chairman for being a little bit lenient on my time. Thank you.

THE CHAIR: Okay. Thank you, Mr. Yewchuk.

Next up is the MD of Ranchlands.

Mr. Barata Cross-examines Benga Mining Limited

MR. BARATA: Good morning, Panel Members. Ryan Barata with Carscallen LLP. I'll be jumping in for Mr. Niven today. I don't have very many questions. My questions will be about 15 to 20 minutes, so I'll try and get through this as quickly as I can.

Q MR. BARATA: Mr. Houston, good morning.
A MR. HOUSTON: Good morning.
Q I think when you were originally discussing with Mr. Niven, we correctly established that the Grassy Mountain Coal Mine is going to be entirely within the MD of Ranchland; correct?
A That -- that's correct.
Q Okay. And you heard the MD councillors' evidence at the beginning of this proceeding; correct?
A Yes.
Q And you heard those councillors say that the main business in the MD is ranching; correct?
A Yes.
Q And you have -- you or no one on the Benga witness panel has any reason to dispute that statement; correct?
A No.
Q Okay. And, obviously, one of the key things needed for ranching are grazing lands; correct?
A Yes.
Q Okay. And I understand that the grazing lands in the MD of Ranchlands, those are made up primarily of -- sorry. The grazing lands in the -- yes, in the MD of Ranchlands are made up primarily of fescue grasslands; correct?
A So I -- I can't comment on that, but maybe Ms. Bauman

could -- could come in here.

A MS. BAUMAN: Hi. It's Janet Bauman speaking.

Could I get you to repeat the question, please?

Q I understand that the grazing lands in the MD of Ranchlands, those are made up primarily of fescue grasslands; is that correct, Ms. Bauman?

A There's a mixture of tame grasses on the lower elevations mixed with fescue -- or -- and fescue on the higher elevations.

Q Okay. But I think it's fair to say that there are grazing lands -- if we talk specifically about the local study area, there is grazing lands within that local study area; correct?

A Correct.

Q Okay. And, Mr. Houston, if I -- if I call those grazing lands "adjacent grazing lands", you will know what I mean; correct?

A MR. HOUSTON: Yes.

Q Okay. Thank you.

Now, I understand that one of the by-products of the coal mine will be dust; is that correct?

A We have mitigation plans to minimize dust. We have analyzed the -- the effects of dust. It's not a by-product. It's -- it's one of the effects we are -- are managing through our -- our mitigation program.

Q Okay. But the coal mine will produce some dust; correct?
A Primarily from the haul roads, yes.
Q Okay. And I know you said that there's going to be some mitigation plans to capture that dust, but, you know, Benga can't guarantee that every single speck of dust will be caught by those mitigation measures; correct?
A Not so much caught, but prevented in the first place. We've talked about watering roads, grading roads, perhaps putting other -- other sealants on -- on the roads to minimize the dust at the source.
Q Okay. And when you say "minimize" dust, you're saying that obviously some dust will leave, and it's not possible that Benga will be able to prevent every piece of dust or every speck of dust leaving the coal mine; correct?
A No. It's much like the roads in the MD of Ranchlands. When a truck drives down the road, dust is emitted. In our case, we have the luxury of having a confined site with defined roads and -- and the ability to, you know, have a watering program that keeps that dust down.
Q Okay. Again, some of that dust could leave the coal mine; correct?
A Yes. And we've modelled that.
Q Thank you.

And if that dust did leave the coal mine, it could get into these adjacent grazing lands; correct?

A Yes, it -- there -- there will be a certain amount of dust that drifts off-site, and, again, that's -- that's been modelled.

Q Okay. Did Benga ever do any testing on the effects that this dust might have on these adjacent grazing lands?

A You're -- you're wondering whether we've looked into the effects that dust may have had on the health of the adjacent vegetation; is that what I understand the question to be?

Q Yeah. Specifically I'm concerned about the grazing lands specifically, given that my client -- or the MD's main concern is how this would impact the ranching industry. So I'm specifically focusing on sort of these grazing lands which Ms. Bauman said was the -- was the fescue and I think she said it was the tame vegetation.

A So I'm going to start out and then let Ms. Bauman jump in here if she's got anything to add.

But the -- the dust, as I mentioned, is primarily from the haul roads and the vehicles travelling over those haul roads, so that -- that is the lion's share of the dust that we've been creating, and so it -- it wouldn't be unlike the gravel roads in the MD of

Ranchland in terms of its effect on the adjacent rangeland.

But I'll let Ms. Bauman jump in here to talk about any -- any more specific analysis that may have been done in that regard.

A MS. BAUMAN: Hi. It's Ms. Bauman here.

We looked at just general dust on vegetation. We didn't specifically assess dust on the grazing lands. And dust settles out relatively quickly or within a shorter distance of source due to settling on the vegetation. So it wouldn't be -- from the results of the air assessment, it -- it's not considered a -- a significant -- or not "significant"; that's the wrong term. Source of impact, I guess, on vegetation.

Q Okay. And, sorry, Ms. Bauman. I think you answered my question at the beginning. Are you saying that Benga and its -- Millennium didn't look specifically at the dust and the impact on the grazing lands specifically; is that what you said?

A Correct.

Q Thank you.

A Correct. Yeah.

Q Thank you, Ms. Bauman.

Now, this is an obvious question, but obviously these grazing lands need healthy soil; is that correct, Mr. Houston -- or Mr. Houston?

A MR. HOUSTON: Yes.
Q Okay. And I think it's fair to say if there was enough -- and maybe it's not fair to say this, but could we say that if there was enough coal dust, that could impact, say, the acidity levels of soils?
A Again, we -- we're anticipating that -- the lion's share of the dust to come from the haul roads in this case.
Q Okay. But that doesn't answer my question, sir. So if there was enough coal dust, that could impact the acidity levels of these soils; correct?
A I think it would depend on the acidity of the -- of the dust itself, and -- and I don't believe that we've determined there's a -- you know, a high acidity factor.
Q Okay. But acidity could change in soil; correct? That is something that could happen?
A I -- I can't really speak to that, Mr. Barata.
Q Can Ms. Bauman speak to that? Can she speak to the fact that acidity could -- or soil levels -- or soil acidity levels could change?
A MS. BAUMAN: Sorry. I've got too many things to click on here. It's Ms. Bauman speaking.
We assessed potential acid input and nitrogen deposition in the vegetation section -- or in the vegetation consultant report, Section 4.10, and --

Q Yeah. I believe that's CIAR 42, Consultant Report 7, PDF page --

A Consultant Report 8.

Q Oh, sorry, 8. I apologize. Yeah.

A PDF page 235.

MR. BARATA: Okay. Maybe we can get the Zoom host to bring that up, please.

A MS. BAUMAN: So in the application case, potential acid input is not likely to affect vegetation in the LSA or the RSA. And then the baseline soil survey and impact assessment report talks specifically -- more specifically, I think, about potential soil acidification. So it comes from the air quality, and then it goes -- then it's assessed through the soils and the vegetation. Plant -- there -- you see under -- if you go down to the next page, 4 point -- whoa. In the first paragraph, it says "due to the limited extent", kind of the middle of that paragraph: (as read)

> Due to the limited extent of plant communities with highly sensitive soils, the indirect impacts to plants with respect to potential soil acidification are considered negligible at the local and regional scale across all application assessment cases.

Q MR. BARATA: Okay. Okay. So maybe we'll

expand on that a little bit.

MR. BARATA: Zoom Host, can I please get you to go to CIAR 42, Consultant Report 7, PDF page 57, please.

Thank you.

Sorry. Scroll down a little bit, PDF -- or, Zoom Host. Perfect. There you go. Thank you.

Q MR. BARATA: Ms. Bauman, so I think this is a criteria for rating the sensitivity of mineral soils to acidic inputs; correct?

A MS. BAUMAN: I am not a soils expert, and I didn't -- this is not my work, so --

Q Can someone on the Benga witness panel speak to this table specifically?

A I believe that might be Dane -- Mr. McCoy. I think he's here today.

A MR. MCCOY: Mr. Barata, I can -- I can try. It's Dane McCoy here. But I -- I am not a soils person either, so ...

Q Okay. Well, we'll do our best here.

So it looks like that, you know, based on this, there was some consideration of acidification on certain types of soil within the local study area; is that correct?

A Yes, that's correct.

Q Okay. Did Benga ever do any testing on the effects on

pH levels for the adjacent grazing lands and the soil with those adjacent grazing lands?

A We would have done some -- some testing of -- of soil -- soils within the local study area and the -- and the regional study area. And so they would have a -- an understanding of what the pHs were, the -- the current pHs were or are, so ...

Q Okay. Okay. So let's maybe go through this table. So it looks like this table here at -- I believe it's at PDF page 59. It looks like there was various testing on certain types of soils; is that correct?

A Yes, that's my understanding.

MR. BARATA: Okay. Can we please get the Zoom host to go to PDF page 14 of this document, please? Thank you.

Q MR. BARATA: So near the bottom there, it says -- or Benga says that: (as read)

> Orthic Black Chernozems are typical under grasslands.

Do you see that, sir? It's about -- the last paragraph, about two-thirds of the way down.

A MR. MCCOY: I do, Mr. Barata, but now you're stretching my -- my ability. I can speak to what was done but not the technical details here.

I -- I would like to maybe draw -- draw your attention to the -- when -- when we're doing

sensitivities to sort of soil acidification stuff, we -- we largely are -- use information that's derived from our -- from our air modelling and our -- our dispersion modelling experts. And so I'm going to -- I -- I might actually call upon Mr. Rudolph to -- to, you know, help assist with -- with sort of soil acidification and maybe -- maybe dust and dust deposition as well, so ...

Q Okay. I don't know if Mr. Rudolph wants to chime in right now with regards to this, but I think we can -- we can establish from this that -- from a basic level, that Orthic Black Chernozem, that's a type of soil; correct?

A MS. BAUMAN: It's -- this is Ms. Bauman here. It's "Orthic Black Chernozems".

Q I apologize for the mispronunciation.

A Yes. They're common under grasslands.

MR. BARATA: Okay. And, Zoom Host, can we go to PDF page 24 of the same document?

Q MR. BARATA: And it looks like here we have a table with all the major soils within the local study area -- regional and local study area; is that correct?

A MS. BAUMAN: That -- that looks correct.

Q And if we scroll down a little bit, I'm going to be looking for the Orthic Black -- oh, sorry. Maybe let's

go back up. I'm just looking for the Orthic Black Chernozem. It would be one, two, three, four -- the sixth column there, I see the Orthic Black -- sorry, "Chernozem"; is that how you say it?

A "Cher", "Chernozem".

Q "Chernozem."

So it looks like the sixth column, we have the Orthic Black Chernozem. Do you see that, Ms. Bauman?

A The sixth row? Yes.

Q Yes, I believe it -- yeah.

And it looks like the code given to that is "PPEaa, PPEaaco." Do you see that?

A I see that, but I have no idea what that means. This is outside of my technical expertise. I am not a -- I'm not a soils expert.

Q Does anyone on the Benga witness panel -- can they speak to the coding for the soil names?

A MR. HOUSTON: No. We don't have a soils expert on this panel. That would have been the reclamation panel, perhaps.

Q Okay. Could anyone on the Benga witness panel speak to the fact of whether there was pH testing done on Orthic Black Chernozems? Does anyone on the Benga witness panel know about that?

A Apparently not.

Q Okay. Can we get an undertaking to find out with

whoever is the appropriate person to speak to to determine if there was any pH testing done on the Orthic Black Chernozems within the local study area?

A MR. BARTLETT: So, Mr. Barata, it's Mike Bartlett speaking.

I just want to make a comment here. If the questions are in regards to wildlife -- or cattle grazing within the MD of Ranchlands within the project footprint area, I just want to point out that the soils sampling for the LSA was within the footprint, and their RSA was the mine permit boundary. And Benga, as part of the land use agreements, have an agreement with a Gold Creek grazing co-op for the specific grazing leases within the mine permit boundary, which would indicate that, you know, there will be minimal, if any, grazing within the mine permit boundary during the time of the -- of the mining operations, and the -- any potential impact from dust really has been shown within the pit within the maximum point of impingement. So I'm just -- I just want to raise the point that the -- my understanding is some of the soil sampling has looked into the -- the type of samples that you've done, but I -- I do -- I want to put in some context that cattle grazing will not be occurring within the mine permit boundary during -- during operations.

Q And I understand that, Mr. Bartlett, but there will be

catting grazing going on within the LSA. That is happening, correct, within the adjacent grazing lands?

A So can you define the LSA in your -- in the context that you're bringing forward here?

Q The LSA would be -- I would believe it would be -- you know, I'm happy to bring up a map, but when I talk about the "LSA", when we talk with regards to vegetation, I would use the one that -- the definition within Consultant Report 8.

A Sure. So, yes, there will be grazing within that local study area.

I think, again -- and maybe Mr. Rudolph could speak to the potential dust deposition within that -- within that extent. Again, my understanding is that the maximum amount of dust deposition is really occurring at the mine haul roads and within the pit, so the maximum point of impingement is -- is a specific location within the pit.

Q Okay.

A So ...

Q Yeah. But right now, I'm specifically focusing on the Orthic Black Chernozems, and it sounds like nobody on the Benga witness panel can speak to soil testing and pH testing on that. So I'm just asking for an undertaking for Benga to determine if that testing was done within the LSA?

A I'm pretty sure it was. Okay.
A MR. HOUSTON: And when we talk about "the LSA", we're talking at the LSA for the soils work that was done as opposed to the LSA for the vegetation.
Q You're correct, Mr. Houston, yes. That was my mistake. You're right. So we're talking about the LSA with regards to soil.
A Okay. So, Mr. Chair, we'll -- we'll undertake to come back with that. I don't imagine it'll -- it'll take long.
THE CHAIR: Okay. Do we want to assign a number or wait until the end of the cross to see if you have an answer before then?
A MR. HOUSTON: Why don't we wait until the end of the cross and see if an answer pops up.
THE CHAIR: Okay.
Q MR. BARATA: Okay. Thank you.
So moving on, again, Mr. Houston, we agree that the Grassy Mountain Coal Mine -- that's entirely within the MD of Ranchland; correct?
A The coal mine itself, as we've --
Q Coal mine.
A MR. HOUSTON: -- discussed, yeah. The -- the rail loadout is not, yeah.
Q Yeah. And that's in the town -- or near the town of Blairmore; correct?

A Yeah.
Q The rail loadout?
A Yeah.
Q Okay. And the town of Blairmore, that's not within the MD of Ranchland. That's within the Municipal District of Crowsnest Pass; correct?
A That's right.
Q Okay. Is it fair to say that some portions of the MD of Ranchland -- that will be closer to the coal mine than, say, Blairmore is?
A To -- to the mine pit itself, yes.
Q Yes. Okay.
MR. BARATA: Sir, can we please go to -- or, Zoom Host, can we please go to CIAR 571, PDF page 14? Sorry. I'm just trying to get my bearings here. Sorry. PDF page 13. Can we go to 13, please?
Q MR. BARATA: Okay. So 3.5 -- so maybe I'll just back up. I understand that Benga has set up an air monitoring station near the town of Blairmore; correct?
A MR. HOUSTON: That is correct.
Q And that was set up in about 2019?
A Yes.
Q Okay.
A Mr. Rudolph, can you just confirm that?

A MR. RUDOLPH: Yes, 2019.
Q Okay. And looking at 3.5 here, it looks like -- that one of the reasons that -- that air monitoring station -- was because that was recommended by the Municipality of Crowsnest Pass; is that correct?
A MR. HOUSTON: Not -- not strictly speaking. We felt a need to gather more information about the air quality in terms of baseline information before the project starts, so we proactively took that step to install that air monitoring station.
Q Okay. Was the air monitoring station installed before or after the Municipality of Crowsnest Pass made that recommendation in 3.5?
A The recommendation in 3.5 was made in, I believe, August of -- no, sorry, September of this year, and it's more aimed at measuring air quality after the project is implemented.
Q Did Benga install any air monitoring stations within the MD of Ranchland?
A We have dust collection stations, for example, but, no, we haven't installed the same type of air monitoring station.
Q Thank you.
That is all my questions. I guess the last bit of business I have is, if there is not a response to that undertaking, to get an undertaking number.

A MR. BARTLETT: Ms. Bauman, do you want to speak to the PAI or the potential acid input from the vegetation assessment? Is that the appropriate area?

A MS. BAUMAN: Well, I had already had that up on the screen and read out from it that the: (as read)

> Due to the limited extent of plant communities with highly sensitive soils, the indirect impacts to plants with respect to potential soil acidification are considered negligible at the local and regional scale across all application assessment cases. PAI --

Q And I appreciate that.

A Yeah. (as read)

> PAI is not likely to affect vegetation within the LSA or RSA.

Q And I appreciate that, Ms. Bauman, but my question is a lot more simpler than that. I just want to know: Has there been pH testing done on the Orthic Black Chernozems? It doesn't seem like anyone on the Benga witness panel knows the answer to that, so that's why I've asked for an undertaking to get that information.

A So you're asking --

A MR. BARTLETT: Mr. Barata, it's Mike Bartlett.

Could I -- Zoom Host, I'm not sure if I've -- I believe we have. I would like if the Zoom host could bring us to Registry Document 42, Consultant Report 7, PDF page 144. We do have some information on this particular soil, and we do have readings of pH in Table A-2.

Q I guess we'll wait for the Zoom host to bring that up, please.

A Sure. I don't -- oh, that's something else. Sorry. Yeah. Okay. Did I give you -- yeah, there you go.

Q Okay. Mr. Bartlett, you'll have to guide me through here.

A I'll do my best.

Q As best you can.

A Yeah. So I guess this is the Chernozemic soils, BE -- BEVco soils that we've sampled. This is the information that we have on this particular soil. And then --

Q Yeah. Well, I see the subgroup. It says "Orthic Dark Brown Chernozem". I believe that's different than the Orthic Black Chernozems. Is that not correct?

A Orthic Dark Brown versus Black.

Q I believe those are two different -- yeah, I believe those are two different types of soil, so I don't know if this necessarily answers the question with respect to the Orthic Black Chernozem.

A Yeah. Fair enough.

A MS. BAUMAN: Mr. Barata, it's Janet Bauman here.

I think if the Zoom Host can go to PDF page 158 of that same document. Yeah.

Sorry, Mike.

Q Okay. Here we go. Okay.

A MR. BARTLETT: Yes. Thank you.

A MS. BAUMAN: So, yeah, on Table A30, there's the pHs of the three horizons for that PPEAA series and variants.

Q Okay. Okay. Okay. Well, I think those are all my questions, then. Thank you, panel members. And I thank you for your time this morning.

THE CHAIR: Okay. Thank you, Mr. Barata.

Zoom Host, you can take that down.

Ms. Janusz, if you only have a few questions, would you like to go before lunch, or would you prefer to go after lunch?

MS. JANUSZ: Good morning, Mr. Chair. I would prefer to go before lunch.

Q Okay. Please continue.

Ms. Janusz Cross-examines Benga Mining Limited

MS. JANUSZ: All right. Zoom Host, if I could have CIAR Number 86 and PDF page 168, please.

Oh, my goodness. I don't think this is the

document that I'm looking for. I'm looking for a transcript from about a week ago. I believe it's the 19th of -- of October -- sorry, November. Is this CIAR Number 876, Zoom Host? Oh, there we go. Perfect. And PDF page 168.

Q MS. JANUSZ: All right. So this question is for Mr. Houston. I'm just going to read from my own page because, yeah, I'm getting older, and I can't see so well.

Okay. So let's get back to the paragraph here. So the paragraph continues with the subsequent statement: (as read)

A pump station will send water from the reservoir and pipe it to the coal-processing plant modules for use --

THE COURT REPORTER: Excuse me. I need you to read slower, please. I can't understand you.

MS. JANUSZ: Sorry. Pardon me.

Q MS. JANUSZ: (as read)

A pump station will send water from the reservoir and pipe it to the coal-processing plant modules for use in the processing as well as other minor maintenance requirements.

So I asked Mr. Houston: (as read)

So could you please describe for me what these other minor maintenance requirements

are that will require water?

And Mr. Houston answered: (as read)

For instance, a wash bay to clean the equipment. So that -- that is something that we've committed to doing, and there will be a wash bay that's constructed alongside the coal-processing plant. So that would be a one -- another one is spreading water on -- on the roads to keep dust down, so that -- that is actually, you know, not an insignificant use of water.

And, of course, we have heard quite a bit about the -- the haul roads, et cetera, et cetera.

So, again, where are you planning, Mr. Houston, to get the water for the dust suppression, if it's not an insignificant amount?

A MR. HOUSTON: So that -- that -- that would be from the raw water pond. The raw water pond takes water from either the surge ponds or -- or elsewhere and maintains a balance of water for the operation of the plant.

Q And so why do you need a water licence for York Creek? Because --

A We --

Q -- of course, that is an application in these proceedings, is it not, an application for a water

transfer licence for York Creek?

A We are -- maybe -- Mr. McCoy, maybe I could have you hop in here and explain the -- the water -- the -- the fence-line water licence application.

A MR. MCCOY: Mr. Houston, that's fine.

Good morning, Ms. Janusz. It's Dane McCoy here.

I do recall having a conversation with you about -- about the licencing needs for the project, that the -- the water that will be used, like, the -- the withdrawal point for -- for the Grassy project is largely -- it's -- it's within the boundaries of the fence-line Water Act application that's been applied for. And more specifically, water will come from the -- from the raw water pond. The -- the -- the licencing needs, like, are different from -- from -- from where the withdrawal will actually occur.

So in -- in the project, as we've discussed before, the -- some of the water licencing needs will come from the -- the Devon water licence that -- that has been assigned -- or is in the process of being assigned to -- to Benga. Some of the water needs will come from the -- from the industrial allocation -- the new industrial allocation, and the remainder of the water licencing needs will come from a temporary transfer from the Municipality of Crowsnest Pass to Benga, and that temporary transfer will last for the

life of the project and is -- is needed to secure access to -- to -- to licenced water.

So it -- it's a -- it's different from the withdrawal point, but it is a -- we do, in fact, need to licence or have the water that we plan to use to be licenced.

Q No, I understand that you need a licence if you're going to be taking water out of York Creek, but what do you need that water for? If you already have water licences that are going to run with the land, i.e., with Devon having, you know, transferred, sold the property that we're speaking about to Benga, what do you need the water for from York Creek?

A So --

Q And I'm asking that as a resident of Crowsnest Pass.

A MR. HOUSTON: So, Ms. Janusz, we won't be taking any water from York Creek. We are using that licence because we will be using water -- or taking water from the watershed at the mine.

Q I put it to you, Mr. Houston, that corporations that are in the mining business need to acquire water licences to attract investors. Is that why you want the licence to York Creek?

A We require the water licence because of the project. It's required because of the project.

Q And -- and -- and the project -- the project will need

investors; yes?
A We have --
Q Corporations, that's what they do; they -- they hope that investors will invest in their business. And if you were considering which mining company to invest in, wouldn't you choose a mining company that has several water licences under its belt over one that doesn't? Mr. Houston, wouldn't you choose a company that has several water licences under its belt over one that doesn't?
A So, Ms. Janusz, we have regulatory requirement to have water licences that match the water use that is expected at the project, and that's -- that's exactly what we've -- we've done.
Q But I understand from questioning you last week and -- and other individuals that you -- even the Panel that Benga was committed -- at least, it has expressed a commitment to recycle and to conserve water?
A Exactly. And we -- we are serious about that, but, unfortunately, or the -- the fact of the matter is that recycling -- even though you recycle the water , it's still counted as water use. It's much like when a municipality takes water from a water body for -- for treatment and then uses drinking water. It returns water in the form of treated sewage to the river, but that's -- that's not deducted from the original

withdrawal. The recycling doesn't count towards the water licence required for the original use.

Q Well, you intend to recycle water so that you don't have to use as much. You don't have to draw so much out of -- out of other sources, such as -- such as York Creek; isn't that -- isn't that true?

A That -- that is true, and, unfortunately, the -- the accounting for water licences and what you require for a project doesn't always take that into account.

Q Okay. Now, when I cross-examined you, it was -- it was, indeed, November 19th. You mentioned when we were discussing water metering that you live outside of the city of Calgary; is that right?

A Yes.

Q Right. And so, therefore, it's outside of the hum of the city?

A Yes.

Q You agree that produces a -- a certain hum from traffic; air conditioning units; construction; and all kinds of equipment associated with the same; and -- and industry, such as Burnco. Wouldn't you agree with that?

A That -- that there is a level of noise in --

Q In --

A -- in the city of Calgary?

Q Yes.

A Yes. No. I -- I think it's well-recognized that urban -- urban sound levels are higher than rural sound levels.

Q Right. And do you recall very early in these proceedings that one of the participants, Monica Field, in her presentation some weeks ago, mentioned that she believed that the Grassy Mountain Coal operation would also give rise to a hum that would be heard in Crowsnest Pass by hikers and other people engaged in quiet forms of outdoor recreation. Do you recall that, that she made that statement?

A I -- I think I recall the statement, not word for word, but the -- the sentiment.

Q Right. And so there's been a lot of evidence in this topic block about noise and noise receptors, et cetera. But what about hum? What about this hum that Monica Field thought that we would be able to hear for miles and miles around? What do you say about that, Mr. Houston?

A So we've modelled noise levels in the area of the project. We've presented maps that show isopleths and -- and levels -- decibel levels of noise associated with that. So there is a -- a radius around the project where there will be low levels of noise, and we've compared those to the -- the regulatory requirements of the AER Directive 38, which is the

governing document for -- for noise for the project and -- and have concluded that -- that residences will -- will be at acceptable sound levels, and we've also identified the -- the distance from the -- the mine site that you will be able to hear noises at an appreciable level.

Q But you -- you yourself don't know for sure whether or not there won't be a hum that people will be able to hear, such as myself, for instance? I live about 7 kilometres from the mine. That I won't hear a hum all the time from the mine, you -- you can't assure me that I will not hear that hum?

A So, Ms. Janusz, if you live in Blairmore, I would think that the sound of the highway would be more -- more prominent or the sound of the railway, for example.

Q No. I live in Coleman, actually.

A But same -- same -- same statement, though.

MS. JANUSZ: Zoom Host, could I please have CIA -- CIAR Number 571, please, and go to PDF pages 15 to 16. And this is the response of Benga 's that was filed on October the 5th of -- of this year.

Again, it appears as though I'm not getting the right document. CIAR Number 571.

THE CHAIR: This does look like Benga's reply submission, if that's what you were looking for.

MS. JANUSZ: Oh, okay. Pardon me. Thank

you. Okay. So ...

A MR. HOUSTON: Perhaps if we went up just one page, you'd see this is --

Q MS. JANUSZ: Okay. Light management. No. This is -- this is what I want. I want light management. Okay.

And so this document speaks about the International Dark-Sky Association recommending the following Dark-Sky lighting principles: Basically: (as read)

Useful: All lights should have a clear purpose; Targeted: Should be directed only to where needed; Low Light Levels: Should not be brighter than necessary; Controlled: Should be used only when it is useful. [And then you have] Colour: Use warmer colour lights where possible.

Now, Benga committed to adopting these Dark-Sky lighting principles in their response to the hearing submissions filed by Brownlee on behalf of the Municipality of Crowsnest Pass; is that not correct?

A That is -- that is correct, Ms. Janusz. And basically these -- these principles really in -- concisely talked about many of the things that we had committed to piecemeal throughout our documentation.

Q But -- but basically, this was something that the

Municipality of Crowsnest Pass, through their counsel, Brownlee, had requested, and -- and I believe that they included that in their hearing submission filed on September the 21st, and then Benga filed this response, and basically said, Yes, this is where we're going to go, and we're -- we're committing to this. Does that basically not tell the story?

A Yes.

Q Okay. And what is the purpose of these principles, in -- in your opinion, Mr. Houston?

A The purpose is to preserve the darkness, I guess, is the best way to put it, to -- obviously, light -- and lighting is required, primarily for -- for safety purposes. And -- and -- and what these principles do is reduce, minimize, and -- well, reduce -- reduce the amount of light that is escaping and illuminating the things that don't need to be illuminated.

Q Okay. So what about the colour, where it says "use warmer coloured lights where possible"? Why would that be one of the dark-sky lighting principles? Do you have any idea?

A I -- I'm not an expert on light, but since we don't have an expert on light, I'll just make my own comment. My preference when I'm lighting my house is to have the yellower tones. I find them more natural and -- and easier on the eye than the -- the bright white light

that you can get from -- from some LED or other artificial lights. So I think the warmer tones are more -- for me, they're more natural, but that -- take -- take that for what it's worth. I'm not a lighting specialist.

Q Right. But did you not -- did you not state in your opening statement two days ago, Mr. Houston, that Benga will design project lighting with a view to minimizing outdoor light pollution?

A That -- that's correct.

Q Yes. Okay.

MS. JANUSZ: Zoom Host, if we could go to Aid to Cross Number 1. I have a -- a whole slew. There we go. And if -- if we could zoom in a bit, that would help. Perfect.

Q MS. JANUSZ: Okay. Now, when I requested that staff at the AER and the Agency produce this [sic] papers and aid to cross, I copied Mr. Ignasiak in my email. Have you had a chance to read it or scan it, Mr. Houston?

A MR. HOUSTON: I -- I've looked at it briefly, yes.

Q Okay. I'm just going to go ahead and read the first sentence of the abstract so that everybody knows where we're at: (as read)

Insects around the world are rapidly

declining. Concerns over what this loss means for food security and ecological communities have compelled a growing number of researchers to search for the key drivers behind the declines. Habitat loss, pesticide use, invasive species, and climate change all have likely played a role, but we posit here that artificial light at night, also known as "ALAN", is another important but often overlooked bringer of the insect apocalypse.

MS. JANUSZ: Now, if we can just go to Figure 1, which is -- perfect. Okay. All right.

Q MS. JANUSZ: So here we have Figure 1: (as read)

Both local sources of artificial light and diffuse sky glow could impact the physiology, behaviour, and fitness of insects. Positively photostatic insects, including macro-moths and beetles, exhibit a fatal attraction to ALAN.

So this is known as "fatal attraction".

And as I understand it from this article, if you have a light -- and we've known this for a long time. This is a fairly recent study from 2019. But I'm sure you've seen this, Mr. Houston, where a -- a bug will get attracted to a light bulb and will swirl around and

swirl around and swirl around, you know, fatally attracted to that -- to that light, and this can actually kill bugs. Were you aware of that before you took a look at this particular study?

A MR. HOUSTON: Yes.

Q Okay. Now, I'm going to go back to this, but first I want to ask Mr. Kansas a few questions in relation to the -- the decline of insects, if that's all right, Mr. John Kansas, if he's still around.

A MR. KANSAS: Certainly. I'm -- I'm not an entomologist by any means --

Q No?

A -- but I'll try my best.

Q No. For sure. And I think it's unfortunate, like, that there is no entomologist that has weighed in.

But you did speak yesterday to cross-examination by Ms. Okoye regarding the little brown myotis bat. You were speaking about roosting sites and about preserving remnant forest habitats. Do you remember that?

A I do.

Q Okay. And I'd like to ask about these forest patches and whether or not that would also contribute to insect declines. Like, bats eat insects; right?

A Yes. Almost entirely.

Q And -- I'm sorry?

A Almost entirely, yes.
Q Okay. So bats are very, very dependent on insects, yes.
And so what will happen when everything is cleared away and you have these patches? What's that going to do with -- for the insects and -- and for the bats?
A Sorry. These patches are, what, patches --
Q These -- these forest patches. When Ms. Okoye was -- was questioning yourself and Ms. Bauman the other day about roosting sites and about preserving remnant forest habitats, there was mention that patches would be left for connectivity. So this was basically a -- a -- a mitigation against clearing everything out. And so when I heard that -- and, of course, I knew that I was going to be bringing this up today -- I wondered what those patches would do as far as insects are concerned.
A These -- these patches are openings in the forest, you're saying?
Q Well, no. They're remnants. My understanding is that these patches were remnants of -- of -- of forest so that, you know, these -- this wildlife could -- could still -- excuse me -- could still thrive. And so I'm wondering, as far as the bats are concerned and the insects that they feed on, how are these insects going to thrive in these patches? Any idea? I realize

you're not an entomologist, but since this was a recommendation, I was thinking, Well, they must have thought this through.

A I -- I wish I could answer your question. I -- I still don't understand it. I'm -- I don't know why I -- I can't get it.

The --

Q Okay.

A Remnant patches, I remember speaking to those.

Q Of forest. Remnant patches of forest, yes?

A On the mine site?

Q That's correct.

A Okay. Well, it was my understanding that -- that it's not going to be easy to -- to -- because it's such a tight, smallish footprint, to -- to have a meaningful size patches of -- of -- of forest in the middle of the -- of the mine site. And perhaps Mr. Houston can expand on that.

A MR. HOUSTON: So, Ms. Janusz, I -- I think that the -- the buffers that we're planning to leave around Blairmore Creek and Gold Creek -- so we've planned generally 100-metre buffers off of those creeks that would be untouched, and those would be areas also around some of the ponds. There -- there would be patches of natural landscape left. And -- and so I -- I think when we were talking about bats, we were

talking about the forested areas, especially around the creeks and around some of the features where we can leave forested patches, that those would be areas where there would be insects thriving and that that would be -- and when Mr. Kansas was talking about the bats, we were talking about that being a -- a favoured area for -- for bats to be -- to be roosting.

Q Is -- is that correct, Mr. Kansas, that -- that you thought that the -- that the bats would favour the -- the buffer zones along Blairmore Creek?

A You're -- you're on mute.

A MR. KANSAS: Absolutely. I think you might recall Ms. Bauman and I talking about old balsam poplar trees with their gnarled-up bark and providing maternal roosting opportunities. An -- you know, an ideal bat habitat would be that kind of old-growth forest in close proximity to an open water body where the insects thrive, and they can hunt from their roosts. So, yes, you're -- you're correct.

Q And so what do you think about all the lights that are going to be on-site and -- and this study that -- that I just, you know, introduced in these proceedings regarding the -- the -- the connection between light and the decline in insects? Do you think that the light up at the mine -- and, again, I appreciate that you're not an entomologist, but do you have any reason

to -- to disbelieve that -- that these -- that the light up at the mine is -- is not going to affect the insects that are going to be favouring this buffer zone and, therefore, the -- the roosting bats?

A MR. HOUSTON: So maybe I can take this, Ms. Janusz. And this goes back to the reason for the Dark-Sky principles. So it says only put lights where you need them, and certainly we wouldn't be lighting up the buffer zones around Blairmore Creek, for example. We would keep the light in areas where it's required for -- for safety reasons, close -- closer to the operations, and -- and even then, we would use shielded lights so that it was focused on the work area and not -- and not emitting light into the -- into the atmosphere.

So -- and we appreciate that even a small amount of light can have some effect, but we hope to minimize that by reducing the number of lights, by reducing -- by ensuring that they're shielded and focused and the other recommendations of the Dark-Sky Society.

Q Right. Right. So getting back to the colour.

MS. JANUSZ: Zoom Host, do you think that we could scroll down now to page 5 of this document to "Recommendations".

Q MS. JANUSZ: That: (as read)

Long wavelength light (amber or red) tends to

1 induce relatively low levels of
2 flight-to-light behaviour across insect
3 groups and has the least suppressive effect
4 on melatonin production.
5 Now, again, Mr. Houston, you don't have any reason to
6 doubt this particular study that -- that light can have
7 an effect on insects?
8 A MR. HOUSTON: No, but I -- I believe you've
9 just educated me why -- why warm lights are better. It
10 seems like the warm -- warmer lights -- i.e., the ones
11 closer to the red end of the spectrum -- apparently
12 have less impact on the insects. So I -- I have
13 learned something here.
14 Q Okay. And so this would be another commitment -- is
15 that right -- on your part, that you would basically
16 source out a type of -- of light bulbs that, you know,
17 are -- are amber in colour, so to speak, are -- are
18 warmer; is that -- is that right?
19 A That is the commitment we've made to follow the
20 Dark-Sky guidelines, and that's one of them.
21 Q Okay. Now, are you aware how complicated lighting has
22 become over the past decade?
23 A It's become complicated, but also it's become simpler.
24 There's a lot of technology around lighting that is
25 helpful. We've got -- especially with the LED
26 lighting, we've got a lot more ability to select

lighting wavelength, for example, lighting colour than we used to have and -- and certainly the ability to focus it more finely. So there -- there's a lot of advancements that are helpful to -- in -- in this respect.

Q Right. Would you be surprised if I told you that over the past ten years, we've received -- you might recall that my better half is an electrician, and I'm involved administratively in -- in the business. We've received so many recall notices from the various electrical publications that we subscribe to online that if I printed them all off, it would probably fill this binder with -- with paper.

A I -- I guess I have no comment on that. I -- I can't -- I can't comment.

Q I put it to you that all of these commitments with respect to spraying weeds at the right time because of climate change, installing all of these -- these lights, et cetera, so that -- you're -- you're committing, as the Municipality of Crowsnest Pass wants Benga to do, to the Dark-Sky principles, that these are all very complicated and very expensive because you would need to hire all kinds of people that could be spending from now till -- I don't know -- I guess, Easter figuring out what are the best products?

A I expect that some of the 400 people we're going to

employ in this project will -- will keep an eye on the lights and the weeds. That's -- that's -- that's what drives the employment numbers.

Q But I put it to you, Mr. Houston, that people today are less tolerant of dust, the health hazards, all kinds of -- of declines in -- in -- in wildlife extinctions, et cetera, and so that if you want to live up to these commitments, we're not talking about hiring people -- or you're not -- basically, you're not going to be hiring people that, you know, have the expertise to figure out how to navigate all of this, that -- that -- you know, the 400 people that you intend to -- to hire are going to be constructing the mine, and -- and these people do not have the skill sets that -- that -- that -- that I'm taking this discussion -- this -- this is the path I'm taking the discussion on?

A I -- I disagree, Ms. Janusz. We're going to hire people who are -- whose job will be to manage weeds, for example, or -- or to work on reclamation. We're going to hire engineers that are going to have abilities to design lighting systems. So I -- I -- I disagree with you. Those are the kinds of people that will be working on this project.

MS. JANUSZ: If I could have this document entered as an exhibit, please.

THE CHAIR: Mr. Ignasiak, any concerns?

MR. IGNASIAK: No, sir.
THE CHAIR: Okay. Ms. Janusz, just a question about this document first. So it's a relatively recent or current publication, and the secretariat staff tell me that for us to post it on the registry, we would need a licence; we can't just distribute it. So I just had a --
MS. JANUSZ: I see.
THE CHAIR: I just had a question. Would it --
MS. JANUSZ: Sure.
THE CHAIR: Would it be sufficient -- given that you read parts of the document that I thought -- I think you thought were important, and we discussed them, would it be sufficient to just post the abstract?
MS. JANUSZ: Sure. That's -- that's fine with me.
THE CHAIR: Okay.
MS. JANUSZ: Absolutely. Yeah.
THE CHAIR: Okay.
MS. JANUSZ: I didn't -- I didn't realize that. As an author, maybe I should have, and my apologies.
THE CHAIR: Yeah. No worries.
MS. JANUSZ: Okay.

THE CHAIR: Okay. Thank you, Ms. Janusz.
MS. JANUSZ: Okay.
THE CHAIR: Oh, and so let's get a number for the abstract.
MS. UTTING: Mr. Chair, that would be CIAR 922.
THE CHAIR: Thank you.
EXHIBIT CIAR 922 - AQ #1 - JANUSZ - 1-S2.0-S0006320719307797-MAIN - AIR AND WILDLIFE TOPIC
MS. JANUSZ: All right. So we can take this down.
Q MS. JANUSZ: But, Mr. Houston, I just wanted to mention that the authors of this study on Elan and -- or Elan and insect declines, they concede that the development of the type of lighting that they're recommending that would mitigate fatal attraction is still a few years off; it's -- it -- this is -- this is new technology.
And when that technology comes onstream, the adoption by Benga of those types of light bulbs would be an example of adaptive management; wouldn't you agree with that?
A MR. HOUSTON: I -- I --
Q Assuming you're going to be committing to this. This -- this would be an example of adaptive

management?
A We're going to follow the technology, Ms. Janusz. We've -- we've committed to following the Dark-Sky guidelines, which is the current thinking, but certainly we'll -- we'll follow the -- the advances in this area, and if there's a significant benefit to be gained by -- by upgrading, let's say, then that's something we would consider.
Q Right. And by doing so, you would be, basically, exercising a policy of -- of corporate social responsibility? You understand that term; right?
A Yes, of course.
Q Right. And do you know the difference between "social corporate obligation" and "social corporate responsibility"?
A I -- I think I'm going to have to have you enlighten me on that, Ms. Janusz.
Q Okay. In a nutshell, corporate social obligation entails following the law without more, whereas corporate social responsibility goes beyond that, is governed by ethics, adopting best practices, basically taking into consideration all the different stakeholders of a corporation, not just strictly the -- the shareholders.
A Yes , I -- I understand that corporal -- "corporate social responsibility" definition.

Q Right. And -- but then there's a social -- there's the social corporate obligation, which is basically just following the laws, and that's it.

A Yes, I understand the distinction.

Q Okay. And I put it to you, Mr. Houston, that there's an inconsistency in the type of policy that Benga is pursuing in its application for approval of this project. Sometimes you make commitments that are aligned with best practices, corporate social responsibility, and other times, you take a very hardline approach that, basically, I would categorize or characterize as corporate social obligations, such as, you know, reclamation liability, AER directives on noise, things like that, that there's really no consistency in -- in -- in the policy that you're pursuing, at least how you've been expressing it in this hearing.

A Well, certainly we use the guidelines and the standards that are -- are out there and supported by science and by government regulation as guideposts to help -- help us determine whether our project is -- is generally acceptable.

At the same time, Ms. Janusz, I -- I think we would like to be seen as a good neighbour in -- in -- in the region, and we would like to be seen as -- as a company that respects the opinions and the thoughts of

the -- the people in the community; after all, our employees are going to be a good chunk of the people in the community. So I -- I think that's just good business.

Q For instance, in your opening statement: (as read)

> Benga will pursue additional greenhouse gas emission reductions associated with rail and marine transport by requesting Canadian Pacific Railway to dedicate its lowest emitting units to the project and encouraging the marine contractor to use large fuel-efficient vehicles.

Are you serious? Are you really going to be doing that? Aside from -- from offsetting -- setting up -- I don't know what they're called -- bat houses, you know, like, birdhouses, off -- building the mine and -- and -- and -- and this is the kind of commitment that you're making? I mean, to me, it -- it just doesn't seem feasible.

A So we don't control Canadian Pacific Railway. We can't -- we can't, you know, tell them what to do or how to run their operation, but we can suggest to them, you know, ways that they can align with our aspirations for greenhouse gas emissions.

Q So you really think that people are going to believe that Benga's going to be pursuing these additional

greenhouse gas emission reductions by -- I guess the word, perhaps, I should be using is "lobbying", which is -- which is something that -- that -- that -- that Benga's already involved in as far as the Water Act is concerned?

A So I don't know that -- if I understand the -- the genesis of that.

Q That you will be lobbying CPR and -- and -- and the marine contractor? You know, this is -- this is where it's at.

A These -- these are partners -- commercial partners of ours and -- that are -- have a role in delivering this coal to market, and so we -- we do have some -- some leverage there, but, of course, we can't insist or -- or direct our partners how to run their part of the business. So, yeah, it will be encouragement, let's say.

Q Thank you, Mr. Houston. I have nothing further.

MS. JANUSZ: Thank you, Mr. Chair and -- and Panel Members.

THE CHAIR: Thank you, Ms. Janusz.

Okay. We'll take our lunch break now. It's a little past 12:30, so let's resume at 1:20, and then it will be secretariat and Panel questions.

PROCEEDINGS ADJOURNED UNTIL 1:20 PM

Proceedings Taken via Remote Video

November 27, 2020 Afternoon Session

A. Bolton	The Chair
D. O'Gorman	Hearing Commissioner
H. Matthews	Hearing Commissioner
M. LaCasse	AER Counsel
B. Kapel Holden	AER Counsel
K. Lambrecht, QC	Joint Review Panel Secretariat Counsel
T. Utting	IAAC Staff
E. Arruda	AER Staff
D. Campbell	AER Staff
T. Turner	AER Staff
T. Wheaton	AER Staff
A. Shukalkina	AER Staff
M. Ignasiak C. Brinker	For Benga Mining Limited
R. Warden T. Howard	For Ktunaxa Nation

K. Poitras	For Métis Nation of Alberta Region 3
Chief B. Cote	For Shuswap Indian Band
B. Snow	For Stoney Nakoda Nations
R. Drummond S. McHugh	For Government of Canada
A. Gulamhusein	For Municipality of Crowsnest Pass
M. Niven, QC R. Barata J. Nijjer	For MD of Ranchland No. 66
B. McGillivray	For Town of Pincher Creek
D. Yewchuk	For Canadian Parks and Wilderness Society, Southern Alberta Chapter
R. Secord I. Okoye	For Coalition of Alberta Wilderness Association, Grassy Mountain Group, Berdina Farms

		Ltd., Donkersgoed Feeder Limited, Sun Cured Alfalfa Cubes Inc., and Vern Emard
	R. Cooke	For Crowsnest Conservation Society
	G. Fitch, QC C. Agudelo	For Livingstone Landowners Group
	M. Sawyer	For Timberwolf Wilderness Society and Mike Judd
	(No Counsel)	For Barbara Janusz
	(No Counsel)	For Jim Rennie
	S. Elmeligi A. Morehouse S. Milligan M. Boyce	For Alberta Chapter of the Wildlife Society and the Canadian Section of the Wilderness Society
	J. Gourlay-Vallance	For Eco-Elders for Climate Action
	L. Peterson	For Trout Unlimited Canada

R. Campbell	For Coal Association of Canada
(No Counsel)	For Alistair Des Moulins
(No Counsel)	For David McIntyre
(No Counsel)	For Fred Bradley
(No Counsel)	For Gail Des Moulins
(No Counsel)	For Ken Allred
(Not Present)	
(No Counsel)	For Monica Field
S. Frank	For Oldman Watershed Council
A. Hurly	
A. Porco, CSR(A)	Official Court Reporter

(PROCEEDINGS COMMENCED AT 1:21 PM)

THE CHAIR: Okay. Welcome back, everybody. We're going to turn to secretariat questions next.

Ms. LaCasse or Ms. Kapel Holden, do you have questions for this panel?

MS. LACASSE: I do. I'm going to go first.
GARY HOUSTON, MIKE BARTLETT, RANDY RUDOLPH,
JANET BAUMAN, DANE MCCOY, Previously Affirmed
STEVE BILAWCHUK, IAN MITCHELL, JOHN KANSAS, LINDSEY
MOONEY, Previously Affirmed
(Dust, air quality, greenhouse gas emissions, noise,
and light; wildlife, including migratory birds and
species at risk, wildlife health, and human health risk
assessment)
Alberta Energy Regulator Staff Questions Benga Mining
Limited
Q MS. LACASSE: Good afternoon, panel. I'm
Meighan LaCasse, AER counsel to the Joint Review Panel,
and I'm going to ask you some questions prepared by AER
staff under the supervision of the Panel.
MS. LACASSE: If I could please have pulled
up CIAR 360, and could you please go to page 85 --
PDF 85.
Q MS. LACASSE: So this is Benga's summary of
project air quality mitigations and commitments. Benga
states at Item Number 2 of this page, in the third
column, that it will investigate alternative ammonia
nitrate fuel oil, or ANFO, formulations that reduce
nitrogen oxide emissions during blasting.
My first question from staff for you is whether
Benga has made any progress in evaluating alternative

ANFO formations?

A MR. HOUSTON: I'm sorry. We don't have our mining expert, Mr. Youl, on -- on the panel, Ms. LaCasse. I -- I can't really speak to that, but I -- I -- I can say, in discussions with Mr. Youl, that in addition to different formulations, the technology around blasting and especially in terms of minimizing blast load and -- and capturing any residue is -- is changing rapidly, and -- and -- but I -- I can't really speak to this particular topic.

Q So I'm going to assume, then, that you won't be able to tell my air quality specialist the magnitude of nitrogen oxide emission reductions Benga might get with an alternative ANFO formulation?

A Magnitude, no, and directionally, I would say it -- even using ANFO, being able to tailor the blasts and focus them is -- is going to also help to reduce any emissions, but I can't -- I can't give you any quantitative information there.

Q Okay. Just let me just check with what my guy wants to do with that.

A I -- I can add, Ms. LaCasse, that in terms of progress to date, there wouldn't be anything to report.

Q Okay. I can tell you that the AER has been thinking about, with the Panel, a possible approval condition to require Benga to develop and implement an ANFO blasting

management plan which would include but not be limited to: Blasting emissions, control practices and their anticipated effectiveness, a study program to evaluate alternative formulations of ANFO to reduce blasting emissions, and quantitative meteorological criteria and thresholds to determine when and where blasting can take place. And just to be clear, in case my wording didn't indicate that, this is just a possible approval condition.

Do you have any view on such a condition?

A It's always been our intention, Ms. LaCasse, to have a blasting management plan for the project. When you get down to the specifics of some of those requirements, I'm sure that our blasting management -- our intended blasting management plan would cover off the vast majority of them, but, you know, the devil's in the details in these things.

Q Are you able to tell me how Benga would engage with stakeholders in the development of a blasting management plan?

A So as -- as you know, we've committed to develop a -- a -- if you will, a community committee in cooperation with the Municipality of Crowsnest Pass. I would think that the issues that concern the community are already evident and -- in terms of noise levels, sound, vibrations, and so those -- those would all be things

that we would be including in a blasting management plan, and -- and a communications plan with the community.

Q Okay.

A I -- I should add, just through that committee, we'd be looking at feedback -- looking for feedback on -- on proposed procedures.

Q Okay. Thank you.

So continuing with this Table 2-2, under the same column, "Description of the Mitigation or Commitment", at Point 1, Benga states: (as read)

> Benga's heavy-duty mine equipment and fleet will be equipped with TIER 4 engines.

So my first question is just to clarify: When you refer to "TIER 4 engines", you're referring to TIER 4 engines as they're referred to in the Canadian "Off-Road Compression-Ignition Engine Emission Regulations" and the guidance document associated with that?

A That's right. I think the TIER 4 is actually an EPA, but it's -- an EPA description, but I -- I think it's carried over directly into the Canadian guidelines.

Q Yes. That's what I'm told by my staff. Thank you.

Now, for a real question: Does Benga commit in its mobile mine fleet procurement to acquiring mobile mine fleet equipment that meets TIER 4 standards?

A Yes, we've made that commitment.
Q Thank you.
And so Benga wouldn't have any concerns with an approval condition requiring them to -- that would require mine mobile equipment that met those standards?
A No, that's correct.
Q Thank you.
Okay. So I'd like to refer to the transcript from November 2nd, and maybe we should get it pulled up so you can see exactly what Mr. Youl said.
MS. LACASSE: So that's CIAR 771. Thank you. And I'm looking for -- and I hope the numbering I've got is okay -- page 227 or PDF 227 out of 308. And I'll just see -- yeah, 1151. That's the right page.
Q MS. LACASSE: So starting on line 16, Benga started to respond to questioning relating to the use of electric mine mobile equipment, and Mr. Youl states that: (as read)
The area that requires a bit more analysis is the operation of the excavators. And in some of the larger open-cut coal mines around the world, electric-powered excavators are quite common.
He then goes on to state that this equipment relies on large cables, and due to the project's number of mining

phases and size of benches, the cables couldn't be moved efficiently.

Is Benga aware of the Teck Coal mines in Elk Valley using electric excavators?

A MR. HOUSTON: I'm -- I'm not, and I have never discussed that with Mr. Youl, so I -- no, I'm -- I'm not aware.

MS. LACASSE: Okay. If we could go back to -- no, not back, but to CIAR 42, Consultant Report Number 1. And I'd like PDF 198, please. Are you able to pull up that document?

A MR. HOUSTON: I sense you're going to ask a question for Mr. Rudolph, but just while he's thinking about this, I notice in my version that this table has been superseded.

Q MS. LACASSE: Okay. I don't know if that will really matter.

A Okay.

Q It's more about the listed equipment, I think, but let me just check, Mr. Houston. Yeah, I was right. We just want to focus on the list rather than the numbers.

A Okay.

Q Okay. So if Benga determines that using electric-powered excavation equipment is viable for the project, which excavation equipment would be considered for electrification, having regard for this list of

equipment?
A So, again, it would be helpful to have Mr. Youl be in on this, but I would expect it would be the -- the larger backhoes that we'd be looking at, so the -- the first two pieces of equipment that are listed there.
Q All right. If electric excavators were to be used -- and you've indicated the backhoes would be a possibility -- what would be the resulting net emission reductions? And we're looking for an estimate, of course, nothing precise.
A So I am not sure. The emission of NOx, is that what we're talking about, or the emission of greenhouse gases?
Q Primarily NOx.
A Mr. Rudolph, are you able to weigh in on this?
A MR. RUDOLPH: Poorly, I think.
Perhaps if we just scroll, you know, relatively slowly to the bottom of the table. We haven't done that calculation, and it would have to be a very quick eyeball here. Are there -- that's the train loadout. Is this the entire table? It appears to be.
A MR. HOUSTON: But -- this is a table of the types of equipment, but the numbers of each are not on this table.
Q So, you know, I'm sure nobody wants more undertakings at this stage, but if you're able to undertake to

provide that, I don't have to have an answer this minute. I guess I'll leave it up to you to decide how you want to handle it.

A MR. RUDOLPH: I'm sure we have numbers elsewhere in this -- in this appendix, and if you can give me a few minutes to find that for you, I can provide that during questioning of Mr. Houston.

Q So I'll just move on with my next question --

A Please.

Q -- or -- okay. Thank you, Mr. Rudolph.

A possible approval condition would require Benga to develop and implement a mine mobile equipment emissions management plan which would include but not be limited to: Feasibility study to evaluate and implement the use of electric and/or autonomous mine mobile equipment, emission control technology maintenance program, development and implementation of a retrofit and replacement plan and schedule, and detailed inventory of mine mobile equipment.

Does Benga have any comment on such a condition?

A MR. HOUSTON: Again, most of that would have been included in -- in a mine maintenance and management plan that is being developed. And, once again, the devil's in the details, but we -- we would be -- at a high level, we would be preparing that kind of plan.

Q Okay. Thank you.

So if we could go to Section C now of CIAR 42 and PDF 84. So nothing specific on this page. I guess we could go down to 85. But starting on 84, you provide an overview of operations within the coal handling and processing plant, or CHPP, and specifically the coal-processing plant. And then on 85, you state that: (as read)

> A ventilation system will be installed inside the PPP, which will provide 0.5 air changes per hour to ensure adequate air quality for personnel working inside the building on a continuous basis. The ventilation system will also be used during hotter ambient temperatures to provide airflow and keep the CPP temperature down to an acceptable level.

MS. LACASSE: If we then go to CIAR 42, Consultant Report 1, and PDF 38. Yeah. Thank you.

And I'm looking for Table 4.2-1. Right. That's it.

Q MS. LACASSE: And so this table provides a summary of project dust emission sources that was incorporated into the air modelling assessment. If you look under "Plant", it indicates that the CHPP and, consequently, the CPP within it are omitted as a modelled area source.

A MR. HOUSTON: Yes, I see that.
Q Okay. Could you provide an explanation for why Benga chose not to estimate and incorporate vented dust emissions from the coal-processing plant?
A As a -- as a design parameter, there would be filters on that kind of a system to eliminate dust.
Q Thank you, Mr. Houston. Just one moment.
So is Benga confident this would completely mitigate dust?
A Mitigate it to a level where it's not significant compared to the other dust sources.
Q And so Benga's committing to using the filters and the vents?
A Yes. If -- if dust emissions from the CHPP become an issue, then there will be a system to remove the dust in -- in the venting system.
Q So that would only happen if -- if the dust becomes an issue, as you described it, or would it be set up from the outset?
A So I think that -- to -- to be sure, I'm not clear on the design details around how this would be done, whether it would be done from the outset or if it would be done as a -- you know, a contingency plan. To be honest, if people are working in the building, there -- there can't be a high level of dust inside the building. The -- the -- the cladding on the building

primarily is to prevent wind from passing across that area. We're really not expecting to have a lot of dust in the CHPP as -- as most of the -- all the processes, in fact, are wet processes. So it -- it's really not an area where there's going to be a high dust generation. So I -- I think the installation of a filter would be on an as-required basis.

Q Okay. Good. He's happy with that answer.

In CIAR 42, Section E, in PDF 29, Benga discusses: (as read)

Project total suspended particulate modelling predictions.

And that's in the second paragraph, the last sentence, and it states: (as read)

If the mitigative effects of vegetation had also been applied, the concentrations would have been reduced further by amounts ranging from 25 percent to a factor of 4, depending on the vegetation cover.

In CIAR 42, Consultant Report Number 1, at PDF 196, Benga indicates in Table A4-6 -- and I'll give -- oh, Tammy 's got that pulled up already. Benga indicates that: (as read)

Vegetation cover in model assessments can typically apply a discount factor of 4 to account for the inability of models to

account for dust collection vegetation. And that's sort of second-from-the-bottom cell, third column, that says that.

Is Benga able to explain why it chose not to incorporate the vegetative effects into the project modelling assessments?

A Mr. Rudolph, are you able to talk to that?

A MR. RUDOLPH: Yes, I can.

Ms. LaCasse, it's not a routinely applied factor. Some of our recent work in this area has indicated that the -- the models that we -- the regulatory models that we use don't reach the same dust reduction potential in vegetation as field studies indicate. In fact, our -- our -- our modelling -- and this has been more in the -- the mines in -- in Central Alberta -- has indicated that our predictions don't reach expected levels until about 10 kilometres into the bush, and we don't believe that that's a -- a reasonable distance in this case. All of the literature that we have access to and that we've documented in the -- in this section suggests that we reduce concentrations in vegetation -- the forested vegetation that we have in the area within, you know, a kilometre or two at -- at the most. So we haven't applied that reduction factor. Even though we believe that some -- some of that is going to be applicable in this case, we haven't applied it

because it's not a typical approach in Alberta.
Q Okay. Mr. Rudolph, if you had applied it, how would this have impacted the air assessment conclusions?
A They probably wouldn't have changed dramatically. I think we -- we believe that we would not have predicted exceedances of the larger dust sizes TSP and PM 10 beyond the mine pit boundary as we did in this -- in our modelling to date. But otherwise, the conclusions would not have changed.
Q Thank you.

Just a moment, please.

Mr. Rudolph, are you able to tell us if this vegetation cover mitigation factor accounts for the complex topography surrounding the mine? And, for example, is the mitigation as effective where the terrain is sloping down?
A Yes, I believe it would be 'cause, in general, the winds would follow the terrain.
Q So the mitigation factor does account for the topography?
A Well, the -- the factor of 4 would typically do that, yes. I think we're -- we're suggesting in this case that that's probably not appropriate for the kind of terrain and vegetation that we have in the area, that that would be a -- certainly an overestimate.
Q Okay. Thank you.

A And, Ms. LaCasse, I can -- I can offer some of the information you asked on the mine fleet. And I've forgotten the second -- the second equipment type that you asked for, but we do have two backhoe -- two of the large backhoes at the mine face and one at the wrong [sic] pile. I don't know if Mr. Houston can say which of those would be electrified; potentially all three of them, I would think.

Q Okay.

A So if that's the case, I -- I believe that the overall NOx emission potential from electrification is probably relatively small. I would say less than 10 percent, but subject to going back and doing the detailed math.

Q Let me just check and see if my fellow has anything further on that.

Is that 10 percent of overall project emissions?

A I think our largest emissions are still going to be the -- the mine fleet. 10 percent would be, I would believe, an upper limit, and that might be an overestimate of the reduction potential.

Q Okay. I think we're good with that. Thank you.

A Thanks.

MS. LACASSE: So if we could go back to CIAR 360, and we're back to Table 2-1, but this time on PDF 86, please. Can you blow that up a little bit, please? No. Okay. That's good. As long as I get the

third column. And if you could scroll down. So that's -- if you could scroll down to -- it's the first item. Good. Number 17.

Q MS. LACASSE: That commitment or mitigation states: (as read)

> Benga will used a water-based, nontoxic dust suppression product such as EnviroBind DCT to minimize windblown dust from railcars during transport. The manufacturer has committed to working with Benga's engineers to develop the spray applicator unit for the loadout, to provide guidance on the make-down unit that mixes the dry product with water for on-site storage and then further mixes it during application, and to monitoring and optimization of the treatment amounts on-site.

And we don't need to pull this document up, but in CIAR 251, Package 1, on PDF 81, Appendix 1.1-3 provides the findings of a car topper evaluation commissioned by Benga which tested the water-based dust suppression topper with vibration and high-velocity wind tunnel testing.

The first question I've got for you with regard to these references is whether Benga has conducted any updated studies to consider other water elements, such

as rainfall, especially considering the proposed suppression product is water-based?

A MR. HOUSTON: So the document you referenced was the most recent work that we've done with the manufacturer on -- on this -- this product.

Q Okay. Is Benga confident that the dust suppression product will remain effective in the rail journey to the West Coast?

A The -- and -- and this -- this is -- this is not new technology. This -- this is similar to what is already being applied by -- by Teck, by CP Rail as well. The -- and the challenge is to have the material basically intact even after significant vibration from the -- from the train journey. CP has re-applicator stations, at least one, en route to -- to Vancouver that we know of. And so the idea -- the -- the optimum would be to have a -- a product that remains intact for the entire journey, but we're going to continue to work with CP to look at, you know, if necessary, other solutions, such as reapplication.

Q Okay. Thank you, Mr. Houston.

MS. LACASSE: So if we could go to page 85 of this same document, so the first page of this table, Mitigation 11. If you could just -- I don't know if you can make that any bigger, Tammy. Yeah. That's great. Thank you.

Q MS. LACASSE: So Mitigation 11 states that: (as read)

> Mined areas will be reclaimed progressively and revegetated to reduce windblown fugitive dust emissions from exposed land.

Now, if you go to PDF 99 of the same table -- and I don't know that it's necessary to pull this up, but there it summarizes in Table 2-7 Benga's mitigations and commitments related to soil and terrain. In "Mitigating Erosion", Benga states that: (as read)

> When stockpiling reclamation material, piles will be replaced in strategic locations to minimize exposure to wind or water.

So my first question for you with -- in relation to these two tables is how Benga will determine strategic locations of stockpile placement to minimize wind exposure.

A MR. HOUSTON: Mr. McCoy, are you able to talk to some of those criteria or parameters that might dictate where we pile soil?

A MR. MCCOY: Ms. LaCasse, it's Dane McCoy here.

Yeah, I'll take a stab at it, Mr. Houston.

As -- as -- as you're aware, the -- the primary stockpile -- soil stockpile location will be on the -- the southern end of the -- of the Grassy project near

the CHPP location. I think what one of the sort of opportunities that may exist -- and I think Mr. Youl has -- has spoken to it -- is -- is over the -- as the -- the mine is being developed, that there will be opportunities to -- to salvage soil and -- and put them into temporary stockpiles, perhaps, you know, in advance of the operations with the intent that -- that they might be able to be -- be located and -- and placed or -- or replaced quickly in -- in advance of the operations.

In any event, those -- those locations would be -- would be very temporary in nature as far as timing goes. But in -- in -- in the context of that, looking for -- for opportunities that -- that exist to -- to, you know, selectively locate those stockpiles, you know, maybe in little depressions or draws or whatever that would be out -- out of the wind. That's kind of what I'm suggesting.

Q Okay. I'm just going to check with my fellow.

Do you consider that the use of temporary locations and relocating increases the risk of dust?

A The -- the primary dust source for the project is -- while -- while the -- there may be some minor generation with -- with soil salvaging and stockpile location, I think the primary source of dust is -- is really attributed to -- to the waste rock haulage and

the coal haulage in wheel entrainment, as we -- as we've alluded to earlier.

A MR. HOUSTON: Just -- just to add to that, then, the -- if we can do anything through temporary stockpiling to reduce the travel distance for the trucks or -- or -- and -- and to reduce the handling of the topsoil, I would -- I would think that would have a positive effect on, you know, windblown dust.

Q Okay. All right. Thank you.

So I'm going to sort of beat you, Mr. Houston, to the pass on this and acknowledge that we heard some evidence from Mr. McCoy before -- from you too, Mr. McCoy, regarding the number of weeks it takes to germinate revegetation and gain somewhat of a hold.

So when we talk about the mitigation of stockpiles of reclamation material to be seeded with a noninvasive and weed-free seed mix that establishes quickly, my staff want to know how quickly Benga will establish a seeded vegetation to the point where wind erosion can be mitigated. So we're not just interested in vegetation -- germination time, which you spoke about before, Mr. McCoy, but how long will Benga want -- wait to see the stockpiles, and how long until there is actual mitigation of wind erosion?

A MR. MCCOY: I think that, you know, we spoke to, you know, the germination time and -- and --

but I believe that was in the neighbourhood of three weeks, is what we had stated. I --

Q I'm sorry. And if you want to look back at what you said, if you --

A No.

Q Oh, you're satisfied?

A Yeah.

Q Okay.

A I -- I -- just to continue on, Ms. LaCasse, I think -- I think that it would take, you know, a -- a growing season for -- for a good catch of -- of grass to -- to help prevent erosion from occurring. So I would say, you know, the better part of a growing season. That's what we should account for or plan on.

Q Okay. But I'm not sure if that answers the part of the question about: How long will Benga wait to seed the stockpiles?

A I -- I think that as we're salvaging the -- the soil material and it's hauled into a stockpile area, we -- we'd want to -- we would wait till the stockpile itself was -- was -- was finished or completed or a component of it was finished or completed, and then it would be sort of recontoured, and then it would be -- or revegetated at that point in time. So there is -- there is a -- a -- a safety factor, a need to sort of wait till we were completed, at least a -- a

significant portion of those -- of those activities to -- to undertake the seeding activity. So -- so I don't really have a -- a finite amount of time. Of course, the smaller the stockpile, the faster it would be generated; the faster it could be -- could be revegetated. Again, that may take a -- you know, a month or two to -- to actually get to that stage, though.

And -- and I would add that we would -- we would defer the seeding until, you know, the start of the growing season as well, in most instances.

Q Sorry. I'll unmute myself.

Benga indicates at Mitigation Number 4 that: (as read)

> Reclaimed landscapes will be reseeded with a quick-establishing, noninvasive cover crop to minimize the length of time the bare soil is exposed to potential wind and water erosion.

As the exposed landscape is being prepared for reclamation and prior to establishing crop cover, how will Benga minimize wind erosion?

A As -- as -- as areas are being reclaimed and -- and soil material is -- is being placed -- and I'll sort of refer back to some of the discussions we had earlier about -- about the progressive nature of this and -- and doing sort of -- sort of medium-sized blocks around

the mine as -- as opportunities become available.

So, like, in -- on the -- as -- as we're -- as those areas are becoming available, as the -- the cover soil is being replaced, then -- then, you know, seeding activities, that is the prime method of erosion control, would be the seeding and the vegetation stabilization. If there were -- if there were other circumstances that -- that required other types of -- of mitigation, they would be considered. And one -- one example that comes to mind is typically we would -- we would broadcast seed in area -- most of the areas that -- that are planned for revegetation. In some areas, if it was deemed necessary, we could -- we could do some hydroseeding where you would apply the seed and -- and attack a fire that helped stabilize things. But I think those would only be in special occasions where you would use something like that.

Q Okay. Is there going to be any way for Benga to mitigate windblown erosion prior to seeding?

A Well, I -- I think when -- when areas are -- are not being actively mined or disturbed, the -- the wind erosion -- like, the dust generation that happens and sort of the -- the subsequent sort of wind erosion is -- is from people travelling or -- or vehicles travelling across -- across the areas. And so while -- while the area sits in -- in -- in a -- sort of a state

ready to be reclaimed, it -- I think the -- I can't really quantify how much -- how much dust would come off of it. But as soon as you start running over it with different types of equipment, you would increase that wind erosion potential.

Q So should I take from that that there isn't any way to mitigate windblown erosion prior to seeding, or is it that you just wouldn't have vehicles driving over the surface? Is that the mitigation?

A I think it's a -- it's a -- as -- as the areas are -- are -- are becoming available for reclamation, I mean, we would -- we would, you know, conduct the activities we talked about. All around these areas, there are -- there are going to be active -- active mining and -- and rock disposal area development that is occurring. So we're -- we're taking -- in -- in essence, we're taking small areas in the midst of those areas, and we're -- we're conducting our activities in order to -- to start the stabilization process, but I do think there is development and stuff that is occurring around them that would be of greater potential -- erosion potential, would be my -- my -- how I would state it, so ...

Q Okay. Okay. So if we go back to this Table 2.1 -- 2-1 that I think Tammy's got pulled up right now. If we go to Item Number 13 in the third column. Yeah. Right

there is where she's got the cursor. It states: (as read)

> The coal-processing plant will be contained within an enclosed building, and coal material handling will be via covered conveyors.

Does Benga have any comment on a potential approval condition which would require Benga to construct and operate the coal-processing plant within an enclosed building with ventilation designed to minimize dust exhaust and, secondly, construct and -- construct and operate a completely enclosed coal conveyor from the coal-processing plant to the rail loadout?

And I think you may have actually kind of addressed that first point, Mr. Houston, but I'll let you comment on both of these points of this potential condition.

A MR. HOUSTON: Sorry. Those are commitments, I believe, we've made in our application, so we'd be okay with that.

Q Okay. If you go down to Item Number 14, it states: (as read)

> Dust generation from transferring coal from the conveyor to the stockpile will be minimized by the use of luffing stackers, those that can lower and raise their boom, to

minimize the drop height and drop time of the coal.

Does Benga have any comment on an approval condition which would require Benga to construct and operate luffing stackers for use in transferring coal to stockpiles?

A No. That would be okay.

Q Okay. We'll move on quickly, but not too quickly for the court reporter's sake, to Number 15: (as read)

The rail loadout will have full cladding on the sides of the loadout structure to create a wind shelter and will utilize a movable discharge chute located as close as practical to the coal within the railcars.

Does Benga have any comment on a potential approval condition which requires Benga to construct and operate a rail loadout that is enclosed except for the railcar entrance and exit?

A Sorry. I'm on mute again.

No. That -- that's -- that's fine.

Q Okay. And finally, Number 17: (as read)

Benga will use a water-based, nontoxic dust suppression product.

And I'm not going to read it out. You can see Number 17 there on page PDF 86. And I think I already read it out once.

So does Benga have any comment on an approval condition which requires Benga to apply a dust suppression product on top of the loaded railcars prior to transport? And I'm going to guess you don't.

A We -- we don't. And I -- I would just encourage the Panel to make that kind of a condition a performance-based condition as opposed to talking about a specific product. So that would be my only comment on that.

Q Okay. Thank you for that.

Can Benga comment on a potential approval condition requiring Benga to develop and implement a dust management and mitigation plan? Such a plan could include but not be limited to: Discussion on proposed dust control practices and their effectiveness; an inventory of all dust exposure areas, dust generation activities, and dust suppressants used; specific measures to control and mitigate dust; quantitative criteria and thresholds to trigger the dust control and mitigation measures; a study plan to evaluate railcar topper dust suppression product efficacy throughout rail journey and implementation of required changes; dust monitoring activities; and contingency -- a contingency plan on how Benga will respond to dust issues that arise? And I can certainly repeat any of those if you need me to.

A No. I -- I -- I think I remember them well enough. And the only one I would, you know, give some thought to is -- is the transport issue, which is really a shared responsibility between ourselves and the rail company. So I'm a little hesitant to take on too much there without, you know, first working with the rail company to determine where -- where we are -- well, to -- to confirm that we can work cooperatively with them on that kind of an effort.

Q Okay.

A So that would be the only place where I would be careful about overcommitting.

MS. LACASSE: Okay. We can take this document down, Tammy. Thank you.

Q MS. LACASSE: We don't have to bring this up, but in CIAR 545 on PDF 11, the Municipality of Crowsnest Pass recommended that Benga install a permanent air quality monitoring station at the Crowsnest Pass Health Centre and the Crowsnest Pass Medical Clinic or other suitable proximate locations.

In Benga's draft air quality monitoring and adaptive management plan -- and that's -- again, we don't need to pull it up, but it's in 251, Package 1, on PDF 99 -- Benga suggests an ambient air quality monitoring site in the community of Blairmore near the loadout facility.

So my expert's question is whether Benga considers the proposed air monitoring station at the loadout facility to be representative of the potential project air effects on the Crowsnest Pass Health Centre?

A MR. HOUSTON: So practically there -- well, not just across the highway, but there's -- there -- they're proximate. One's on the north side of the highway, and one is on the south side of the highway.

I -- I guess we would like to work with AER and the Municipality and -- and the -- the scientists or -- or air quality specialists on the exact location of an air monitoring station. I know there are some, you know, parameters from a scientific point of view that you -- you want to have a location that is not particularly affected by surrounding buildings, for example, or trees. So you -- you need to take some care that the location is not only proximate to the hospital but also in a good location for monitoring air and -- and providing results that are representative. That may also not be in the train loadout site. So I think we just want to take time to -- and to work with AER and the community to make the best possible decision here.

Q Thank you. Just give me one moment.

Okay. And my fellow just wanted me to confirm with you that you recognize that the air monitoring

stations have to meet the requirements of the Alberta Air Monitoring Directive?

A Yes.

Q Okay. Good. Thank you.

Just give me one moment, please.

Okay. We're going to shift away from air quality towards sound now. So I don't need these documents pulled up, but I'm just going to refer to them.

In CIAR 89, on PDF 144, Benga states in the second paragraph that: (as read)

> There is not anticipated to be any regular rail yard shunting that would need to be specifically included in the noise study.

Benga also states in CIAR 251, Package 1, on PDF 47, that: (as read)

> There is no shunting plan for the site, and due to the design of the loadout as a continuous loop, no shunting or other similar impulsive noises are expected.

Can you indicate under what circumstances unplanned or irregular shunting might occur?

A It -- it wouldn't happen under a normal loading circumstance. We would be bringing in an entire train with one locomotive in -- into the loadout area. There would be tension on the train through the loading process as it slowly moves through the loop. So --

and -- and then it would directly pull out again. So there would be no connecting or disconnecting of railcars and no to-ing and fro-ing. The only circumstance I could think of is if there was some malfunction that required cars to be disconnected and reconnected, but that would be a very, very rare occurrence.

Q Are you able to attribute a number to how often that rare occurrence might take place?

A No. Sorry.

Q That's okay.

If unplanned shunting were to become a major noise concern or noise issue for nearby residents during the operation, what is the proposed mitigation plan?

A Yeah. Again, it's -- it would be a very rare circumstance, and I think the mitigation plan would be to, you know, evaluate the reasons that shunting was required and -- and take some kind of proactive action to -- to avoid that in the future. It would -- it would be on that level.

I'm not really a railman, Ms. LaCasse, so my answers are, by their nature, a little general here.

Q Well, it appears you're all I've got to answer these questions, so we'll go with what you say.

A Okay.

Q And we don't need to pull this up, but on -- in

CIAR 251, Package 1, at PDFs 11 and 13, Benga talks about the choke-fed loading of railcars. And then on PDF 47 of Package 1 of 251, so the same document, paragraph 5, Benga states, and I think I quoted this in the last question: (as read)

> The noise from the loading of coal in train cars has been included in the noise modelling and is not characterized as an impulsive noise source.

So I believe I alerted your counsel to the fact that I was going to be referring to the Health Canada noise guidance document, which I've provide -- which I think he probably passed along to you. And on PDF 31 --

MS. LACASSE: And if you want to pull this up, Tammy, for the benefit of everyone else, it's my Aid to Questioning Number 1. No, it isn't. I think it's Number 3. Pardon me. Thank you.

Q MS. LACASSE: So on that page, it describes three types of impulsive sound as "high-energy impulsive sound sources".

MS. LACASSE: And sorry, Tammy, on page -- or the third page that you have, which is 31 of the whole document.

Q MS. LACASSE: (as read)

> High-energy impulsive sound sources, for example, industrial processes that use high

explosives; highly impulsive sound sources, for example, metal impacts in rail yard shunting operations; and regular impulsive sound sources, for example, slamming of car doors.

My sound expert would like to know what the sound characteristics are of the choke-fed coal loading. So, for example, what's the duration of one choke-fed loading event or pulse and the typical maximum sound pressure level in dBAs at 1 metre?

A MR. HOUSTON: I'll -- I'll ask Mr. Bilawchuk to add to my answer.

The -- the -- the -- the -- the loading mechanism we're talking about here is the loading chute lowers itself into the car, and the coal is allowed to flow into the car, and as it flows into the car and -- and fills it, it essentially raises the -- the loading nozzle, if you will, so that the coal is not actually falling into the car; it's -- it's -- it -- it's being loaded from a very low elevation.

I -- I'm -- I don't know if I can talk about the -- the amount of noise that comes from that, but I -- I would remind the Panel that the -- the entire process is being done inside a clad building, so my expectation would be that the sound level from that loading process would be -- would be quite low. I

can't give you that in dB. I don't know.

Mr. Bilawchuk, do you have anything further to add there?

A MR. BILAWCHUK: Yes, I do. And hopefully I'm -- you can hear me now.

So I guess there's a -- there's a few points that I can -- that I can sort of discuss in -- in answering your question. The -- the measurements or the -- the noise source data that we've used within the model for this particular activity incorporates the noise that's not just associated with the -- the loading itself but also the locomotives as they're -- as they're pulling through.

I've been to a few sites and personally witnessed and did noise measurements while this activity was going on. And the sites that I was at were -- the loading was -- was largely outdoors as opposed to in this scenario, where it's going to be enclosed. And I can say that the -- the actual activity associated with the loading itself, the noise level is significantly less than the noise from the -- the locomotives. The locomotives in -- within this process are by far the dominant noise source.

And -- and so that's already, again, been taken into account in the noise model. It's not what I would consider to be impulsive by -- by any definition as per

Health Canada. And the fact that it's going to be enclosed in a building will be even -- make it even less of a -- a contributor in terms of the overall noise levels.

The other thing to be, I guess, aware of is that the -- the impulsive definitions given within the Health Canada guideline are -- are applicable to the Health Canada methodology of assessing noise in terms of what's called "the percent highly annoyed" and aren't really in any way transferable to the way that the AER Directive 38 assesses noise, which is based on what's known as the LEQ, or energy equivalent, sound level basis. The two are not directly compatible with each other.

And so everything that -- you know, that we've done is -- is within -- you know, as per the Directive 38 criteria. And then, again, that noise level has been -- has been fully taken into account in the -- in the assessment.

Q Okay. If you can just give me one moment, please.

If the choke-fed loading isn't -- yeah. Sorry. I'm getting distracted with my other screen.

If the choke-fed loading isn't an impulsive noise source -- and you've indicated it isn't -- will the rail alignment and loadout still cause perceivable intermittent noise impact at nearby residences, so

residences south of the loadout area?

A I guess it depends on one's definition of "intermittent". The -- the way that the -- the loadout is going to operate is -- is -- and I can -- Mr. Houston can -- can jump in at any time in terms of the timing, but, you know, the empty train or the train with empty railcars will pull into the site and -- and be loading for -- for a period of -- of several hours, and then once it's fully loaded, it will leave.

During the time that it's loading, the noise levels will be relatively steady state and, again, almost entirely determined by the -- the diesel locomotives. And -- and, again, my observation during the loadout process at -- at other operational mines is that the locomotives are essentially at an idle during that time because they're -- they're having to move the train at a -- like, a walking pace as it's being loaded. And then once the -- the rail is fully loaded after a few hours , the entire train then leaves the site on the existing CP Rail line, and then there will be long periods of time where there will be no significant noise at the -- at the loadout because there won't be any trains doing any -- any loading. So "intermittent" is a relative term spanned out over hours of duration as opposed to noise levels coming and going, you know, within -- within periods of minutes.

A MR. HOUSTON: And the only thing I would add to that is we're expecting about five trains a week, so that would be the frequency of loading.

Q Do you have any comment on a potential approval condition which would require Benga to conduct a noise study to evaluate the intermittent noise impact at residences as per the sleep disturbance described in the Health Canada noise guide?

MS. LACASSE: On the second page of the document you've got, Tammy. It's PDF 7 of the document.

Q MS. LACASSE: It states: (as read)

> For a good sleep, it is believed that indoor sound pressure levels should not exceed approximately 45 dBA [I'm not sure what the next unit is. I'll say] LAmax more than 10 to 15 times per night.

A MR. BILAWCHUK: Yeah, I can -- I can address this. If -- if you look a couple lines up within that same document, it -- it specifically references the World Health Organization document and states that that -- that number is meant for quiet rural areas, and I certainly wouldn't consider any of the residence [sic] within the two communities here to be a quiet rural area.

So that's the -- the -- again, that -- that

criteria that they give is -- is meant for that -- that kind of situation. Once you move into a -- an urban area, again, within the Health Canada criteria, the -- the more pertinent assessment is, again, the so-called "percent highly annoyed" criteria of an increase in -- in noise levels, neither of which is employed by the Alberta Energy Regulator Directive 38. It's an entirely separate assessment criteria that, to the best of my knowledge, the AER does not -- does not use as -- in terms of assessing noise impacts on -- on residents.

Q So if you get a noise complaint situation on noise sleep disturbance, what's Benga's plan to respond to such a complaint?

A MR. HOUSTON: Mr. Bilawchuk, I'll let you add to this.

But as per Directive 38, when we get a complaint, we would -- we would investigate and, if appropriate, do some -- some additional monitoring to identify the -- you know, what is causing a noise concern. So we -- we would react to it in accordance with Directive 38.

But, Mr. Bilawchuk, do you -- do you want to add to that?

A MR. BILAWCHUK: Yeah. I mean, the Directive 38 has fairly clearly defined complaint investigation procedures, and part of that process

is -- is communicating with the resident to determine: What is the nature of their complaint, and under what conditions does their complaint manifest itself in terms of -- of environmental conditions, and -- and what -- what is nature of their noise concern? And then once that information is -- is obtained, a comprehensive sound level survey is required at that residential location, which is -- for the benefit of the Panel, that's essentially a long-term noise monitoring, that -- that incorporates the -- hopefully the conditions under which the -- the resident has -- has expressed concern. And then the resultant noise levels are compared to the permissible sound levels as defined in Directive 38 to determine whether or not the noise levels are within compliance. And if the noise levels are in compliance, then nothing further needs to be done as per Directive 38. The -- the proponent is certainly welcome to do more if they decide to. But if the results indicate that the noise levels are -- are above the permissible sound levels, then it is incumbent upon the proponent to do whatever is required to resolve the situation and -- and have noise levels that are within compliance to the satisfaction of the Alberta Energy Regulator.

Q Just a moment, please.

MS. LACASSE: Okay. Tammy, you can take

this document down. So in CIAR 42, Section C, on PDF 89 -- and I don't think you need to pull this up, Tammy.

Q MS. LACASSE: Benga states: (as read)

> An empty unit coal train with 152 cars, approximately 2,550 metres in length, arrives from the west.

And then it goes on to the fourth paragraph to state: (as read)

> During loading, the train passes under the loadout chute at a slow, steady speed of about 350 metres per hour. The loading of the train can take up to eight hours.

In Consultant Report Number 2 of CIAR 42, the report lists the sound power levels of the noise sources associated with the rail loadout. So, for example, on PDF 140, in the Table "CHPP Equipment Octave Band Sound Power Levels".

MS. LACASSE: And maybe we should pull this up. So, Tammy, if you could pull up Document 42, Consultant Report Number 2, PDF 140. Good. You're ahead of me.

Q MS. LACASSE: So this table, the second-to-the-last row, so at the bottom, lists the sound power levels of the train loadout conveyor hydraulic system. Yeah. And then on the next page,

141, on the last row, the table lists the sound power level of a locomotive at the train loadout.

Was there an adjustment for the number of hours of rail loadout operation over a 24-hour day applied to the sound power levels of the associated noise sources?

A MR. BILAWCHUK: No, there was not an adjustment to the -- to the sound levels over -- over any time duration. The way that the rail loadout was modelled was with what's -- what's known as a travelling point source. And so, again, the -- the vast majority of the noise that's going to be associated with the loadout activity, aside -- again, we've incorporated the -- we've incorporated the conveyors and whatnot and the -- the loadout sort of activity.

But the rest of it, by far, is going to be denominated by the -- the locomotives on -- on the train, and we have modelled them as slowly moving throughout the entire rail layout that -- that we were provided. And we -- we modelled that with the sound power level that's indicated in the table there without any -- any adjustment. So it was assumed that that was the noise that the -- the -- the locomotives were producing while -- while they were on-site for the entire time. And -- and we didn't break it down into day versus night. We -- we just assumed that it was

going to be going the entire time, day and night.
Q Will the rail loadout operation take place partly or fully during the nighttime, so between 10 PM and 7 AM?
A I was just going to say in terms of the -- the noise modelling, again, we assumed that it was operating all the time, to be -- to be conservative. And so they're -- given the -- the context of -- of approximately five rail loadouts per -- per week, there's going to be -- and I'm assuming they're sort of coming and going at all different times based on whatever the CP schedule is, which -- which -- I don't know how much input Benga has to that, but we have assumed, again, that it could be loading at any given time on any day in order to be as -- as -- essentially, as conservative as we can in the results.
A MR. HOUSTON: That was going to be my comment as well, Mr. Bilawchuk, that we would be having to work with CP on -- on the scheduling and -- and so we -- we need to be conservative and assume that it could happen at any time of day or night.
Q Okay. Thank you. Just a moment, please.

Okay. If a low-frequency noise situation is measured due to rail loadout operation, what is the proposed noise mitigation plan, so for low-frequency noise from locomotives causing a low-frequency noise situation?

A MR. BILAWCHUK: So at this time, the noise modelling results don't specifically indicate that there -- there will be a low-frequency noise occurrence. And -- and, again, it's important, maybe, for the -- for the benefit of the Panel to -- to understand that low-frequency noise specifically within Directive 38 is -- sort of has its own type of assessment, and it involves measuring -- it can't be assessed to -- to the fullest extent during the -- the noise modelling stage. It has to be assessed during a noise monitoring condition after operation. And it -- it -- it looks at the frequency content as well as what's known as the C-weighted sound level minus the A-weighted sound level. And if both conditions are met, then a low-frequency noise issue essentially exists. And if that's the case, then the -- the -- the methodology that has to be used within Directive 38 is to apply a 5 dB penalty to the -- the measured noise level -- the comprehensive sound level -- survey-measured noise level and then compare it to the permissible sound levels to determine whether or not, again, mitigation is required.

At this time, the results don't indicate that that's -- that's going to be the case, and so a noise mitigation strategy has not been investigated yet. It would be a situation that if -- if a complaint does

arise and monitoring is done and the results indicate that the low-frequency criteria is met and that result with the 5 dB penalty results in noise levels that are above the permissible sound levels, then that would trigger a -- a more detailed review of -- of potential noise mitigation options.

Q Okay. So you've indicated what would sort of lead up -- you know, where you'd get to the point where a mitigation had to be studied. My staff are still wondering: What is the mitigation plan if all of those things sort of fall into place? Do you have any -- anything in mind at this time?

A MR. HOUSTON: So maybe I can step in here, Mr. Bilawchuk, and then if you have something to add ...

So the low-frequency noise would be basically coming from the locomotive and would be the -- as the principle sound driver in the loadout, I -- I think the mitigation would depend on the exact nature and cause of the exceedance. If it's related to a specific piece of equipment and a specific model of locomotive, for example, we could work with CP to -- to avoid that. And, you know, I'm -- I'm sure if -- if this were an issue, I -- I'm sure that working with a company like CP, they -- they would have encountered these kinds of difficulties in other -- other locations. So we -- we

would really look to the rail partner to help us work on ways and means to avoid that or -- or to mitigate a low-frequency noise.

Q Just a moment, gentlemen.

Okay. In Document CIAR 89, on PDF 144, Benga states --

MS. LACASSE: And I don't think you need to pull this up, Tammy. I think it's fine.

Q MS. LACASSE: (as read)

> Blasting will occur during day shift only, with approximately four to five blasts per week. Further, it is possible that up to as many as three blasts per day could occur. As such, the noise modelling has been conducted with the maximum of three blasts during the daytime and no blasting during the nighttime.

My sound expert would like to know if this -- we'll call it a "blasting plan" -- represents the worst-case scenario of various stages of the project development and mine operation, and does the blasting noise modelling also represent the worst-case scenario?

A MR. HOUSTON: Again, I'll -- I'll talk a little bit. So in -- in terms of the frequency and the timing of blasts, I -- I think this is the -- the expected scenario. In discussion with my -- my good friend Mr. Youl, we've been talking about the -- the

technology that can be put -- put -- brought to bear in terms of blasting. He talked about through -- through-seam blasting, which he indicated to me -- and, again, this is not my area of expertise -- that that would reduce the -- the sound and the vibration from any particular blast.

He's also talked about controlled blasting, so timing of individual charges in a particular blast being -- being managed very carefully and -- and to produce a -- a specific effect.

The -- the spacing between the -- the charges, the size of the charges, all those parameters will be, I'll say, optimized. I don't like to use that word, but optimized in -- in the blasting process to -- to minimize vibration, to minimize noise, to minimize air emissions. And -- and so we will be working to bring down the sound level, which is the specific subject you're asking about here, through, you know, the -- the science that we put into our blasting procedures.

So I -- I would think that the -- the sound levels that were -- were modelled would -- would be maybe not -- well, worst case, yes.

A MR. BILAWCHUK: And I can add to that that, yes, indeed, the -- the modelling that we did, as -- as indicated, we -- we assumed that there were three blasts per day. It's -- it's important to -- to

remember or to understand, I guess, that the -- the noise assessment criteria within the AER Directive 38 is -- is based on what's known as an energy equivalent sound level, or LEQ basis, which is not only a function of the -- the noise levels, but also the -- the duration over which they occur. And, you know, within a day, within a typical daytime which -- as defined within Directive 38, from 7 in the morning until 10 at night, that covers 54,000 seconds, and a blast's -- a blast lasts for, you know, a very short duration. A few seconds.

And so even three blasts within a day, certainly, the noise levels during that time of the blast will be elevated relative to the noise that occurs throughout the rest of the day with the other mine activity. The -- the overall impact on the LEQ during the day, because the duration is so short, is actually very, very minimal. And so, again, within the confines of -- of the assessment methodology that is required within Directive 38, because Directive 38 does not have a -- a methodology for assessing noise based on maximum level, then using the -- the criteria that's in there, in Directive 38, the -- the overall impact of the blasting is actually very, very minimal.

THE CHAIR: You're on mute, Ms. LaCasse.

MS. LACASSE: Darn it.

Q MS. LACASSE: Okay. You're not disagreeing with what Mr. Houston said, that the blasting modelling also represents the worst-case scenario?

A MR. BILAWCHUK: Correct. And, yeah, so everything that we've done is -- is indicative of what we would consider to be the -- the worst case. The -- the noise levels that were used in the model for the blasting were actually noise levels that I -- I personally measured at an operational mine here in Alberta during a blasting activity, and so that was what was used as our -- as our noise source information, and then we determined the sound power level over the blasting area, and then transferred that to -- to the modelling that we did for -- for the -- the Benga mine. And that was -- that's how we arrived at our -- our blasting-related associated noise levels.

Q All right. I'm off mute. That's good.

So I provided your counsel with a document, and I think you referred to it in your blasting noise evaluation. It's NCP -- NPC 119, and it's my AQ Number 4, Aid to Questioning Number 4, and I'm sure you're very familiar with this, Mr. Bilawchuk.

So the question that I have is whether Benga has any comment on a potential approval condition requiring Benga to conduct a noise and vibration survey to valuate the blasting impact at critical sensitive

receptors as per this document, the NPC 119? And, for example, he's wondering about the condition -- so the condition includes something like the standard limit of vibration peak particle velocity as 12.5 millimetres per second and the standard limit of peak pressure per level as 128 dBZ.

A MR. HOUSTON: So we have committed to measuring vibrations during our blasting process. It's one of the normal precautions, or -- or it's one of the parts of the blasting procedure that we would be normally following. And we would be measuring peak particle velocity limits at least on-site. I -- I'm not familiar with this particular document, and I don't know that we've compared our vibration monitoring -- our intended vibration monitoring to -- to this document.

Maybe I'll stop there and see if Mr. Bilawchuk wants to weigh in in terms of sound monitoring. We've also indicated that we would do a sound survey of the project in the first year and then every five years after that, and I -- I would imagine that monitoring the blasting -- the sound of blasting would be part of that.

But, Mr. Bilawchuk, I don't -- I'm not familiar with this particular document. Maybe you have more familiarity.

A MR. BILAWCHUK: Yes. And -- and we -- we even -- in terms of the -- the noise, we -- we even did some calculations as per this document to -- to satisfy information request questions from -- from Health Canada.

The -- I guess in terms of both the noise and the -- and the vibration as pertaining to this document, this is a -- a document in Ontario, and the Alberta Energy Regulator Directive 38 has -- has neither noise criteria that pertains specifically to blasting nor vibration criteria that -- that pertain to anything related to -- to noise. And so I -- I don't know, you know, what -- what -- what the precedent may be for the AER to impose a criteria from another jurisdiction in terms of assessing either noise or vibration for a project.

I -- I will, I guess, add, though, that the -- for the residents to the east -- I guess let me back up. In terms of vibration impacts, the only even remotely potentially impacted residents are -- are those to the -- to the east of the mine permit boundary. The residents within the two adjacent communities are -- are much too far away to have any -- any vibration concern. They're going to have bigger impacts of vibration just from the -- the traffic on the existing rail line that runs through town or the traffic on the

highway.

The residents up -- that are to the east of the mine permit boundary, by my measurement, the closest blasting that will occur to them is around 2 kilometres distance from -- from their location. And in terms of groundborne vibrations, that's a long way for -- for vibrations to transmit and have even -- frankly, even measurable impacts, let alone have values that are in -- in the range that are prescribed in this -- in this NPC 119 -- sorry, NPC 119 from Ontario.

And so I -- I certainly don't anticipate the -- the vibration levels even coming close to -- to something that would -- that would cause an -- an exceedance of -- of this regard.

Q So do you have anything else you want to say about the potential condition I've described?

A MR. HOUSTON: I -- I would think that, again, it would depend how it was written and the frequency of testing. I don't think -- I don't think we would have concern about meeting the -- the criteria. Might have a concern about the amount of effort and cost that the monitoring imposed on the project. So that -- that would be our concern.

So if there were a condition that we -- we would have to do it in the first year of operations or something like that and -- and validate that it's

absolutely not an issue, then -- then that's something we could do. If -- if we had to have a continuous monitoring or high frequency that would create a cost issue for -- for no valuable result, that -- that would be a concern.

Q Okay. Thank you.

THE CHAIR: Ms. LaCasse, just to let you know, if you are thinking about changing subjects, at some point in the not-too-distant future, we will need a break.

MS. LACASSE: Okay. I don't have too much left, so I'd like to just carry on, if possible. Yeah, I don't have much at all left.

THE CHAIR: Okay. That's fine.

MS. LACASSE: So I'd probably like to wrap up rather than take a break.

I was wondering. I would like to have this publication NPC 119 entered as an exhibit just because it's kind of a tricky document to find. So, of course, I guess, subject to what Mr. Ignasiak might have to say, I'd ask that it be given a number.

THE CHAIR: Okay. Any concerns, Mr. Ignasiak?

MR. IGNASIAK: No, no concerns.

THE CHAIR: Okay. Can we get a number, please?

MS. UTTING: Mr. Chair, that would be CIAR Number 923.

THE CHAIR: Thank you.

MS. LACASSE: Thank you.

EXHIBIT CIAR 923 - AQ#4 - AER - ONTARIO MINISTRY OF ENVIRONMENT NCP - 119 - AIR AND WILDLIFE TOPICS

Q MS. LACASSE: So I think this ties in with what you were talking about, Mr. Houston, 'cause: (as read)

> Benga commits to conduct follow-up noise monitoring studies within the first year after start of operations and thereafter on a five-year interval. This will be intended to confirm that actual noise levels are consistent with the modelled results and to remodel anticipated noise based on updated mine plans.

So the question is -- and Mr. Bilawchuk seems quite familiar with Directive 38 -- will the committed-to follow-up noise monitoring include a comprehensive sound level survey as described in Directive 38 at critical receptors?

A MR. HOUSTON: So I think we'd want to define the receptors that -- that are critical. I think we've heard about the hospital, for example, as being one of

those, and -- and we have identified a number of critical and representative receptors in -- in our -- in -- in CR 2. So I -- I just wouldn't want any ambiguity around the word "critical".

And maybe I'm talking out of turn, Mr. Bilawchuk, if that terminology is -- is clear for you.

A MR. BILAWCHUK: Yeah. I mean, I guess it -- it -- like, typically, with noise impact assessments, again, as -- as per Directive 38, post-commissioning noise monitoring is -- is not required unless there is a complaint that has been received, and then the complaint investigation procedures kick in.

And so to -- to the best of my understanding, the commitments that Benga has made was to conduct sound level measurements of the -- of the noise sources associated with the site, which are more specific to -- to the individual noise sources, and then updating the model and -- and doing the results that way.

I don't -- I don't believe -- and, again, Mr. Houston can confirm -- that there has been a commitment at this time to do comprehensive sound level survey monitoring unless there has been a valid complaint received from a -- from a resident.

Q Unmute myself.

Let me try this out on you: How would -- what does Benga have to say about an approval condition that

requires Benga, irrespective of whether there's been a noise complaint, to conduct a comprehensive sound survey at critical sensitive receptor locations in addition to the commitment on the follow-up noise study within the first year after start-up of operations?

A MR. HOUSTON: I -- I think that we would want to identify what those critical locations are. You know, if it was one or two or three representative locations, I think we could agree to that, but it would be important to define what -- what the scope of that was.

A MR. BILAWCHUK: One thing that I will add to that, as it pertains to comprehensive sound level surveys, having done hundreds of them over the years, is it's important that we obtain access to -- to the location in which we want to do the monitoring. And so part of the comprehensive sound level survey involves involvement with the community and -- and their -- their approval or willingness to -- to let a -- a noise monitor be placed upon their -- their property and -- and so that -- that will -- that could potentially form part of the basis upon, you know, where these locations might be.

We've had situations where -- where -- from previous projects where residents are concerned about noise but are unwilling to allow a monitor to be placed

on their property. So I just want to make sure that if -- if that's something that's being considered, that the -- the location selection -- that that's part of that process.

Q Okay. Just one minute, gentlemen.

I feel like this is going to be for you, Mr. Houston. During Ms. Okoye's examination of Benga on November 25th, there was a discussion of structures in the -- on the Donkersgoed and Gilmar properties. And I can take you to the transcript if you want to have a look at it. So it's Document 907, and it's PDF 5320 to 5323. And on PDF 5321, Mr. Houston indicated --

MS. LACASSE: Thank you, Tammy.

Q MS. LACASSE: So at -- 5321 is the page, lines 14 to 16. You -- I'll give her a chance to catch up. 5321. Okay.

MS. LACASSE: So if you go to line 14, please.

Q MS. LACASSE: So there, Mr. Houston, you indicated that Benga was aware of buildings on those properties. Can Benga indicate if it is aware if those buildings are a mobile home on the Donkersgoed property and a cabin on the Gilmar property?

A MR. HOUSTON: I -- I believe that's correct, you know, without getting into a discussion of, you

know, what those structures look like, but that -- that's generally correct, that one is a mobile home, and the other is a cabin.

Q You sound like you want to say something else, Mr. Houston. Anything else?

A You know, when I said "cabin", that could be anything from, you know, something you'd see on a -- the West Coast overlooking the ocean to, you know, a very modest structure in -- in -- in the woods. So I -- I just was uncomfortable with the word "cabin" as, you know, being descriptive enough. It's -- it's rustic, let me say.

Q Just give me a moment, please.

Okay. I'm going to take you a step further. How do you define "rustic"?

A No paint, sparse insulation. I'm not sure if it's got a foundation. That kind of rustic.

Q And the other structure? Do you recall it being a mobile home, not a holiday trailer?

A I -- I don't believe you'd call it a "holiday trailer". I don't -- I don't think it's on wheels. But it's -- it's -- it's smaller than what you would see in a mobile home park, is my recollection.

Q And did the cabin appear to be mobile?

A No, no. It's nailed down.

Q Okay.

MS. LACASSE: Mr. Chair, could I have two

minutes? And then I think I'll probably be done.
THE CHAIR: Sure. Yeah.
MS. LACASSE: Thank you.
THE CHAIR: Go ahead.
MS. LACASSE: Okay. Panel, those are all of my questions. Thank you very much. My colleague, Barbara Kapel Holden, has questions.
But I wonder, Mr. Chair, if now would be a good time for a break.
THE CHAIR: I think we'll take a break now, and then Ms. Kapel Holden can start after the break. So it's just about 3:15. So we'll resume at 3:30.
(ADJOURNMENT)
THE CHAIR: Welcome back. Just before Ms. Kapel Holden starts, I just thought I'd give the panel a bit of an insight into what's coming. There may have been an expectation that we'd be able to complete this panel today. That's not going to be possible. Ms. Kapel Holden has some questions. Mr. Lambrecht also has questions. And I'm going to be asking the questions related to the wildlife health risk and the human health risk assessments, and I have a lot of questions in that area that I've worked on with the staff. I'm anticipating for those questions probably requiring a half a day-ish, kind of four

hours. But I'm a notorious bad estimator of time. So we wouldn't be able to finish the panel by sitting late today, and we can't sit tomorrow because the AER's IT systems are all down, and our systems are unavailable throughout tomorrow. So we will have to continue this panel on Monday morning.

So it might be disappointing to the panel, I realize, hoping to be done, but I just don't see a way to kind of get it done before Monday.

Okay. With that, Ms. Kapel Holden.

MS. KAPEL HOLDEN: Thank you, Mr. Chair.

Q MS. KAPEL HOLDEN: Good afternoon, Panel. I am Barbara Kapel Holden, AER counsel to the Joint Review Panel, and I will be asking you some staff questions in regards to the wildlife section.

So I believe I will direct my questions to Mr. Kansas and also to Mr. Houston, but anyone on the panel can answer them.

MS. KAPEL HOLDEN: And if I can get the Zoom host to please pull up -- the reference is CIAR 251, Addendum 10, Package 5, and it's PDF page 218.

Q MS. KAPEL HOLDEN: My first set of questions are to clarify Benga's use of a 20 percent threshold to assess potential project effects on habitat availability and effectiveness. And if we can scroll down to the last paragraph on page 218 there, it's the

second sentence where I'll start. Here Benga states: (as read)

> This threshold, which was used to assess changes in habitat availability between the baseline case and the planned development case, was based on species-specific habitat suitability modelling conducted for four species in the wildlife regional study area and one species in the grizzly bear regional study area.

And if we can move to the next page, which is page 219 -- PDF 219, Benga then states: (as read)

> Listed species were considered to be more sensitive and, therefore, more likely to be affected at the population level than more stable, generalist species. Therefore, threshold values were more stringent for species at risk (i.e., those listed under SARA) than for valued species (e.g., moose, elk). Based on the valued component selection process, habitat suitability modelling for the selected valued components and reviews of existing information on habitat availability thresholds, the use of a 20 percent threshold to assess potential project effects on habitat effectiveness for

selected wildlife valued components is reasonable.

And then if we could move to -- well, actually, I don't think we need to go there, but I'll just read out the next reference. And this was in CIAR 42, Consultant Report 9, Part 3, and it's PDF page 20. Here (AUDIO FEED LOST) states --

THE COURT REPORTER: Excuse me, Ms. Kapel Holden. You cut out there for a moment just after "PDF page 20".

Q MS. KAPEL HOLDEN: Okay. So it's CIAR 42, Consultant Report 9, Part 3.0, PDF page 20. Here Benga states: (as read)

> According to Andrén, species are not necessarily at the risk of regional extirpation, even when only 10 to 30 percent of the landscape remains effective habitat, although these species are still affected by the loss and fragmentation of habitat through reduced body condition, reduced productive potential, and declining population.

MS. KAPEL HOLDEN: And then if I can get the Zoom host to pull up my next reference, which is CIAR 55. That is Addendum 4, Attachment 2, and it's PDF page 63. This is Benga response to IR 22(d).

And if we can just scroll down to the response just in the middle there; I think it's the third

sentence.

Q MS. KAPEL HOLDEN: Here Benga states that: (as read)

> Every species will have a unique area-specific threshold for the maintenance of its health, reproductive output, and population size. Although these thresholds are not known for the valued components in general and the valued components within the region and project area specifically, Benga believes that the use of 20 percent loss as a residual effect to determine significance is a conservative threshold at which healthy populations will exist.

And so my question to you, Mr. Kansas, 'cause I think you should be able to answer this -- if not, just let me know -- does the 20 percent habitat threshold consider the cumulative effect of the various species sharing or overlapping habitat requirements?

A MR. KANSAS: The 20 percent threshold is for the PDC case, which is the cumulative effects case. It's simply a -- a guiding red flag that allowed Benga to understand how -- potentially how close the loss of effective habitat, which is moderate- and high-quality habitat, in the region has affected the significance of the impact for -- for key species.

It's -- it's only -- it was only used as one of a -- of a -- of a range of -- of factors for determining significance. Just as important as if it was the -- if it -- if we were closing in on the 20 percent amount, just as important as that would be if we had analogue studies that -- that -- for a certain species that allowed us to say, Okay. Well, for example, pine marten, I had -- I looked at nine -- nine studies informally, and the amount of habitat required to keep pine marten going as a population with -- in the face of forest -- forestry impacts. And I added them all and divided by 9 and came up with 38 percent rather than 20 percent.

So I would go with the -- when assigning a significance rating of "insignificant" or "significant", I would go with the studies before I would go with the 20 percent rule which applies to a broad range of species.

The other -- the other factor would be the effects ratings in -- that most people use to come up with a significance rating. Significance really is -- it's an irreversible impact to the species.

Anyways, that -- that -- that's -- that's as far as I'll go right now, anyways.

Q Can you clarify for me: Is there a cumulative effect of habitat loss where species overlap in their ranges

for the planned development case?

A Yes. We modelled spatially in a -- in a geographical information system the -- the effect of -- of logging in the region over a 14-year period and a 27-year period and also a couple of mines that were in the region as well as a twinning of the -- of the highway. And the contribution -- the relative contribution of the residual effects of the -- of the -- of the local study area mine project and the -- and the logging, the logging contributed about 90, 92, 93 percent of the total. And that's a true cumulative effect on top of other things that have been happening out there, as well as the 5 or 6 percent effect of the -- of the mine, of the Grassy Mine.

So the answer is yes, the short answer.

Q Thank you for that.

And is the 20 percent habitat loss considered per species only?

A Yes, for species. For five key species, value components.

Q Could you just clarify which ones those are, the five?

A Yes. It was American marten, Canada lynx, the -- sorry -- the flycatcher -- olive-sided flycatcher, and little brown myotis.

Q Does Benga take into consideration how wildlife species may have lower thresholds near the centre of their

species range versus near the boundaries in your threshold assessment?

A I didn't take that -- we didn't take that into account.

Q Do you think that would change your assessment if you had taken that into account?

A No. The assessment is too coarse. It can't pick up that kind of detail.

Q How does Benga intend to monitor the habitat threshold effects on wildlife body condition, reproductive potential, and population size to validate the 20 percent threshold change used in the effects assessment as adequate and ensures adaptive mitigation measures are in place?

A The -- the 20 percent rule was strictly a rule to help aid in the -- in the determination of significance. It -- it -- it's not a -- in my professional opinion, it's -- it's not necessary to -- to test that model. It's not even a model. It's just a -- strictly a -- a very cautionary -- ecologically, a conservative value that was picked to -- as a red flag. No, I don't believe that that's necessarily to -- to model.

Q Okay. One moment, please.

A Okay.

MS. KAPEL HOLDEN: Zoom Host, I think you can take down this reference while we're just waiting for my next question from my wildlife expert.

Q MS. KAPEL HOLDEN: Based on your last response, I wanted to refer you to the quote that I read. It was from Andrén, and I'll repeat it again: (as read)

> According to Andrén, species are not necessarily at the risk of regional extirpation, even when only 10 to 30 percent of the landscape remains effective habitat, although these species are still affected by the loss and fragmentation of habitat through reduced body condition, reduced productive potential, and declining populations.

So here it states that species are still affected by habitat loss. And the point of the EIA and subsequent monitoring is to determine if the EIA models and predictions are valid. Do you have any comments about that?

Sir, I think you're on mute.

A MR. KANSAS: Gosh. I'm never going to figure this out.

I don't think we're going to get anywhere near the -- the values of Andrén, which is 70 percent effect and 90 percent effect in this region. We're -- we're at -- with -- with marten -- pine marten in the context of this actual project, we're at about 18 percent, 17 percent. Lynx is similar. But -- and that's with the -- a normal amount of timber harvest. I -- so I --

the values that Andrin came up with in his study, which was in Europe, is -- we're -- we're just not going near -- going near that. So I don't see the point of -- of trying to figure out, you know, sub -- suboptimal kind of effects on that species -- on these species that we have here.

Q Thank you.

Okay. Moving on to my next set of questions. This is in regards to migratory birds. I don't think there's a need to pull up the reference, but I will just read from it. And it's in CIAR 42, Consultant Report Number 9, Section 5, and it's Section 5.5.3, "Change in Mortality Risk and Health", PDF page 67. So in this exhibit, Benga states: (as read)

> In addition, changes to the health of waterfowl, shore birds, and other species that nest along the shorelines and feed on aquatic life could occur if such species nest along the edges of the surge ponds. However, it is anticipated that the level of ongoing disturbance and noise at the surge ponds will deter birds from nesting along the pond edges.

And then the next reference is Exhibit CIAR 70, Addendum 6, PDF page 69. Again, I don't think it's necessary, unless you would like me to pull it up.

A No, it's not necessary.

Q Okay. At the top of that page, Benga states: (as read)

> Due to the level of ongoing disturbance, wildlife exposure is not only of low likelihood, it is anticipated to be transient and would not provide a suitable, long-term watering source for repeated exposure. As such, nominal exposure to impacted waters would be expected to have limited detrimental effects.

MS. KAPEL HOLDEN: Now, I would like the Zoom host to please pull up my next reference. This is ECCC's submission, CIAR 542, please, and it's PDF page 26, and it's Section 4.1, "Wildlife and Selenium". And PDF page 26, please. Thank you. Yeah, 26.

Q MS. KAPEL HOLDEN: So in this exhibit, Environment Climate and Change Canada's submission -- sorry. It's Environment and Climate Change Canada's submission, sorry, at PDF page 26: (as read)

> ECCC is of the opinion that Benga has not adequately described the risks to wildlife related to the transport of selenium from waste rock leachate and exposure to receptors via dietary intake.

And that's the third paragraph there.

MS. KAPEL HOLDEN: If we can just scroll down a little bit, Ms. Turner. Thank you.

Q MS. KAPEL HOLDEN: ECCC also states: (as read)

> A well-known example of selenium toxicity and migratory birds occurred in the early and mid-1980s at Kesterson Reservoir inside the Kesterson National Wildlife Refuge in central California, where levels of selenium in the aquatic food web resulted in reproductive failure and mortality of adult birds.

MS. KAPEL HOLDEN: And, Ms. Turner, if we can just move to page 30 of that exhibit. That is the recommendation by ECCC, And it's Recommendation 4.1(1)(b).

Q MS. KAPEL HOLDEN: Here: (as read)

> ECCC recommends that Benga be required to develop and implement mitigation measures to prevent adverse effects,

from potential exposure pathways of selenium, including surface water contamination.

Mr. Kansas, can you comment on ECCC's recommendations, specifically on its recommendation that Benga develop and implement mitigation measures. Sir, I think you're still muted.

A MR. KANSAS: Firstly, wildlife toxicology

isn't in my wheelhouse. It's in the wheelhouse of Ms. Mooney.

But I would like to add something before she takes it on, and that is that at baseline for -- for this study in the Grassy Mountain area, waterfowl, which you had mentioned, and waterbirds in general are very rare because there's very little open water habitat and open water wetlands. But I'll leave it at that.

Q Thank you.

Ms. Mooney, good afternoon. Could I get you to comment on the recommendation made by ECCC?

A MS. MOONEY: Hello. This is Lindsey Mooney.

With respect to the numbered or the lettered bullet and the number, was that 2(b) that you were referencing, or which of the three?

Q It was 4.1(1)(b), I believe.

A One -- I don't -- I only see a 1(a).

Q Oh, that's right. Sorry. I think it is in Recommendation 4.1(2).

A 4.1(1)(a)?

Q I think it's -- sorry. I'm just looking at it. So it was ECCC recommended: (as read).

> ... that Benga be required to develop and implement mitigation measures to prevent adverse effects,

from potential exposure pathways of selenium, including surface water contamination.

And I'm looking for a discussion in regards to the mitigation measures. So I'm not sure it's really a toxicology question, but it is 1(a) that I'm looking at.

A Okay. So I see 1(a) says: (as read)

If the revised risk assessment indicates that effects to wildlife receptors are likely --

THE COURT REPORTER: Excuse me. Pardon me. Excuse me. Can you start that again and read slower, please.

A MS. MOONEY: Sorry. My apologies.

I see in 1(a), it lists: (as read)

If the revised risk assessment indicates that the effects to wildlife receptors are likely, then ECCC recommends Benga be required to develop and implement mitigation measures to prevent predicted adverse effects.

And your question is related to, sorry, what those mitigation measures would be or --

Q MS. KAPEL HOLDEN: That's correct. That's correct, yes. And what your thoughts are about the recommendation, and then what you think about the recommendation to actually implement mitigation measures to prevent the predicted adverse effects.

A MR. HOUSTON: Can we just have a moment to

consult on this, Mr. Chair? One minute.

A MS. MOONEY: Hello. Lindsey Mooney back.

So during the operation of the mine, the mine facilities would include exposure control for the wildlife, so to prevent the wildlife from contacting the water that would not meet acceptable thresholds within the operating facilities. And outside of that, a key metric would be periphyton monitoring and establishing a safe threshold for selenium in periphyton that would both be safe for -- for the trophic system and -- and ultimately the wildlife but also could be used within an adaptive management context.

Q And my question is perhaps to Mr. Houston: Would you agree to this type of recommendation being included as a condition within a potential approval to have mitigation measures in -- in place?

A MR. HOUSTON: Yes. The periphyton monitoring outside of the mine footprint is already included in the draft aquatics monitoring program that we've put forward, and we have also agreed to manage access of wildlife to the ponds that do not meet water quality guidelines. So we've already made those commitments in our application.

Q Thank you.

And so I'm also looking at mitigation in regards

to preventing migratory birds from coming into contact with water. Could you speak to that?

A So we -- we have -- we -- we would commit to putting in place some -- some of the tactics that are -- are well-used in the -- in the oil sands to prevent migratory birds.

The situation here, as Mr. Kansas pointed out, is entirely different from that. First of all, there -- we're -- we're not situated on -- on a major flight path of migratory birds, and there are not a lot of open water bodies, so the -- the incidents would be -- would be less frequent, but, also, incidental landings would -- would not be immediately harmful, and -- and so the -- the tactics that we would use would be similar to what is used in the oil sands to prevent landings on -- on some of the tailings ponds up there.

Q And could you clarify what those tactics would be that are used?

A Yeah. So there are -- there are a number of different tactics from -- from passive to active. Passive would be things blowing in the wind or intermittent sound emissions. And more active would be some -- some kind of detection system that would trigger a response. But I would think that we would start with a simple and -- and move towards a more active and complex, again, remembering the -- the -- the objectives and the -- the

performance level might not have to be as high as it is in the oil sands.

Q Okay. Thank you.

MS. KAPEL HOLDEN: Okay. Ms. Turner, I think you can take down that exhibit.

Q MS. KAPEL HOLDEN: Okay. For my next set of questions, I'll start off with some references to the materials to assist you in answering my question -- to help you answer the questions I will pose to you. I don't think there's a need to pull them up unless, again, you would like me to have them brought up for you.

A MR. KANSAS: Is that Mr. Kansas you're speaking to?

Q Yes, and to the rest of the panel who might be answering.

A Okay. Thank you.

Q Thank you.

So in Exhibit CIAR 251, Package 5, in response to IR 5.39, and it's on page PDF 1121, Benga states: (as read)

> Many of the project effects associated with wildlife habitat loss will be minimized through implementation of the project's reclamation plan.

Also in that exhibit, on PDF page 1135, Section 6.1.2,

Benga also states that: (as read)

> The primary method for mitigating these direct effects on wildlife habitat and movement will be through progressive reclamation of the project footprint.

Throughout your evidence, Benga discusses the use of progressive reclamation as a main mitigation measure for species that require habitats that may take time to become effective habitat. I'd like to go through a few examples of where long-term reclamation is discussed in your materials.

In CIAR 42, Consultant Report 9, Part 5, PDF 68, Benga states: (as read)

> The return of these wildlife populations to the footprint during progressive reclamation and mitigation will depend on each species' preferred habitat types. Species preferring recently disturbed and young habitats are expected to return first, followed by species preferring increasingly older habitat types.

The next reference is Exhibit CIAR 542. Here, ECCC's submission, Section 4.2, "Migratory Birds", PDF page 3, ECCC states that: (as read)

> In Benga's assessment of all wildlife value components, it is expected that the longest-lasting impacts will be experienced

by bird species requiring old-growth forests for breeding and foraging habits.

On PDF page 33 of the same exhibit, ECCC's "Conclusions" states that: (as read)

> The project will result in loss of habitat for migratory birds for many years. [Stating that although some disturbances may create suitable habitats for certain species, others] will not return to the project area until mature forests are re-established.

Also in the same exhibit, on PDF page 34, ECCC provides recommendations, including the following statement: (as read)

> Undertake progressive reclamation as soon as possible to restore migratory bird habitat and to undertake monitoring and adaptive management to improve the efficacy of reclamation.

Benga states that: (as read)

> The initiation of progressive reclamation will occur on reclamation-ready sites in the project area to minimize delays in reclaiming disturbed sites to affected habitat.

And that is in CIAR 251, which I referred to at the beginning of my preamble.

So my question to you, Mr. Kansas, is: Does Benga

have a timeline in mind that would be specific to the mitigation efforts geared towards mature habitats to be re-established to optimally reduce the impacts to wildlife which rely on these habitats?

A Would you repeat the question? No, sorry.

Q I was just thinking that I would.

A Just kidding.

No. I'm going to come at this from a slightly different way. The area around the Grassy Mine is a -- is a -- is a suppressed fire system. There's been very few fires that have occurred in that area for a long time. So, really, in many ways, you have an excess amount -- excessive amount of old-growth forests. And that's what happens when you don't have fire; natural succession is a very powerful engine.

So the -- the first animals to be attracted to the mine are going to be the ones that like grasslands, open habitats, things like the common nighthawk, the short-eared owl, the bobolink, various species like that. They're going to be attracted immediately to the -- to the early successional habitat. And that's a good thing, you know, but the fact that some old-growth forests are -- mature forests are taken down, that's no different than fire. Fire does the same thing. The only difference is it leaves tall spires and snags for animals to perch on and maybe some additional down --

down woody debris on the ground.

But my feeling is you're mimicking -- we're mimicking nature. We're in a fire-suppressed system. I know we are, even from the -- some of the footprint studies that have been done for -- for southwestern Alberta are in agreement with that.

So I guess my answer is: There's no strategy involved here. We're taking timber away, and we're replacing it with early successional, and the -- and the wildlife will -- will thrive by doing -- doing so.

Q Thank you.

Does Benga have a suggested time frame in which progressive reclamation would need to begin to ensure both the short- and long-term potential impacts to wildlife and wildlife habitat are effectively mitigated?

A Well, the progressive reclamation, by definition, is immediate, starting reclamation immediately in an appropriate area, and then working from that area and continuing to reclaim while you're actually mining. So that southern disposal -- rock disposal area, I guess, is the first -- the first area that'll open up. And what we'll do there is make sure we've got the appropriate -- the appropriate grassland and forb species to attract animals to that site. But they will be attracted because there's not a lot of it available

because of fire suppression.

Q Okay. And, Mr. Kansas, what is the efficacy and feasibility of relying on a progressive reclamation plan as the main mitigation measure to reduce impacts to wildlife habitat, specifically species at risk?

A It's all about the habitat. Habitat's always the -- the main measure. That's how animals survive.

Q Do you have any examples of where progressive reclamation was indeed successful as the main mitigation measure to reduce impacts of direct habitat loss?

A Yes. I think you might recall we -- I found a report that the Mercoal West/Yellowhead mine -- where wildlife biodiversity -- after 35 years at that mine, at the Coal Valley Mine --

Let me start over. At the Coal Valley Mine, after 35 years, there are more wildlife species available using the habitat there than there are in the Grassy Mountain area and in areas of the Yellowhead area where the Coal Valley Mine is that aren't mined yet. So, yes, the progressive -- and they used progressive reclamation on that -- that site.

Q And just to clarify, so you mentioned 35 years. Is that a reasonable amount of time for species at risk?

A Yes.

Q Can you elaborate on that, on your answer?

A Animals occur at all levels. Species at risk are not always old-growth obligates. They're species at risk that are -- that require short grasslands. So, you know ...

Q And what about the ones that rely on old growth that Benga will disturb?

A Well, Benga will avoid clearing land during the breeding season, so that'll significantly take away the risk of -- of mortality on -- on migratory birds.

A MR. HOUSTON: I think we've also talked about the 20 percent --

You're not on mute, Mr. Kansas.

We've also talked about the 20 percent boundary -- or -- or limit for habitat reduction, and -- and so right from the get-go, we're -- we're talking about a -- a fairly minor -- not minor, but a low level of destruction of habitat, and the ability of the species to manage that is -- is the -- the primary indicator of -- of low residual effect. Adding back that habitat through reclamation is undoing, over a long period of time, admittedly, the -- the damage that we do during -- to execute the project.

Q Okay. Thank you, Mr. Houston.

Okay. And, Mr. Kansas, does Benga consider potential wildlife offsetting programs as part of the wildlife mitigation and monitoring plan to complement

progressive reclamation and the time lags associated?

A MR. KANSAS: I haven't been involved in an offsetting plan for this project.

Maybe Mr. Houston can comment.

Q Thank you.

Mr. Houston?

A MR. HOUSTON: We -- yeah, we haven't -- we haven't included offsetting plans for -- for wildlife in our mitigation measures.

Q Can you speak to why that is?

A Well, it's because we -- we have looked at the residual impact based -- based on the amount of habitat that would be removed and determined that the -- the impact is not significant, so we didn't feel it necessary to add on top of that offsetting plans.

Q Would you consider doing one in the future?

A If -- if the impacts were -- were more significant than they -- they seem to be, we -- we could consider that.

A MR. KANSAS: We -- the implementation of best beneficial management practices, for example, for all olive-sided flycatcher topping -- knocking the top off a tree to create a better habitat for -- for that bird is something we could do. But I don't know if it -- I don't know how that ties in with offsetting, if that -- the beneficial management practices, which I believe Benga has committed to. I don't believe

they're the same thing as -- as offsetting.

Q Okay. Thank you for that.

A Like ...

Q Just ...

Mr. Kansas or Mr. Houston, how will you determine if the impacts are significant enough to implement?

A MR. HOUSTON: To implement --

A MR. KANSAS: I -- I would say through a routine, regular monitor -- through a routine, regular monitoring program.

Q Thank you.

My next set of questions are in regards to the coal policy change and the cumulative effects assessment done by Benga. As you're aware, the coal development policy for Alberta, more commonly known as the "1976 Coal Policy", was rescinded effective June 1st, 2020. With the rescission of the coal policy, all restrictions on issuing coal leases within the former Coal Categories 2 and 3 have been removed. In Exhibit CIAR 89, Appendix A-1, PDF page 369 -- and I don't believe we need to pull this up -- Benga states that it updated its cumulative effect assessment with the addition of certain or reasonably foreseeable projects as of August 17th, 2018, to inform the updated assessment of significance.

Also in that exhibit, on PDF page 591, Benga

provides the temporal boundaries that were selected to ensure they captured the project's effects in the wildlife local study area as well as the regional study area to capture the existing disturbances, historical mines, and settlements in the region that may be affected by or contribute to.

Throughout Benga's environmental assessment and subsequent evidence provided, Benga repeatedly states that: (as read)

> Wildlife affected by the project development will likely remain low as species will be displaced to suitable habitat located adjacent to the project footprint.

And I just wanted to go over some examples I found in the materials. In Exhibit CIAR 42, Consultant Report Number 9, Part 5, and it's Section 5.3.4.4, "Change in Abundance", PDF page 19, Benga states: (as read)

> With project development, the relative abundance of great grey owls in the wildlife study area will likely remain low since any owls affected by the project development will be displaced to suitable habitat located adjacent to the project footprint.

Also, in Exhibit CIAR 313, Addendum 11, PDF page 148, Benga states: (as read)

> Badgers will be displaced to other more

suitable habitats adjacent to the project footprint.

So my question to you, Mr. Kansas and Mr. Houston: Does Benga have a strategy to adapt your mitigation measures to reduce impacts to wildlife habitat given that the surrounding habitat may be comprised with new projects as a result of the changes to the coal policy?

A MR. HOUSTON: So I -- I think the key -- key words there are "maybe". There are no projects proposed at this moment. There's a -- a number of exploration and aspirational projects, but until projects are proposed, they're -- they're not considered to be reasonably foreseeable.

Once a project is proposed, I would suggest that that project would have to do a cumulative effects assessment and environmental impact assessment and consider that the Grassy Mountain Project is further along and is reasonably foreseeable. So I would expect that that would be the moment that additional mitigative measures would be considered. If -- if there were other projects in the area, I think it would be only natural for Benga and the other project to work together cooperatively to look at regional mitigative measures, and so we -- we would -- we would be willing to do that.

Q Okay. Thank you.

MS. KAPEL HOLDEN: Zoom Host, can I get you to pull up my next reference? It is Exhibit CIAR 313, Addendum 11, PDF page 317, and it's Figure 6.14-1.

A MR. HOUSTON: What was the PDF page, please?

Q MS. KAPEL HOLDEN: It's 317. It's showing the -- the saturated backfill zone, surge ponds, treatment plants.

A M-hm.

MS. KAPEL HOLDEN: 317, Ms. Turner. Perfect. Thank you.

Q MS. KAPEL HOLDEN: Before I get to this figure, I just wanted to make reference to another exhibit, and I'll just read it out. No need to pull it up. In Exhibit CIAR 89, that is Addendum 8, PDF page 181, in response to Information Request 14, Benga states: (as read)

> Active management of the surge ponds are expected to be required beyond Year 2100. It is not possible to reliably estimate the time horizon for when the rate of weathering and selenium release will diminish to a point where active management is no longer required.

And so in Exhibit 313, at PDF page 317, you have Figure 6.14-1, which provides an illustration of the location and size of all the saturated backfill zones,

surge ponds, treatment plants, and likely associated sedimentation ponds that may require active management.

My question to you, Mr. Houston, and -- and to you, Mr. Kansas: What is the long-term impact or disturbance as it relates to the wildlife and wildlife habitat associated with these ponds? And I'm referring to the surge ponds.

A MR. HOUSTON: So the -- the surge ponds will need to stay on the landscape as long as it's necessary to collect the -- the water from the dumps and to re-direct it to the saturated backfill zones. And so what is the impact? You'll have a pond. You'll have some pumps and probably buried pipe that connect everything.

In terms of the saturated backfill zone, we may need to have some -- some chemical like methanol, so some tanks ready to inject and -- and some pumps associated with that, but that would be located adjacent to the inlet structure on the saturated backfill zone.

So I'm -- I'm not sure if I'm answering your question. I'm describing what facilities will be left at -- at the -- at the end of the operation and after the majority of the reclamation is completed. Is that more or less what you were going for?

Q Yes. And so my follow-up question to you is: How

might this impact progressive reclamation success if this goes as far as twenty -- Year 2100?

A I wouldn't think it would affect it at all. The -- the remaining facilities, i.e., the pumps on the ponds and -- and the water retention structures, would be a very small part of the footprint. So I wouldn't expect that it would have a significant effect on the remainder of the progressive reclamation or the -- or the willingness of wildlife to return to the footprint.

Q Okay. Thank you.

My next question to you, Mr. Houston, is: Can you explain how Benga considered the level and duration of the impact that we were discussing in my first question -- the impact and the disturbance as part of its wildlife impact assessment?

A Yeah. I -- I wouldn't think that it would have a significant role to play in the -- in the -- in the wildlife impact. Some of the things that we talked about, the -- around access to the surge ponds or the raw water pond, for example , would have to be maintained, so avoiding that migratory birds would land on the ponds and preventing access for -- for wildlife to those ponds. So those -- those aspects would have to remain.

But I -- I would think that the vast majority of the site would -- the reclamation would advance and

mature and -- and that these -- these remaining features would be fairly small on the footprint and -- and of very little -- very low consequence.

Q Thank you. Just one moment, please.

Mr. Houston or Mr. Kansas, just to clarify, assuming the water quality is not suitable, would -- would keeping amphibians out of the ponds that remain on the landscape be required as well?

A Yes, I would think so.

Q And could you clarify how this would be done?

A Pretty much the same as we described earlier. And this is not my area of expertise, so I'm just repeating what we talked about earlier, but pits -- pit traps to -- to capture them. We'd have to relocate them to another place off-site.

Q And would those pit traps be monitored daily or on a weekly basis?

A I -- I'm not sure what's appropriate there. I would think it would be a seasonal thing and that during certain times of the year, it may be more appropriate to monitor them on -- on a -- a more frequent basis and then at other times of the year not -- not so much. So I -- I think it's something that we would, you know, develop some procedures around or some frequencies that make sense given the number of amphibians that we're finding and the seasonal cycles, et cetera.

Q Thank you very much, gentlemen. Those are all of my questions.

THE CHAIR: Thank you, Ms. Kapel Holden.

It is just about 4:30, so I think that's probably as far as we will go today. That means when we resume on Monday morning, Mr. Lambrecht will be up, followed by the Panel.

Before I break, I just want to confer with my colleagues for a minute to see if there's any other business, so just hold on.

And if Mr. O'Gorman and Mr. Matthews could join me in the breakout room.

(ADJOURNMENT)

THE CHAIR: Okay. Apologies for the delay.

Is there any other business we need to take care of before we break?

Hearing none, we'll see everybody at 9 AM on Monday morning. Thank you.

PROCEEDINGS ADJOURNED UNTIL 9:00 AM, NOVEMBER 30, 2020

CERTIFICATE OF TRANSCRIPT:

I, Angela Porco, certify that the foregoing pages are a complete and accurate transcript of the proceedings, taken down by me in shorthand and transcribed from my shorthand notes to the best of my skill and ability.

Dated at the City of Calgary, Province of Alberta, this 27th day of November 2020.

<Original signed by>

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Angela Porco, CSR(A)
Official Court Reporter

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