

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 28

VIA REMOTE VIDEO

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December 1, 2020

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1 Proceedings Taken via Remote Video

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3 December 1, 2020 Morning Session

4

5 A. Bolton The Chair

6 D. O'Gorman Hearing Commissioner

7 H. Matthews Hearing Commissioner

8

9 M. LaCasse AER Counsel

10 B. Kapel Holden AER Counsel

11

12 K. Lambrecht, QC Joint Review Panel Secretariat  
13 Counsel

14

15 T. Utting IAAC Staff

16 E. Arruda AER Staff

17 D. Campbell AER Staff

18 T. Turner AER Staff

19 T. Wheaton AER Staff

20 A. Shukalkina AER Staff

21

22 M. Ignasiak For Benga Mining Limited

23 C. Brinker

24

25 R. Warden For Ktunaxa Nation

26 T. Howard

1	K. Poitras	For Métis Nation of Alberta
2		Region 3
3		
4	Chief B. Cote	For Shuswap Indian Band
5		
6	B. Snow	For Stoney Nakoda Nations
7		
8	R. Drummond	For Government of Canada
9	S. McHugh	
10		
11	A. Gulamhusein	For Municipality of Crowsnest
12		Pass
13		
14	M. Niven, QC	For MD of Ranchland No. 66
15	R. Barata	
16	J. Nijjer	
17		
18	B. McGillivray	For Town of Pincher Creek
19		
20	D. Yewchuk	For Canadian Parks and
21		Wilderness Society, Southern
22		Alberta Chapter
23		
24	R. Secord	For Coalition of Alberta
25	I. Okoye	Wilderness Association, Grassy
26		Mountain Group, Berdina Farms

1		Ltd., Donkersgoed Feeder
2		Limited, Sun Cured Alfalfa
3		Cubes Inc., and Vern Emard
4		
5	R. Cooke	For Crowsnest Conservation
6		Society
7		
8	G. Fitch, QC	For Livingstone Landowners
9	C. Agudelo	Group
10		
11	M. Sawyer	For Timberwolf Wilderness
12		Society and Mike Judd
13		
14	(No Counsel)	For Barbara Janusz
15		
16	(No Counsel)	For Jim Rennie
17		
18	S. Elmeligi	For Alberta Chapter of the
19	A. Morehouse	Wildlife Society and the
20	S. Milligan	Canadian Section of the
21	M. Boyce	Wilderness Society
22		
23	J. Gourlay-Vallance	For Eco-Elders for Climate
24		Action
25		
26	L. Peterson	For Trout Unlimited Canada

1 R. Campbell For Coal Association of Canada  
2  
3 (No Counsel) For Alistair Des Moulins  
4  
5 (No Counsel) For David McIntyre  
6  
7 (No Counsel) For Fred Bradley  
8  
9 (No Counsel) For Gail Des Moulins  
10  
11 (No Counsel) For Ken Allred  
12 (Not Present)  
13  
14 (No Counsel) For Monica Field  
15  
16 S. Frank For Oldman Watershed Council  
17 A. Hurly  
18  
19 C. Forster, CSR(A) Official Court Reporter  
20 \_\_\_\_\_  
21 (PROCEEDINGS COMMENCED AT 8:31 AM)  
22 THE CHAIR: Good morning, everyone.  
23 Just the usual reminder that live audio and video  
24 streams and video recordings of this proceeding are  
25 available to the public through the AER's website and  
26 YouTube. Anyone in the virtual hearing room with their



1 camera or microphone turned on will be captured, and  
2 images and recordings of you and your surroundings will  
3 be broadcast to a publicly available YouTube video. If  
4 you have any concerns about this, please contact  
5 counsel well in advance of the time you're scheduled to  
6 participate to explain your concerns. We will make  
7 best efforts to try and accommodate your concerns  
8 considering the need for an open and transparent public  
9 process.

10 I have one preliminary matter before we get  
11 started, and that's just to advise that Benga did  
12 provide a response to Undertaking Number 22 yesterday,  
13 and that was related to flow reductions in Gold Creek,  
14 and it has been posted as CIAR Number 929.

15 Are there any other preliminary matters people  
16 want to raise before we start?

17 Hearing none, first order of business is the  
18 Government of Canada panel. Mr. Drummond.

19 MR. DRUMMOND: Thank you, Mr. Chair.

20 Madam Court Reporter, there are a series of  
21 witnesses, some of which have been sworn or affirmed  
22 before, but I propose we go through that first.

23 If that's all right, Mr. Chair.

24 THE CHAIR: Yeah. That's fine. Go ahead,  
25 Mr. Drummond.

26 MARGARET FAIRBAIRN, JODY SMALL, PAUL GREGOIRE,

1 MARIE-CLAUDE SAUVÉ, BRENDA WOO, Previously Affirmed  
2 BRIAN ASHER, GUILLAUME COLAS, MELISSA GORMAN,  
3 MARIE-ÈVE HÉROUX, GRAHAM IRVINE, LUIGI LORUSSO,  
4 LUKAS MUNDY, MARGARET YOLE, Affirmed  
5 (Wildlife, including migratory birds and species at  
6 risk, wildlife health, and human health risk  
7 assessment)

8 Direct Evidence of Government of Canada

9 Q MR. DRUMMOND: All right. Thank you, all.  
10 Ms. Fairbairn, we have met a number of your  
11 witnesses from ECCC before. I wonder if you could just  
12 please introduce the remaining ones for the benefit of  
13 the Panel.

14 A MS. FAIRBAIRN: Yes. Thank you.

15 Good morning, Mr. Chairman, Panel Members. I  
16 would like to introduce three of my subject matter  
17 experts for this theme today.

18 First of all, Dr. Brian Asher. He is a senior  
19 air quality analyst with ECCC who can speak to  
20 questions related to the modelled air pollutant  
21 predictions, monitoring and mitigation measures, and to  
22 our recommendations in our submission pertaining to  
23 fugitive dust and criteria air contaminants. Dr. Asher  
24 obtained his PhD from the University of Alberta in  
25 environmental and analytical chemistry. Dr. Asher has  
26 over 15 years of experience in environmental science,

1 with a focus on air quality, contaminated sites, and  
2 environmental impact assessment. He's been with ECCC  
3 for close to five years, providing expert advice on air  
4 quality impacts on major industrial projects.

5 Our second expert for today is Mr. Lukas Mundy.  
6 He's the coordinator of the environmental programs in  
7 ecotoxicology and wildlife health division with a  
8 science and technology branch at ECCC. He will answer  
9 questions related to wildlife ecotoxicology from our  
10 wildlife and selenium section of our submission.  
11 Mr. Mundy has his master's of science in biology, with  
12 a specialization in environmental chemistry and  
13 toxicology. He's been with ECCC for over eight years,  
14 working within the National Wildlife Research Centre in  
15 Ottawa, providing subject matter expertise on multiple  
16 environmental assessments for various resource  
17 extraction projects, such as oil sands and coal mines  
18 in Alberta and British Columbia.

19 And thirdly, you have met before, Mr. Paul  
20 Gregoire, who is our wildlife biologist with the  
21 Canadian Wildlife Service, who will answer questions  
22 pertaining to the migratory bird section from our  
23 submission. Mr. Gregoire has his master's of science  
24 in zoology. He has been providing wildlife expertise  
25 in multiple environmental assessments for resource  
26 extraction projects, such as oil sands, coal mines, and

1 water-diversion projects in Alberta for over 24 years  
2 and has been with ECCC for 32 years.

3 As well today, we have Ms. Marie-Claude Sauvé and  
4 Ms. Jody Small, who are providing technical support to  
5 our subject matter experts for today's session.

6 Mr. Chairman, I will pass now to Brenda Woo, who  
7 is the panel lead for Health Canada.

8 A MS. WOO: Good morning.

9 I'd like to introduce my Health Canada colleagues  
10 here with me today, Graham Irvine and Melissa Gorman.  
11 They're environmental health specialists;  
12 Marie-Ève Héroux, section head of the air quality  
13 assessment section; Guillaume Colas, scientific  
14 evaluator; Luigi Lorusso, unit head of the contaminated  
15 sites division; and Margaret Yole, health risk  
16 assessment and toxicology specialist.

17 Thank you.

18 THE CHAIR: You're on mute, Mr. Drummond.

19 MR. DRUMMOND: Yes. I apologize for that. I  
20 think it's a rite of passage for all of us.

21 Just before I open up the panel for  
22 cross-examination, there are just two matters. As  
23 previously advised, Mr. Barry Jessiman is no longer  
24 available from Health Canada to answer questions, so  
25 you will note he is not here today, but the subject  
26 matter can be covered by his colleagues who have

1 relevant expertise.

2 And secondly, I do want to advise the Panel I will  
3 have to absent myself for a short period this morning,  
4 but -- however, instead of notifying you when I'm  
5 coming and going, it -- should any matter arise, my  
6 colleague Ms. McHugh will be answering to it. So if,  
7 in advance, I say nothing, that little brown myotis the  
8 reason.

9 THE CHAIR: Okay.

10 MR. DRUMMOND: Other than that, the panel is  
11 now open for cross-examination. Thank you.

12 THE CHAIR: Okay. Thank you,  
13 Mr. Drummond.

14 Before I turn to Benga, are there any other  
15 participants who have questions for the Government of  
16 Canada panel this morning?

17 Hearing none, Mr. Ignasiak or Mr. Brinker, does  
18 Benga have questions for this panel?

19 MR. IGNASIAK: No questions, sir.

20 THE CHAIR: Okay. Thank you,  
21 Mr. Ignasiak.

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

24 MS. LACASSE: I do have a few questions,  
25 Mr. Chair.

26 THE CHAIR: Thank you.

1 Alberta Energy Regulator Staff Questions Government of  
2 Canada

3 MS. LACASSE: So if the Zoom host could pull  
4 up Canada's submission, which is CIAR 542, please. And  
5 if you could go to PDF 48, please.

6 Q MS. LACASSE: On that page, ECCC provides an  
7 opinion on the baseline air quality assessment and  
8 nitrogen oxide emissions and agrees that the predicted  
9 concentration of some air pollutants associated with  
10 the project, particularly nitrogen dioxide, are not  
11 underestimated and can be considered conservative. But  
12 ECCC is also of the view that the degree to which  
13 pollutant concentrations in the baseline assessment are  
14 overestimated is so great that they restrict the  
15 ability for reviewers to adequately assess the impact  
16 of the project on the region's air quality.

17 At PDF 50 -- and we don't have to go to this  
18 page -- but ECCC has provided recommendations to  
19 address these concerns in Section 6.1 of its hearing  
20 submission.

21 And I don't know if you'll want to look at the  
22 transcript. It was -- the transcript from the first  
23 day, ECCC, in its opening remarks -- and that was  
24 October 27th -- acknowledged that Benga has provided  
25 revised predictions of ambient nitrogen dioxide  
26 concentrations in its October 5th submission. ECCC

1           also acknowledged that Benga has partially addressed  
2           Recommendation 6.1 but hasn't addressed the modelling  
3           and monitoring for PM 2.5.

4           So is it correct that ECCC considers that Benga  
5           has addressed the nitrogen dioxide component of  
6           Recommendation 6.1?

7   A   MS. FAIRBAIRN:           Mr. Chairman, I'll let  
8           Dr. Asher respond to that question. Thank you.

9   A   DR. ASHER:                Yes, that is correct.

10  A   MS. SMALL:                 Excuse me, Ms. LaCasse. I'm  
11           not sure if you are awaiting, or if you missed  
12           Dr. Asher's response?

13  Q   MS. LACASSE:             I didn't hear it.

14  A   MS. SMALL:                 Okay. Go ahead, Brian.

15       THE COURT REPORTER:       Sorry. Can I confirm who was  
16           speaking there?

17  A   MS. SMALL:                 Sorry, Madam Court Reporter.  
18           It's Jody Small from ECCC.

19       THE COURT REPORTER:       Okay. Thank you.

20  A   DR. ASHER:                 My -- my apologies.  
21           Brian Asher from ECCC.

22           Yes, that is correct. They did address the  
23           modelling portion of the -- of our recommendation  
24           in 6.1.

25  Q   MS. LACASSE:             Okay. Thank you.

26           If the project were to be approved, would ECCC

1 support the issuance of an approval with the conditions  
2 of representative PM 2.5 monitoring, remodelling, an  
3 updated adaptive management approach, and not required  
4 the remodelling be conducted prior to issuance of an  
5 approval?

6 A MS. FAIRBAIRN: Sorry. Wrong button. Go  
7 ahead, Brian -- Dr. Asher.

8 A DR. ASHER: Yes. Yes, that -- that is  
9 correct. We would support that -- essentially that  
10 the modelling portion of our request has been  
11 completed, and -- and so that would be required going  
12 forward.

13 Q Thank you.

14 So I just want to confirm that PM 2.5 doesn't need  
15 to be remodelled?

16 A Yes. Part of the reason for not -- for including  
17 PM 2.5 in our request there was simply that the sources  
18 that emits NO2 that we were wanting to be remodelled  
19 are also -- they also emit PM 2.5, and that was why we  
20 included PM 2.5 in that -- in that request. However,  
21 the proponent had shown remodelling for NO2 that was  
22 satisfactory. Going forward, I believe the -- the  
23 focus should be on -- on monitoring.

24 So, no, there would not be a -- a -- a need to  
25 remodel the PM 2.5 portion pertaining to this -- these  
26 recommendations.



1 Q Thank you.

2 So in your submission on PDF 54 -- and the  
3 submission is Document 542 -- ECCC comments on Benga's  
4 estimates of coal dust deposition along the rail  
5 corridor to the West Coast.

6 On PDF 55, so I think the next page, in its  
7 Recommendation Number 2 of 5.2 recommendations, ECCC  
8 recommends conducting baseline particulate matter  
9 deposition monitoring along the rail corridor prior to  
10 project construction and during project operations to  
11 assess the fugitive coal dust impact of the project  
12 along the corridor.

13 Assuming this is a heavily used rail corridor, is  
14 ECCC confident this type of monitoring would be  
15 effective in detecting coal dust deposition associated  
16 with Benga railcars, especially compared to the  
17 mitigative and monitoring measures already proposed by  
18 Benga?

19 A MS. FAIRBAIRN: Mr. Chairman, I'll -- just one  
20 moment, please.

21 Or, Brian, do you want to answer -- go ahead --  
22 Asher?

23 A DR. ASHER: Yes, I could -- I could  
24 answer.

25 There haven't been -- the proponent has not  
26 suggested any monitoring specifically to -- a monitor

1 of particulate matter deposition along the rail  
2 corridor. This would be in -- recommended in the  
3 absence of that -- of any monitoring that -- that -- no  
4 such monitoring has been proposed.

5 So there is some uncertainty with respect to  
6 whether the specific monitoring, in this case dustfall,  
7 would be -- would clearly answer whether there -- the  
8 proponent's monitoring would -- or whether the -- the  
9 project would actually increase particulate matter  
10 deposition along the rail corridor. This is something  
11 that would have to be determined through this type of  
12 monitoring.

13 So I couldn't confidently say that it would be  
14 effective in determining the project's contribution.  
15 However, it's a -- particulate matter deposition, as  
16 the proponent has noted earlier, is a fairly low-tech,  
17 fairly straightforward monitoring method.

18 Thank you.

19 Q Thank you.

20 If monitoring along the rail corridor were to be  
21 required of Benga, does ECCC have an opinion as to the  
22 type of monitoring, frequency -- and the frequency and  
23 number of monitoring locations?

24 A I -- I would not be prepared to specify the precise  
25 type of monitoring that -- that should be undertaken at  
26 this stage. I think that it's the type of thing that

1 the proponent should conduct their analysis to  
2 determine the best approach in terms of assessing  
3 particulate matter deposition along the rail corridor.  
4 I wouldn't want to be prescriptive in the precise types  
5 of monitoring locations and that at this stage.

6 Q Okay. Thank you.

7 Does ECCC have an opinion on alternative  
8 mitigation measures which could be used instead of  
9 conducting particulate monitoring along the corridor?  
10 And, for example, conducting additional and more  
11 extensive testing on the latex binder solution to  
12 manage coal dust and potentially identifying additional  
13 points in the journey to reapply the mitigation  
14 measures?

15 A I'm not sure I fully understand the question because I  
16 think the terms "mitigation measures" and "monitoring"  
17 are -- are conflated in that question. So I would  
18 request -- if you could clarify. Are you asking for  
19 specifically what additional mitigation measures or  
20 only for monitoring?

21 Q I believe we're asking for mitigation measures.

22 A Regarding mitigation measures, the proponent has -- has  
23 suggested or gone forward with the expectation that a  
24 latex binder would be effective. Based on our -- our  
25 submission, and we -- our -- our position is that we  
26 are -- that -- that -- more information is needed with

1       respect to the efficacy of the latex binder. By my --  
2       my understanding is that has not been shown to be -- it  
3       has not been tested in -- specifically in the field or  
4       demonstrated with field -- field measurements.

5               We also in our recommendation show -- or explain  
6       that additional mitigation measures brought forward by  
7       the proponent should be a part of their adaptive  
8       management plan. And one of the additional measures  
9       that we -- we suggest could be included is covers for  
10      the railcar -- railcars to cover the -- the coal loads.  
11      This is not -- we're not specifically suggesting that  
12      this must be used going forward, but can be included as  
13      part of the adaptive management program that the  
14      proponent would institute.

15    Q    Okay. Thank you.

16               So would you be satisfied with further evaluation  
17      of bindered as opposed to requiring monitoring along  
18      the rail corridor? And I know you are going to say,  
19      Well, you're conflating the two concepts. But my  
20      people are wondering if monitoring isn't something that  
21      happens, would these mitigations go to suffice your  
22      request for further monitoring or your suggestion of  
23      further monitoring?

24    A    On the -- on the -- on the face of it, as you  
25      described, further evaluation of latex binder is -- is  
26      a bit unclear. The -- specifically -- and what we've

1           noted is a lack of field measurements in terms of  
2           efficacy for the latex binder.  It's understood also, I  
3           believe, that latex binders are used elsewhere at  
4           other -- other shipment of coal by rail elsewhere west  
5           of this project, and so it's possible that evaluation  
6           of efficacy at that stage in the field would -- could  
7           satisfy this approach.

8                        However, I would say that I'd recommend that  
9           actual measurement in the field be conducted one way or  
10          the other, whether it be on -- by the proponent and  
11          their own railcars or elsewhere.  What's been done to  
12          date has -- and what they've shown in terms of their  
13          evidence, at the very least, has been laboratory-based  
14          method -- methods, and so I wouldn't be satisfied with  
15          additional laboratory-based methods.  Field  
16          measurements would be necessary.

17                        Thank you.

18          Q        Okay.  Thank you, Mr. Asher.

19                        Okay.  Mr. Asher, thank you for answering my  
20          questions.  Those are all the questions I have.  Thank  
21          you.

22                        Ms. Kapel Holden has some questions for you.

23          Q        MS. KAPEL HOLDEN:            Good morning, panel.  I am  
24          Barbara Kapel Holden, AER counsel for the Joint Review  
25          Panel.

26                        I have some questions in regards to migratory

1 birds, so I believe I will direct them to Mr. Gregoire,  
2 but anyone on the Panel can answer them, if needed.

3 Good morning, Mr. Gregoire.

4 A MR. GREGOIRE: Good morning.

5 MS. KAPEL HOLDEN: I will ask the Zoom host to  
6 please pull up CIAR 982, which is the hearing  
7 transcript from last Friday, November 27th, and it's  
8 Volume 26. Sorry. I think it's CIAR 982. I misspoke.  
9 And PDF 5738, please.

10 MR. CAMPBELL: Sorry. Do you mean a  
11 different number? It's not 982.

12 MS. KAPEL HOLDEN: It's 928. Sorry. Did I  
13 misspeak again? It's CIAR 928, and it's the transcript  
14 Volume 26. My apologies for the confusion.

15 And page number 5738, please. Perfect.

16 Q MS. KAPEL HOLDEN: Mr. Gregoire, on Friday I  
17 asked Benga to comment on Environment and Climate  
18 Change Canada's recommendation that Benga be required  
19 to develop and implement mitigation measures to prevent  
20 adverse effects from potential exposure pathways of  
21 selenium, including surface water contamination.

22 Mr. Kansas, before letting Ms. Mooney answer,  
23 stated -- starting at line number 3 on this page, he  
24 stated: (as read)

25 But I would like to add something before she  
26 takes it on, and that is that at baseline

1           for -- for the study in the Grassy Mountain  
2           area, waterfowl, which you had mentioned, and  
3           waterbirds in general are very rare because  
4           there's very little open-water habitat and  
5           open-water wetlands.

6           MS. KAPEL HOLDEN:           And if I can get the Zoom host  
7           to turn to page 5741 in the same volume. Perfect.

8           Q   MS. KAPEL HOLDEN:           So later on, when Mr. Houston,  
9           at line number 7, was asked if Benga would agree to  
10          this type of recommendation being included as a  
11          condition within a potential approval, again, at  
12          line 7, Mr. Houston stated: (as read)

13                The situation here, as -- as Mr. Kansas  
14                pointed out, is entirely different from that.  
15                First of all, there -- we're -- we're not  
16                situated on -- on a major flight path of  
17                migratory birds, and there are not a lot of  
18                open water bodies, so the -- the incidents  
19                would be -- would be less frequent, but,  
20                also, incidental landings would -- would not  
21                be immediately harmful.

22           My question to you, Mr. Gregoire, is: Does Environment  
23           and Climate Change Canada agree with these statements  
24           made by Benga regarding the migratory pathways and  
25           potential exposure to affected water bodies in the  
26           proposed project area? And I'm referring specifically

1 to waterbirds.

2 A MR. GREGOIRE: All right. Paul Gregoire.

3 So there's a couple of considerations. And the  
4 first point that was made was that there is not a lot  
5 of open water, so if we consider the natural habitats  
6 there, not looking at the previous disturbance, the  
7 habitat is mainly bog and fens, so it's not very  
8 attractive to a waterbird such as waterfowl.

9 To the second point for migration movement, the  
10 open water bodies, such as tailings ponds and residual  
11 restored pond habitat, would be attractive to some  
12 waterfowl, but the -- the assessment is correct that  
13 once you get into the high mountain habitats, it's not  
14 on a -- the migration trajectory for waterfowl. They  
15 tend to go -- avoid the mountains or go around them  
16 that, say, the geese would fly over, but the -- would  
17 not be expected to stage in these areas. So I would  
18 say that these water bodies would not be very  
19 attractive to migrant waterfowl or waterbirds.

20 Q Thank you.

21 Okay. Now, just moving on to my next set of  
22 questions.

23 MS. KAPEL HOLDEN: No need to pull up the  
24 reference, Zoom Host, unless Mr. Gregoire would like to  
25 see it.

26 Q MS. KAPEL HOLDEN: In Benga's Exhibit CIAR 42,



1 Consultant Report Number 9, and it was Section 5.5.3,  
2 entitled "Change in Mortality Risk and Health", and  
3 specifically I'm referring to PDF page 305. On this  
4 page, Benga states: (as read)

5 In addition, changes to the health of  
6 waterfowl, shorebirds, and other species that  
7 nest along the shorelines and feed on aquatic  
8 life could occur if such species nest along  
9 the edges of the surge ponds. However, it is  
10 anticipated that the level of ongoing  
11 disturbance and noise at the surge ponds will  
12 deter birds from nesting along the pond  
13 edges.

14 MS. KAPEL HOLDEN: And then my next reference --  
15 and if I can get the Zoom host to please pull that  
16 up -- it's CIAR 70, which is Addendum 6, and PDF page  
17 69, please. Perfect. Thank you.

18 Q MS. KAPEL HOLDEN: On this page Benga responds to  
19 Environment and Climate Change Canada's SIR 21(d) which  
20 asks that Benga describe mitigation measures to limit  
21 wildlife interaction with untreated water accumulating  
22 in surge ponds, other water management pond and  
23 drainage ditches.

24 Benga here responds to the SIR by stating:  
25 (as read)

26 Final details of the mitigation measures is

1 subject to the development of a detailed  
2 mitigation and monitoring plans and adds that  
3 typical wildlife deterrence may include  
4 wildlife fencing, amphibian pitfall traps,  
5 and mannequins (scarecrows).

6 Benga also states at the top of that page: (as read)  
7 Due to the level of ongoing disturbance,  
8 wildlife exposure is not only of low  
9 likelihood, it is anticipated to be transient  
10 and would not provide a suitable long-term  
11 watering source for repeated exposure. As  
12 such, nominal exposure to impacted waters  
13 would be expected to have limited detrimental  
14 effect.

15 MS. KAPEL HOLDEN: And then, Zoom Host, if I  
16 could get you to please pull up CIAR 542, which is  
17 Environment and Climate Change Canada's submission, and  
18 it's PDF page 26. This is the wildlife and selenium  
19 section. Thank you.

20 Q MS. KAPEL HOLDEN: In the third paragraph here,  
21 you state that: (as read)

22 It is of the opinion that Benga has not  
23 adequately described the risks to wildlife  
24 related to the transport of selenium from  
25 waste rock, leachate, and exposure to  
26 receptors via dietary intake.

1 And in the next paragraph you state: (as read)

2 A well-known example of selenium toxicity in  
3 migratory birds occurred in the early and  
4 mid-1980s at Kesterson Reservoir inside the  
5 Kesterson Natural Wildlife Refuge in Central  
6 California, where levels of selenium in the  
7 aquatic food web resulted in productive  
8 failure and mortality of adult birds.

9 MS. KAPEL HOLDEN: Zoom Host, if I can get you  
10 just to turn to page 28 in that same exhibit. Thank  
11 you.

12 Q MS. KAPEL HOLDEN: Here Environment and Climate  
13 Change Canada states: (as read)  
14 Benga took steps to evaluate the potential  
15 impact of selenium exposure on aquatic-dependent  
16 Wildlife such as migratory birds; however,  
17 there are gaps in their analysis and overall  
18 conclusions.

19 MS. KAPEL HOLDEN: And my final reference, Zoom  
20 Host, is on page 30. If you could just move to PDF 30,  
21 please. Thank you.

22 Q MS. KAPEL HOLDEN: Here Environment and Climate  
23 Change Canada recommends in Recommendation 4.11(a)  
24 that: (as read)

25 If the revised risk assessment indicates that  
26 effects to wildlife receptors are likely,

1           then Benga be required to develop and  
2           implement mitigation measures to prevent  
3           adverse effects from potential exposure  
4           pathways of selenium, including surface water  
5           contamination.

6           So my question to you, Mr. Gregoire, after going  
7           through all those references: Does Environment and  
8           Climate Change Canada have suggested mitigation  
9           measures which Benga can implement to reduce the  
10          potential exposure pathways of selenium through surface  
11          water contacts for wildlife, specifically migratory  
12          birds?

13        A     MR. GREGOIRE:                So I can only --

14        A     MS. FAIRBAIRN:             Mr. Gregoire, go ahead.

15        A     MR. GREGOIRE:             -- speak to the wildlife use  
16          component, and then I'll defer to my colleagues. So  
17          the surge ponds --

18        Q     Yes, that would work. Thank you.

19        A     Surge ponds, assuming these are the lower-elevation  
20          constructed water bodies that collect the water runoff.  
21          So use of that will be dependent upon the adjacent  
22          habitat. For example, if there's good tree cover, good  
23          shoreline vegetation, that would greatly increase use  
24          by waterbirds. If it's very open, like, rocky, mud  
25          [sic] shoreline, no trees, no shrubs, very little  
26          grass, then use by birds would be much less. So

1           that -- that's one of the factors.

2           In a lower elevation, you may get a little more  
3           bird use, but because these are isolated in forest  
4           areas, the only things I would expect in there would be  
5           some of the cavity-nesting ducks depending on if  
6           there's any potential food source in those water  
7           bodies; otherwise, it would just be used for loafing.

8       Q     Thank you.

9           Is there anyone else on the panel that would like  
10          to answer the question?

11     A     MR. MUNDY:                    Yes.   This is Lukas Mundy  
12          here.

13          If it would be all right, I wouldn't mind  
14          discussing with a few of my colleagues what our  
15          potential mitigation recommendations could be if we  
16          were going to specify those.

17     Q     Thank you.   Yes.   Go ahead, please.

18     A     Thank you.

19          Okay.   Thank you for your patience.

20          So we've -- we've discussed, and ultimately the  
21          issue we raise in Recommendation 4.11-A that would  
22          require mitigation measures or suggested mitigation  
23          measures, that pertains to selenium and elevated levels  
24          in -- in watercourses and our -- and our concerns about  
25          risk and exposure to -- to wildlife, includes --  
26          including avian receptors.

1           We don't have a particular subclass [phonetic] --  
2   subset of mitigation measures that we would flag for  
3   this particular item. I think we would leave it up to  
4   Benga to identify -- and this would be through their  
5   monitoring programs that they've suggested that they  
6   undertake -- if -- if issues of selenium accumulation  
7   and increases in those local water bodies are found,  
8   that they would implement some level of mitigation.

9           If I think of the end-pit lake as an example, I  
10   believe it was flagged through the risk assessment as  
11   potentially being a water body that would have elevated  
12   levels of selenium, and they found that there would be  
13   a risk of exposure and health impacts to avian  
14   receptors that fed on insects and omnivorous birds in  
15   the end-pit lake scenario.

16           And one -- one strategy that I believe Benga  
17   mentioned was that rather than filling with untreated  
18   water, that there would maybe be an element of water  
19   treatment to lower those selenium concentrations in  
20   that particular water body.

21           So I -- I believe that's sort of the -- the lens  
22   we've -- we've looked at this issue through, would be  
23   including some elements of monitoring to identify  
24   issues and then mitigate using either water treatment  
25   or other methods to -- to improve the water quality  
26   within those, sort of, flagged water bodies.

1 Q Thank you.

2 And just as a follow-up -- and I note that there  
3 was some research that was discussed in that section of  
4 your submission. And this is for the full panel, so  
5 don't feel like, Mr. Mundy, that you have to answer  
6 this.

7 Are there any innovative mitigation measures or  
8 research that ECCC knows of to reduce the potential  
9 impact? And this could include wildlife as well as  
10 waterbirds. And I'm going to reference amphibians  
11 specifically. So there's been discussion of use of  
12 pitfall traps. Although standard, are there more  
13 effective methodologies that could be used?

14 A I'll -- I'll venture to take on this question at first  
15 but invite my colleagues to jump in with any additions.

16 So the pitfall traps you reference and that Benga  
17 suggests are one -- one method in which amphibians can  
18 be captured if they are attempting to lay their eggs  
19 within a water body that looks attractive for breeding.  
20 So that would be one method that could -- could be  
21 enacted.

22 I -- Benga, I believe, also mentioned using  
23 wildlife fencing. That -- I think that would be  
24 effective in slowing the movement or halting the  
25 movement of amphibians as they -- as they cross across  
26 the landscape.

1 Q Thank you.

2 So my question was more about asking if there are  
3 other innovative mitigation measures that you're aware  
4 of?

5 A In terms of capturing amphibians, I -- I'm not aware of  
6 any other potential mitigation measures aside from  
7 installing the traps and having some level of  
8 monitoring that would -- with people on-site watching  
9 those traps and -- and looking for wildlife movement.

10 Going back to your previous question, I think  
11 it -- and it falls in here. During our caucus with my  
12 colleague Paul Gregoire, he'd mentioned the use of -- I  
13 mean -- and we've talked about the use of effigies,  
14 like scarecrows, to limit the interaction of avian  
15 species on ponds. There are other types of effigies  
16 that could be used. I mean, we've talked -- I believe  
17 Mr. Kansas mentioned putting flagging tape out, the use  
18 of noisemakers, the use of coyotes. There's -- there's  
19 a number of different effigies that could be in  
20 incorporated in the project, and that could be maybe --  
21 I would say -- suggest revolving the use of effigies.  
22 Some effigies may be more useful for certain specific  
23 species than others.

24 Q Thank you.

25 And another follow-up question I have is: What is  
26 ECCC's thoughts on using pitfall traps for a long



1 period of time as a mitigation measure? And, again,  
2 Mr. Mundy, if there's somebody else on your panel that  
3 is more suited to answering that, that's fine.

4 A I wouldn't say -- it's not necessarily my -- my --  
5 my -- wheelhouse, I would say. I more looked at the  
6 assessment from a toxic standpoint. But I would say  
7 that pitfall traps -- I mean, the one -- pardon the  
8 pun. The one pitfall of using a pitfall trap would be  
9 if these amphibians are captured and left in the trap.  
10 So there would need to be an adequate level of having  
11 people on-site, check these traps to make sure that  
12 there's no amphibians sitting in there for prolonged  
13 periods of time. I feel like that could arise in some  
14 sort of animal care issues. So that would be my --  
15 if -- if the plan were to use traps, it would be to  
16 ensure that there's a level of checking of the traps  
17 that is consistent and even more checking during the  
18 breeding seasons when the amphibians are searching for  
19 water bodies of -- where to breed and lay their eggs.

20 Q Thank you, Mr. Mundy.

21 Is there anyone on the panel who would also like  
22 to answer that question or anything we've just  
23 discussed with Mr. Mundy?

24 Okay. Not hearing anything, I'll just move on to  
25 my next set of questions.

26 And I'll go back to Mr. Gregoire. I believe this

1 is a migratory birds question.

2 MS. KAPEL HOLDEN: Zoom Host, can I get you to --  
3 and I think it's already pulled up. Sorry. CIAR 542,  
4 which is ECCC's submission, and it's PDF page 32,  
5 please. Okay.

6 Q MS. KAPEL HOLDEN: Mr. Gregoire, in ECCC's  
7 submission, and I'm specifically looking at Section 4.2  
8 on migratory birds, paragraph 4, Environment and  
9 Climate Change Canada states: (as read)

10 Based on Benga's assessment of all wildlife  
11 values components, it is expected that the  
12 longest lasting impacts will be experienced  
13 by bird species requiring old-growth forests  
14 for breeding and foraging habits.

15 MS. KAPEL HOLDEN: Zoom Host, can we just move  
16 down to page 33, PDF 33, please. Thank you.

17 Q MS. KAPEL HOLDEN: Here in the "Conclusions"  
18 section, you conclude that: (as read)

19 The project will result in a loss for habitat  
20 for migratory birds for many years. For many  
21 years effects to specific species will vary  
22 depending on habitat preferences.

23 You also state that: (as read)

24 While cleared areas may create suitable  
25 habitats for certain species, others will not  
26 return to the project area until mature

1 forests are re-established.

2 Environment and Climate Change Canada also states that:

3 (as read)

4 Provided Benga meets the commitments they  
5 have stated, the effects of the project can  
6 be effectively mitigated.

7 MS. KAPEL HOLDEN: And, Zoom Host, if I can just  
8 get you to move to the next page, PDF page 34. Thank  
9 you.

10 Q MS. KAPEL HOLDEN: Environment and Climate Change  
11 Canada provides Recommendations 4.2, including that the  
12 Joint Review Panel request that Benga implement their  
13 commitments to -- and I'm looking at Number 2:

14 (as read)

15 ... undertake progressive reclamation as soon  
16 as possible to restore migratory bird habitat  
17 and to undertake monitoring and adaptive  
18 management to improve the efficacy of  
19 reclamation.

20 Mr. Gregoire, my question to you is: Does Environment  
21 and Climate Change Canada have a suggested time frame  
22 in which progressive reclamation would need to begin to  
23 ensure both the short- and long-term potential impacts  
24 to migratory birds are effectively mitigated?

25 A MR. GREGOIRE: Well, that's -- I think with  
26 this project, I -- I don't think that is a -- a choice

1           that we have here. We really have to go with what  
2           the -- the -- Benga is putting forward for the  
3           timelines that progresses reclamation. Obviously,  
4           sooner is always better. The sooner you can start  
5           putting the habitat back, the less of a lag you have,  
6           and the sooner birds will return to the landscape.

7    Q    Thank you.

8                    And would you have a timeline in mind that would  
9                    be specific to the mitigation efforts geared towards  
10                   mature forests to be re-established to optimally reduce  
11                   the impacts to migratory birds which rely on this  
12                   habitat?

13   A    So mature forest depends on the -- the quality of the  
14           habitat, the local climate. Mature forests are often  
15           described as being 60-plus years old. You can use the  
16           example of whitebark pine where they'll -- we note that  
17           they will only begin to produce a reasonable seed crop  
18           once they get beyond 60 years of age. I would probably  
19           ballpark it in -- in that area.

20   Q    And my next question is: How does Environment and  
21           Climate Change Canada view a potential delay from  
22           progressive reclamation impacting SARA-listed species?  
23           And specifically I'm looking, from your experience,  
24           whether there is a potential for a delay to SARA  
25           species to occur, as they seem to be more sensitive?

26   A    I guess that's true, and we did assess that. For this

1 project, the species related to migratory birds would  
2 be the olive-sided flycatcher, the common nighthawk,  
3 barn swallow.

4 So from our perspective, the barn swallow really  
5 aren't an issue here. They're not -- they're very  
6 uncommon. They like anthropogenic structures.

7 Common nighthawk is quite widely distributed, and  
8 it an opportunistic nester, so if you open up the  
9 landscape, like open, grassy areas, they take advantage  
10 of that, so we haven't identify a concern there.

11 Olive-sided flycatcher is notable in the area.  
12 It -- it does like mature forests, but it likes edge;  
13 it likes snags, but it tends to be along open-edge  
14 areas where there's water. So, I mean, they could --  
15 because the -- I would say that they're a little more  
16 common in the area; they could be slightly more  
17 impacted. But, again, it's one of those species where  
18 they're not habitat limited and they have a wide  
19 distribution. The concern with listing them is  
20 primarily habitat loss on the wintering grounds and  
21 issues of pesticides that those issues tend to being  
22 outside of Canada's domain.

23 Q Thank you.

24 And what about -- you mentioned "migratory birds".  
25 What about other SARA species in the area? Are you  
26 able to speak to a potential delay to other SARA

1 species and the impact?

2 A Nonmigratory birds is what you're getting at?

3 Q Yes.

4 A Though, I guess, if you're getting into species like  
5 grizzly bear and wolverine and western toad, we really  
6 don't have the expertise in that area, and because  
7 they're provincially mandated, we'd refer to the  
8 Province to respond to that.

9 Q Okay. Thank you.

10 And just as a follow-up: So is ECCC of the  
11 opinion that the delay in progressive reclamation will  
12 not have an impact on the recovery of SARA-listed  
13 species?

14 A Well, we believe, with mitigation, it's -- it will not  
15 negatively affect survival and recovery of the species  
16 for this project, for the species, specific species in  
17 the area that are being affected.

18 Q Just one moment, please.

19 Thank you, Mr. Gregoire and panel. Those are all  
20 of staff's questions.

21 THE CHAIR: Okay. Thank you,  
22 Ms. Kapel Holden.

23 Mr. Lambrecht, do you have questions for this  
24 panel?

25 MR. LAMBRECHT: Yes, I do.

26 The Alberta Energy Regulator Secretariat Questions

1 Government of Canada

2 Q MR. LAMBRECHT: Good morning, panel. My name  
3 is Kirk Lambrecht. I am one of the counsel to the  
4 Panel, and I have a few questions for you from federal  
5 analysts.

6 I will direct my questions to the panel as a  
7 whole, and I'll leave it open to the panel to determine  
8 who might be in the best position to reply, but I would  
9 ask that the person with the best evidence provide the  
10 answer, if that's possible. And I leave it to the  
11 panel to determine who that might be.

12 Now, my first question arises in relation to  
13 greenhouse gas emissions. And I would ask the Zoom  
14 host to pull up CIAR 552 at PDF page 59.

15 Panel, CIAR 542 is the Government of Canada's  
16 submissions, and I'm going to take you to that part of  
17 it that expresses ECCC conclusions on page 59.

18 MR. LAMBRECHT: Zoom Host, the passages that I  
19 want to refer to are in the -- include the heading and  
20 the first three paragraphs. So if you can zoom in. If  
21 those are most visible, that's ideal. Perfect. Thank  
22 you, Zoom Host.

23 Q MR. LAMBRECHT: Panel members, are you able to  
24 see this on your screen?

25 A MS. FAIRBAIRN: Yes, I am. Thank you.

26 Q All right. So you'll see in the first sentence of the

1 second paragraph that ECCC concludes: (as read)

2 Projects can be assessed in terms of their  
3 emissions intensities, "EI". The "EI" refers  
4 to the greenhouse gas emissions generated per  
5 unit of production.

6 And then in the first sentence of the third paragraph  
7 of this conclusion, ECCC states: (as read)

8 With the emission information provided by  
9 Benga, the mine would fall in the middle  
10 range of currently operating mines, (not the  
11 worst, but not the best) with respect to EI.

12 Now, I'm sure you're familiar with the details of this,  
13 as these are expressed in some -- and some of the  
14 qualifications that are expressed in the rest of this  
15 paragraph, so I won't take to you them. Rather, in the  
16 interest of time, I'll ask my question.

17 MR. LAMBRECHT: And, Zoom Host, you can take  
18 this down now.

19 Q MR. LAMBRECHT: And here's my question: Is  
20 ECCC able to provide further insight as to why other  
21 metallurgical coal mines in Canada have lower emissions  
22 intensities, especially given that the project plans to  
23 use a -- modern mobile fleet equipment?

24 A MS. FAIRBAIRN: Mr. Chairman, let us consult  
25 for one minute, please. Thank you.

26 A DR. ASHER: Hi. Thanks for -- thanks for



1 your patience.

2 THE COURT REPORTER: Sorry. Can I confirm who's  
3 speaking? I can't see.

4 A DR. ASHER: Hi. It's Brian Asher,  
5 Environment and Climate Change Canada. Can you hear  
6 me?

7 THE COURT REPORTER: Yes, I can.

8 A DR. ASHER: Thank you.

9 We -- at Environment and Climate Change Canada, we  
10 don't have specifics with respect to these -- the  
11 technologies that are implemented at the other mines  
12 and the mines that are in reference to the -- the --  
13 the -- the other GHG emission intensities that were  
14 referred to in our submission are six Teck coal mine --  
15 metallurgical coal mines. We don't have those specific  
16 details of their technologies.

17 So, in general, they -- and -- and specifically we  
18 don't have expertise on -- on the greenhouse gas  
19 emissions technologies. But you mentioned about mobile  
20 fleet and the -- in general, the mobile fleet in the  
21 Tier 4 mobile fleet that Benga has proposed, those are  
22 specifically for reduction of criteria air contaminants  
23 and not specific -- not generally for greenhouse gases,  
24 and so we don't have comparison of the other  
25 technologies -- the other technologies, other than  
26 mobile fleet that we could make a good assessment of

1           why they're a middle of the range.

2           Thank you.

3    Q    Thank you, Dr. Asher.

4           A follow-up question: Does ECCC have any insight  
5    into the relationship between use of electrical mining  
6    equipment or electrically powered mining equipment and  
7    the mine in relation to the -- to the grid? In other  
8    words, is there any relationship between infrastructure  
9    and the use of electrical mining equipment in  
10   metallurgical coal mines or other comparable mining  
11   contexts?

12   A    I don't specifically have that type of information. I  
13   could confer with my colleagues. I -- I imagine that  
14   the answer is we don't have a clear answer for you on  
15   that -- on that question.

16   Q    If you'd like to consult, please do so.

17   A    Thank you.

18           Thank you again for your patience.

19           I'd like to confirm the details of your question.  
20   Are you -- is your question that because the emission  
21   intensity of the grid from one jurisdiction, like  
22   Alberta versus BC, could be quite different because of  
23   different sources of electricity that you might see  
24   different implementation of electrical components as  
25   part of mines from one -- from mines in one  
26   jurisdiction versus another?

1 Q Just let me consult with staff on that request for  
2 clarification, Dr. Asher.

3 A Thank you.

4 Q Thank you for your patience as I consulted with the  
5 staff.

6 I would say in general terms, yes, that's a  
7 correct interpretation of the question. What we're  
8 really trying to understand is if you can offer any  
9 insight as a result of your expertise as to whether  
10 being located near infrastructure that allows for more  
11 use of electrical mining equipment is a factor in -- or  
12 whether location and topology of the mines makes a  
13 difference. And by topography [sic], I mean for the  
14 landscape, whether it's hilly or flat?

15 A Thanks for the clarification.

16 Not being specifically an expert in this -- this  
17 aspect of the technology and GHG emission mitigation,  
18 I -- I, unfortunately, don't have an answer for you on  
19 that -- on that question. Simply don't -- don't know.

20 Thank you.

21 Q That's fine. Thank you.

22 I'd like to move on to another question just on  
23 wildlife. And I think in the interest of time, what I  
24 will do is I will set the context by referring you to  
25 some of the passages in the record, but I won't ask the  
26 Zoom host to display these.

1           And this specifically relates to the suitability  
2 of the local or regional study area for Plains bison.  
3 And there are two documents I'll refer to.

4           The first is CIAR 564 at page 25. This is a  
5 Ktunaxa submission. They referred to the buffalo  
6 treaty signed by a number of Indigenous groups and say  
7 here: (as read)

8           The project is located in an area that is  
9 critically important for bison habitat  
10 suitability and capability, as well -- as  
11 well as the viability of future KNC and other  
12 Indigenous harvest of bison in the project  
13 area.

14 Now, the second document I'll refer you to is a  
15 document provided by the proponent. It's CIAR 251 at  
16 Package 5. And, really, the information in these pages  
17 runs from 240 to 245, and it provides some analysis of  
18 the suitability of the terrain for bison.

19           It indicates that -- on 240 that bison were quite  
20 likely present at sometime in the past in the  
21 Crowsnest Pass and project area, and it was unlikely  
22 that bison herds in mountainous areas could have  
23 survived without a direct connection and constant  
24 replenishment from the larger herds found on the  
25 Prairies. It looks over a number of descriptions of  
26 the habitat, talking, for example, about the

1       preventative habitat that is foothills rough fescue and  
2       suggesting that the wildlife local study area could  
3       provide some winter habitats for Plains bison if a  
4       reintroduction program was successful.

5               PDF 245, that Benga has committed to work with the  
6       Ktunaxa and other Indigenous groups to ensure that  
7       Indigenous goals are effectively incorporated in the  
8       reclamation planning process and that Benga would  
9       certainly consider inclusion of measures specific to  
10      the possible re-establishment of bison in the area.

11              So with that context, my question to this panel is  
12      whether the panel or ECCC could comment on landscape  
13      requirements for Plains bison?

14   A   MR. GREGOIRE:                It's Paul Gregoire here.  
15        Thank you for the question.

16   Q   Good morning, Mr. Gregoire.

17   A   Well, I'll offer you two comments. One is that, from  
18      our experience, bison are heavy-body animals that tend  
19      to stay at lower elevations feeding on grasses and  
20      sedges. But other -- other than that, we really don't  
21      have in-house expertise on bison, so I would have to  
22      refer you to the Province of Alberta, who does the  
23      day-to-day management of that species.

24   Q   Can the panel comment on whether it has any views on  
25      the suitability of the habitat in the local or regional  
26      study area and its ability to support reintroduction of

1 bison at a future point in time?

2 A In the general sense, a lot of the land is now in  
3 private holdings, and you don't have the large  
4 landscapes that would be suitable for bison  
5 reintroduction, so that's a compounding factor that  
6 would have to be dealt with.

7 Otherwise, there are herbivores that feed on  
8 grasses and sedges, and if there was ample habitat in  
9 that regard, like we've seen in introductions in  
10 Waterton and Banff, I -- not being an expert in that  
11 area, I wouldn't see any reasons why they couldn't be  
12 introduced, but you have to get through these other  
13 obstacles of having open habitat for them.

14 Q Thank you, Mr. Gregoire.

15 Panel, I'd like to move on to another question.  
16 There's a set of questions here, and I'm going to ask  
17 the Zoom host, please, to display for you CIAR 251 and,  
18 specifically, at paragraph 216.

19 MR. LAMBRECHT: All right. I want to refer to  
20 the text that appears under the heading of "Response".  
21 So, Zoom Host, if you could zoom into that paragraph,  
22 please. Not the -- not the quotation, but the  
23 paragraph. That's fine. Thank you. That seems  
24 suitable.

25 Q MR. LAMBRECHT: Panel, are you able to see  
26 this?

1 A MS. FAIRBAIRN: Yes, we are. Thank you.

2 Q Right. So this talks about a 20 percent threshold, and  
3 so I have a question in respect of that. You'll see in  
4 the quotation that: (as read)

5 Benga used the conservative threshold of  
6 20 percent loss of effective habitat at the  
7 regional level for significance of effect of  
8 habitat loss on wildlife species.

9 My question for the Panel is: Can ECCC discuss the  
10 suitability of using the same 20 percent habitat loss  
11 threshold for significance of residual effects for all  
12 the wildlife species, including species listed under  
13 the Species at Risk Act, found in the project local and  
14 regional study area?

15 A Thank you, Mr. Chairman. Can we just have one moment,  
16 please? Thank you.

17 A MR. GREGOIRE: It's Paul Gregoire here.  
18 Thank you for the question.

19 That -- that's a very broad question, and  
20 Environment Canada only has limited expertise primarily  
21 related to migratory birds and then for a limited  
22 number of species at risk, though, for a majority of  
23 species, such as the raptors, mammals, herptiles, I --  
24 I would have to refer you to the Province of Alberta  
25 and their expertise.

26 Q Perhaps, Mr. Gregoire, can you then focus on those

1 species that ECCC has knowledge of and especially the  
2 species at risk designated under the Species at Risk  
3 Act that are located within the local or regional study  
4 area?

5 A So for species at risk, we do take into consideration  
6 the status of the species, though we -- I'll just take  
7 an olive-sided flycatcher. We know they're -- they are  
8 in the area. There will be some habitat loss.  
9 20 percent threshold, from a regional study area  
10 perspective, I would say that's not unreasonable for  
11 that species simply because when you look into the --  
12 the -- the life history and biology of the species,  
13 it's not habitat limited in Canada, so the reason it  
14 was listed is primarily because of habitat loss in the  
15 winter -- wintering grounds and pesticides. So in --  
16 in that context it -- I think the 20 percent wouldn't  
17 affect survival or recovery of this species or wouldn't  
18 reach the thresholds with regards to effects on that  
19 species.

20 Q Can you comment on other species, sir?

21 A MS. FAIRBAIRN: Go ahead, Paul.

22 A MR. GREGOIRE: Other species of migratory  
23 birds, but they're not very common. Like, common  
24 nighthawks, not common; it's not really habitat  
25 limited. Same with barn swallow. There's just  
26 different issues affecting that -- that species.



1           And, otherwise, I think I would have to defer to  
2           the Province.

3       Q    Does ECCC have any recommendations for how habitat  
4           loss from the project should or could be considered  
5           in determining the significance of project effects to  
6           species at risk and migratory birds?

7       A    Well, in consideration of mitigation measures, I mean,  
8           weighing in that they are planning to undertake  
9           progressive reclamation, that there is an existing  
10          legacy footprint on the mine site, and they will be  
11          restoring that, and in consideration of putting back  
12          the closed-canopy coniferous forest, if they're  
13          successful with the whitebark pine in actually putting  
14          back less-resistant whitebark pine, consider all those  
15          measures together, then, in -- our view is that,  
16          overall, the effects of the project could be reasonably  
17          determined as mitigable.

18      Q    Could the 20 percent loss of effective habitat at the  
19           regional level number affect the recovery of  
20           SARA-listed species in the region or local study areas?

21      A    So, again, if we're speaking to migratory birds -- so  
22           we're saying it's temporary loss because there will be  
23           mitigation. So in -- in that context, say -- we  
24           haven't identified a conservation concern there, no.

25      Q    Thank you.

26      MR. LAMBRECHT:                   Zoom Host, you can take this

1 down.

2 I'd like to move on to a question on a slightly  
3 different topic, and -- although one related. And I'm  
4 going to ask, Zoom Host, to pull up, please, CIAR 542  
5 at PDF 333. And I'd like to refer to the passage at  
6 the bottom, under the heading "ECCC's Conclusions". If  
7 you could zoom in and scroll down, that would be fine.  
8 That's perfect, Zoom Host. Thank you very much.

9 Q MR. LAMBRECHT: Panel, are you able see this  
10 on your screens?

11 A MS. FAIRBAIRN: Yes, we are. Thank you.

12 Q All right. Thank you.

13 So ECCC indicates here that: (as read)  
14 The project will result in loss of habitat  
15 for migratory birds for many years and that  
16 ECCC agrees with Benga's characterization of  
17 effects and is supportive of the reclamation  
18 activities proposed by Benga, including the  
19 restoration of the legacy mine footprint.  
20 The mitigation measures proposed by Benga  
21 would need to be implemented to reduce  
22 project-related effects on birds related to  
23 habitat loss, and provided that Benga meets  
24 the commitments that they have stated, the  
25 effects of the project can be effectively  
26 mitigated.

1 And I take it that that comment relates to migratory  
2 birds.

3 And so my question for ECCC is: With respect to  
4 the statement that effects of the project on migratory  
5 birds can be effectively mitigated, can ECCC clarify at  
6 what stage of the project and year of development that  
7 effective mitigation would be achieved?

8 A Mr. Chairman, one moment, please, just to -- one  
9 second. Thank you.

10 MR. LAMBRECHT: Zoom Host, I don't think it's  
11 necessary to leave this document up for the witnesses'  
12 responses. Thank you.

13 A MR. GREGOIRE: Maybe I'll just get you to  
14 repeat the question, if you will, please.

15 Q Yes. With respect to ECCC's statement that effects of  
16 the project on migratory birds can be effectively  
17 mitigated, can ECCC clarify at what stage of the  
18 project and what year of development that effective  
19 mitigation would be achieved?

20 A So it is a -- it is a loaded question because there's a  
21 number of factors. There's ecological context, and  
22 then there's the regulatory context when something is  
23 deemed recovered. So from -- from the species wildlife  
24 perspective, I mean, the ultimate goal is to achieve  
25 mature, closed-canopy forests that -- that replicate  
26 what was removed, and -- and we're aware that that

1 would take, you know, minimum 30 years for some of  
2 those trees to start producing cones, if we're speaking  
3 about whitebark pine; and then for mature forests,  
4 minimum 60 years to start to think about reaching  
5 mature-forest status if mitigation measures are  
6 successful.

7 A different approach is to look at -- is to accept  
8 that mitigation will not replicate existing forest to  
9 100 percent and wildlife will come back, but it may be  
10 a different mix of wildlife or different guilds of  
11 species and -- which is not necessarily a bad thing,  
12 as -- as long as there's species coming back and those  
13 species are representative at different seral stages of  
14 forests, and you're aware that the forests are on the  
15 trajectory to becoming mature forests. So there's  
16 different ways to -- to look at it. But, ideally, if  
17 you are trying to restore a mature forest on the  
18 landscape, 60 years would be the likely minimum there.

19 Q Thank you, Mr. Gregoire.

20 By way of sort of follow-up question: Can ECCC  
21 speak to whether there may be any potential impacts to  
22 recovery of SARA-listed species given the time gap  
23 between project effects and reclamation?

24 A Speaking to the migratory bird SARA species, obviously  
25 there will be displacement into adjacent habitat for a  
26 number of years. Again, I'll use the example of the

1 olive-sided flycatcher that tends to like mature  
2 forests, forest edge. But given that it is a widely  
3 distributed species and then the reasoning for it being  
4 listed, we didn't identify a conservation concern  
5 there.

6 Q Can ECCC define what it considers to be effective  
7 mitigation? It states that: (as read)

8 Provided that Benga meets the commitments  
9 that they have stated, the effects of the  
10 project can be effectively mitigated.

11 A So we're speaking to restoring ecosystems that were  
12 lost over time, so restoring the plant communities and  
13 then the -- the bird communities.

14 Q I would like to turn to a question about the little  
15 brown myotis of -- while I communicate with the staff  
16 concerning your answers. So I'm going to pose a  
17 question that --

18 MR. LAMBRECHT: I think what I will do is I  
19 will ask the Zoom host to pull up CIAR 360, page 106.  
20 Zoom Host, you can leave it at that level of  
21 magnification for now.

22 Q MR. LAMBRECHT: Panel, this is Table 2.9A,  
23 "Wildlife Mitigation and Commitments Summary Table".  
24 The left-hand column, "Pathway of Effect", addresses  
25 changes in wildlife habitat suitability through habitat  
26 loss or sensory disturbance.

1           The third column is a description of the  
2 mitigation or commitment. And I want to refer to Item  
3 Number 16 in that third column.

4           MR. LAMBRECHT:                 So, Zoom Host, if you could  
5 perhaps zoom into that passage.

6   Q   MR. LAMBRECHT:                 It says: (as read)  
7           Benga will assess the presence/absence of  
8           bats in potentially high-quality habitats  
9           located within the project footprint at least  
10          one year prior to the initiation of any  
11          clearing activities. In the event that any  
12          maternal colonies and/or roosting sites are  
13          identified, Benga will develop a mitigation  
14          plan in consultation with AEP [which I  
15          understand to be Alberta Environment and  
16          Parks] and ECCC personnel.

17         Now, Benga --

18         MR. LAMBRECHT:                 Thank you, Zoom Host. This  
19 can come down.

20                 I'll ask you to pull up CIAR 89 at PDF page 66,  
21 please. And I want to refer to the second bullet from  
22 the top, Zoom Host, so -- or the first bullet, so you  
23 can zoom into that. Thank you.

24   Q   MR. LAMBRECHT:                 Panel members, this indicates  
25 that Benga will conduct swarming surveys within the  
26 mine permit boundary and consult with AEP and ECCC

1 should swarming surveys conclude the presence of a bat  
2 hibernaculum.

3 MR. LAMBRECHT: Zoom Host, you can take that  
4 down, please. Thank you.

5 Q MR. LAMBRECHT: So I'd like to ask ECCC to  
6 elaborate, if it's in a position to do so, on the types  
7 of mitigation measures that Benga may have to implement  
8 if maternal colonies, roosting sites, and/or  
9 hibernacula for the little brown myotis are discovered  
10 in the area of the project footprint?

11 A So in that regard, I would likely refer to Alberta  
12 Environment and Parks. They have more expertise and  
13 mandate in that -- in that area.

14 Q So when the proponent indicates it would consult with  
15 ECCC personnel, is that someone different than this  
16 panel, or does ECCC just simply not have the expertise?  
17 And if the proponent were to approach them on these  
18 topics in the mitigation teams, as I've outlined, ECCC  
19 would simply return them to the Alberta Government and  
20 perhaps Alberta Environment and Parks?

21 A ECCC did raise questions regarding hibernacula in a --  
22 in the information requests, so we would definitely  
23 like to see what kind of mitigation they come up with  
24 for that. That's the only area we commented on.

25 Q So is ECCC in a position to advise how Benga may have  
26 to adjust its mine development plan if such features

1           were discovered?

2    A    I would say that, no, we're not.

3    Q    All right. Thank you.

4           I'm going to return, I think, to another question.  
5    And this is going -- so this is kind of a follow-up,  
6    and it is: How would ECCC ensure that any such  
7    measures that were implemented by Benga were consistent  
8    with the recovery strategy for the little brown myotis?

9    A    Well, the recovery strategy has identified hibernacula  
10   as critical habitat. So Environment Canada, while we  
11   presented in our information request, we wanted to  
12   confirm whether there are, in fact, hibernacula.  
13   Currently the -- Benga's position is there are none  
14   present, but if there were hibernacula present, then  
15   we'd be interested in any mitigation measures the  
16   company could put forward to address that issue.

17   Q    Would it be necessary for the company to seek a permit  
18   from ECCC should there be hibernacula discovered?

19   A    Because bats are a mammalian species, you know, their  
20   activities that are on private or provincial Crown  
21   land, SARA prohibitions would not apply, so a SARA  
22   permit would not be required in this instance.

23   Q    All right. ECCC panel members, I want to move to a  
24   topic that involves the integration of your work with  
25   that of the Impact Assessment Agency of Canada.

26           Now, each of your agencies provided a chapter in



1 the Government of Canada written submission to this  
2 Joint Review Panel. And in that chapter, the Impact  
3 Assessment Agency of Canada described its whole of  
4 government approach to the assessment of project  
5 impacts.

6 And I would like to ask ECCC to comment on whether  
7 they provided any scientific expertise to the whole of  
8 government assessment of impacts to rights that was the  
9 subject of the IAAC chapter and specifically related to  
10 the reintroduction of bison and the suitability of the  
11 Grassy Mountain Project area for future bison  
12 reintroduction.

13 A MS. FAIRBAIRN: Mr. Chairman, I -- that really  
14 was -- was the Impact Assessment Agency PV [phonetic],  
15 and during that theme, we talked about the Aboriginal  
16 input and the tables they're putting together on all  
17 the -- the VEX. Yeah, so we don't have that expertise  
18 at this hear -- at -- for this theme, but it is the --  
19 was the responsibility of the Impact Assessment Agency  
20 for that.

21 Q And did ECCC provide input into the Agency's work in  
22 that respect?

23 A We reviewed the tables, and I -- I think there's more  
24 to come on consultation. The Impact Agency has been  
25 doing most of the consultation, and if there's  
26 information that relates within our mandate, then they

1           come to each of the departments.

2           I -- I'll let Brenda talk about whether they  
3           consulted with Health, but our understanding is that as  
4           they get information from the First Nations and Métis  
5           groups on any areas within our -- our own mandates,  
6           then they consult with us.

7    Q    Ms. Fairbairn, I can -- I can save this panel time.  
8           I'm interested in ECCC's contribution to the IAAC work  
9           under the whole of government rubric?

10   A    Well --

11   Q    Did ECCC contribute to the IAAC assessment; and if so,  
12           how did it do so?

13   A    One moment, please. Thank you.

14   THE CHAIR:                    Mr. Lambrecht, I'm not sure  
15           how much more you have, but we are going to need a  
16           break shortly, so just keep that in mind.

17   MR. LAMBRECHT:                I think I only have a few  
18           questions remaining, but I would be happy to take a  
19           break. I could complete within a few minutes after the  
20           break.

21   THE CHAIR:                    If you only have a few  
22           minutes, might be preferable to finish before the  
23           break, and then we'll turn to Panel questions next.

24   MR. LAMBRECHT:                Certainly, Mr. Chair. Thank  
25           you.

26   A    MS. SMALL:                   Hello, Mr. Lambrecht. This is

1 Jody Small with ECCC.

2 Q Good morning.

3 A Good morning. To answer your question, the answer is:  
4 No, Environment and Climate Change Canada was not  
5 consulted or involved with assisting the agency in  
6 drafting their portion of their submission.

7 Q Thank you, Ms. Small.

8 Mr. Gregoire, I have a follow-up to you, and it is  
9 this: You had mentioned that listed bird species would  
10 disperse to adjacent areas if habitat moved by -- is  
11 removed by Benga's activities. And could ECCC please  
12 comment on the cumulative effects of listed bird  
13 species if dispersal is limited due to logging  
14 activities in the regional study area, as suggested in  
15 some of the materials provided by the proponent?

16 A MR. GREGOIRE: Yes. Logging would be another  
17 impact on the landscape that would definitely  
18 contribute to the cumulative effects and increasing  
19 cumulative effects in the regional study area.

20 Q Would it assist you, Mr. --

21 A I --

22 Q I'm sorry, Mr. Gregoire. I didn't mean to cut you off.

23 A No. Go ahead.

24 Q Would it assist you if I displayed a figure that shows  
25 the existing and planned forestry projects within the  
26 wildlife study area?

1 A So I think what you're getting at -- and you are going  
2 to show us -- there little brown myotis a large logging  
3 or forestry footprint there.

4 Q Without using the word "large", there is a diagram.  
5 It's CIAR 89, the eighth addendum, at PDF page 760.  
6 It's a diagram that we displayed during questioning of  
7 Benga yesterday.

8 And the bright green and dark green areas show  
9 projected forestry operations. So light green is  
10 forestry to 2032, and the very dark green is forestry  
11 operations to 2045.

12 And so this is the information that the proponent  
13 has provided about future forestry.

14 MR. LAMBRECHT: You can take that down, Zoom  
15 Host.

16 Q MR. LAMBRECHT: Does that assist you,  
17 Mr. Gregoire, in any way?

18 A Yes.

19 Q Do you have anything you'd like to add?

20 A Well, they will increase cumulative effects in -- in  
21 the regional study area, and birds would be displaced,  
22 and they'd probably be displaced from -- to a further  
23 distance.

24 But from the forest -- the logging forests will  
25 change the zero stages and alter the dynamics in the  
26 area, so you will get different species, different

1 gills of species coming in, though there's -- I mean  
2 there's different ways to look at -- look at it.  
3 Depending on whether your target is mature, boreal  
4 forests, or just a variety of habitat with different  
5 gills of birds on the landscape.

6 Q Thank you, Mr. Gregoire.

7 If you'll just give me a moment, I'm confirming  
8 with the staff that my questions are completed.

9 I'd like to thank the panel for providing and  
10 making available to the Joint Review Panel their  
11 expertise and for their evidence this morning, and  
12 participation in the Joint Review Panel process. I  
13 don't have any further questions. Thank you very much.

14 THE CHAIR: Okay. Thank you,  
15 Mr. Lambrecht.

16 It's 10:25, so we will take our 15-minute morning  
17 break and resume at 10:40 with Panel questions. Thank  
18 you.

19 (ADJOURNMENT)

20 THE CHAIR: Okay. Welcome back, everyone.

21 So we're going to turn to the Panel questions now,  
22 and we're going to use the same approach we used for  
23 Benga for this topic area. So I've done some work with  
24 the subject matter experts in this area, so I'm going  
25 to ask a combination of staff and Panel questions, and  
26 then I'll open it up to Mr. O'Gorman and Mr. Matthews

1 if there's any further questions.

2 Alberta Energy Regulator Panel Questions Government of  
3 Canada

4 Q THE CHAIR: I was going to ask my wildlife  
5 health risk questions first, but I'm a little worried  
6 that the Health Canada witnesses may be bored, so I'm  
7 going to start with the human health risk assessment  
8 instead, and then we'll do the wildlife health risk  
9 after.

10 So starting with some questions related to coal  
11 dust. So in CIAR 251, on page 480, Benga states that  
12 metals and polycyclic aromatic hydrocarbons, or PAHs,  
13 are the chemical constituents of interest in coal dust  
14 with respect to effects on human health.

15 Benga goes on to state that PAHs attached to coal  
16 dust particles have limited bioavailability; therefore,  
17 exposure to PAHs was estimated using air concentrations  
18 from combustion processes only.

19 Benga states that modelled results from metals are  
20 inclusive of coal dust contribution, and, thus, coal  
21 dust as a chemical or contaminant of potential concern  
22 is already part of the multimedia exposure assessment  
23 within the human health risk assessment.

24 Benga's coal dust assessment is based upon the use  
25 of predicted PM 10 concentrations which is used as a  
26 surrogate for coal dust. Coal dust, as represented by

1 PM 10 HQs, were predicted to exceed a target HQ of 0.2  
2 at one location at the edge of the open pit. At  
3 this -- as this HQ was less than 1 and the area is  
4 inaccessible to the public, Benga interpreted  
5 negligible risk from coal dust at this location.

6 In its submission, Health Canada noted that the  
7 site-specific -- that site-specific analyses were not  
8 used to inform the assessment, including that of dust.  
9 Health Canada noted that PAHs and metals can enter deep  
10 into the lungs and into the blood circulation where  
11 they are delivered to organs and tissue, causing  
12 adverse effects. Health Canada also noted that Benga's  
13 default average PM 10 concentration is not consistent  
14 with project activities and so is likely an  
15 underestimate. Health Canada recommended monitoring to  
16 verify the human health risk assessment of coal dust  
17 and assist with mitigation measures.

18 So the question is: What is Canada --  
19 Health Canada's view of the use of PM 10 as a surrogate  
20 for exposure to coal dust, and does this approach  
21 address all potential health concerns associated with  
22 exposure to coal dust?

23 A MS. WOO: Can you give us one moment,  
24 please?

25 Q Certainly.

26 A Hi. Thank you for your patience. We have

1 Luigi Lorusso [sic] going to answer that question for  
2 us.

3 Q Okay. Thank you.

4 A MR. LORUSSO: Hi. So to reiterate the  
5 question, essentially, is the dust PM 10 a good  
6 surrogate for assessing exposure to metals and pHs  
7 from -- or other substances in the risk assessment; is  
8 that correct?

9 Q Yeah. It's about the appropriateness of using PM 10 as  
10 a surrogate for exposure to coal dust, which would  
11 include metals and pHs?

12 A Right. So I think the short answer would be: Not  
13 necessarily, given the fact that -- that exposures to  
14 the coal dust itself were not addressed in the risk  
15 assessment, inhalation of particulate can -- substances  
16 bound to the particulate matter can actually still be  
17 absorbed into the body and have systemic effects as  
18 noted in our comments. So, essentially, it wouldn't  
19 necessarily be a good surrogate.

20 Q Okay. So does Health Canada accept Benga's statement  
21 that risks to human health from PAHs in coal dust are  
22 negligible due to low bioavailability?

23 A MS. WOO: One moment, please.

24 A MR. LORUSSO: Sorry. Can you just repeat  
25 the question again, so I can phrase my answer  
26 correctly?



1 Q Sure. Does Health Canada accept or agree with Benga's  
2 statement that risks to human health from PAHs in coal  
3 dust are negligible due to low bioavailability?

4 A Yeah. So the issue of bioavailability really depends  
5 on the material that it's been exposed to, so the coal  
6 dust itself. So without actual analysis of the coal  
7 dust to demonstrate its bioavailability, that would be  
8 difficult to say.

9 But the way it was assessed in the risk  
10 assessment, there was no actual human health  
11 bioavailability impact. It was based on leaching to  
12 the environment and/or leaching to the -- into other  
13 organisms other than humans.

14 So that assertion that it wouldn't be bioavailable  
15 to humans may not necessarily be an accurate statement.

16 Q Okay. Thank you.

17 Similar question: Does Health Canada accept or  
18 agree with Benga's statement that their assessment of  
19 risks from metals includes metals that may be  
20 associated with coal dust?

21 A So I think the answer to that would be the same as with  
22 the pHs. Again, there was no actual assessment of  
23 metals bioavailability to -- to humans or the exposure  
24 to coal dust to humans. It was based on leaching into  
25 the environment and then subsequent exposure.

26 Q Okay. Thank you. Just one moment.

1           So just to follow-up: So in the absence of  
2 additional baseline data for particulate matter on the  
3 record, is Health Canada confident that the total risk  
4 to human health from baseline plus mine-related dust  
5 has not been underestimated?

6 A MS. WOO:                   Hi. This is Brenda. We're  
7 going to need a moment.

8 Q Sure.

9 A MR. LORUSSO:               Hi again.

10           So, essentially, you know, even the uncertainties  
11 associated with any risk assessment, and including this  
12 risk assessment, whether the estimates were  
13 underpredicted or not would be difficult to say  
14 whether, in the end, they would be acceptable risks.  
15 So they may have underpredicted risk, but overall the  
16 risk may still be acceptable. It's hard to say  
17 without, you know, having to go through all the numbers  
18 again, assessing all the different input parameters of  
19 their associated uncertainties and -- and also  
20 recognizing what the actual concentrations little brown  
21 myotis in the environment at the time of the exposures.

22           So while they may have -- if they underestimated  
23 the actual risks due to the nature of uncertainties,  
24 whether that will pose an actual risk in the end would  
25 be difficult to say at this time.

26 Q Yeah. So the question was really around whether

1 Health Canada thought that the -- that the risk had  
2 been underestimated as opposed to whether it was  
3 acceptable. Do you have any comments on that or not?

4 A MS. WOO: So we're going to need a  
5 moment, please.

6 Q Okay.

7 A MR. LORUSSO: Thank you for that moment.

8 Yes, I think, in -- in general, we do believe that  
9 the overall calculations may have underestimated the  
10 risks to human health, the extent to which we don't  
11 know. We couldn't say.

12 Q Okay. And that's specific to particulate matter?

13 A Correct.

14 Q Yeah. Okay. Thank you.

15 So is Health Canada confident that Benga's  
16 proposed mitigation for PM 10 and PM 2.5 will provide  
17 adequate protection from coal dust and, again, health  
18 effects from coal dust?

19 A MS. WOO: We're going to need a minute  
20 here.

21 Q Okay.

22 A Hi. Thank you for the -- your patience.

23 We have Marie-Ève Héroux [sic] going to respond to  
24 that question for us.

25 Q Okay. Thank you.

26 A MS HÉROUX: Good morning, everyone.

1           So if you allow me, I can address this question  
2           from the perspective of health effects of particulate  
3           matter in -- in general from all sources and not only  
4           specifically coal dust. If this is an answer that is  
5           satisfactory to you, then I can -- I can go ahead.

6    Q    Yeah. Go ahead, please.

7    A    Okay. So from this project, there are emissions of  
8           particulate matter from a variety of sources, and so  
9           when we look at this as a whole in terms of how  
10          exposure to PM 10 or PM 2.5 would affect health from a  
11          population perspective, we do not see a threshold in  
12          health effects, meaning that any increase in exposure  
13          is related to an increase in -- in risk to public  
14          health.

15          So, basically, in terms of mitigation measures,  
16          any mitigation measure that can lower particulate  
17          matter emissions and lead to reduction in population  
18          exposure is good. So from a public health perspective,  
19          we know that this would lead to a reduction in health  
20          effects.

21          However, in terms of quantifying the efficient --  
22          how efficient a particular measure is in terms of  
23          decreasing these levels, we would refer to our  
24          colleagues from ECCC to -- to address the specifics of  
25          mitigation measures in that case.

26    Q    Okay. Thank you.

1           Does ECCC have anything they would like to add to  
2           that answer at this point in time?

3    A   DR. ASHER:                    Hi.   It's Brian Asher with  
4           ECCC.

5           I -- the one thing I would add is to refer to our  
6           submission where we raise the issue of haul -- haul  
7           road dust mitigation through -- through watering, and  
8           specifically question whether the proponent's stated  
9           effectiveness that they've applied in their modelling  
10          of 80 percent is achievable.

11          And so connecting that with Health Canada's  
12          discussion that the modelling that they've conducted  
13          and that assumption of 80 percent leads directly into  
14          Health Canada's assessment of human health effects, and  
15          so that's the -- the connection.

16          The 80 percent haul road watering is quite  
17          difficult to -- to achieve.  The -- the literature that  
18          was cited by Benga shows a range of control  
19          efficiencies that's been shown in various studies, both  
20          above and below 80 percent.

21          And with respect to PM 2.5, the -- we tend to  
22          compare it to the Canadian ambient air quality  
23          standards, also referred to as "CAAQ" sometimes.  And  
24          when we do that, there are two -- two sides of the  
25          standard.  There's the -- the 24-hour standard and the  
26          annual average.

1           The 24-hour standard is very sensitive to  
2 short-term, high-concentration events, and so that  
3 is -- it -- it -- it doesn't matter that you achieve  
4 80 percent on average if, on July 13th of a particular  
5 year, you only achieve 40 percent control efficiency,  
6 that -- that could cause high concentrations of -- of  
7 PM 2.5, along with other size fractures of PM, and then  
8 you have a high concentration at that -- on that date,  
9 which would ultimately -- if you're thinking about  
10 the -- the Canadian Ambient Air Quality Standards,  
11 we -- we go with the 98th percentile of that -- of  
12 24-hour averages.

13           So, effectively, that -- that -- failing to  
14 achieve 80 percent control efficiency at a minimum on  
15 a continuous basis throughout the year is the primary  
16 way -- like, that effectively will cause you to -- to  
17 underestimate the potential for exceeding the Canadian  
18 Ambient Air Quality Standards if you make that  
19 assumption.

20           I hope that was clear.

21   Q   Okay. Yeah, it was. Thank you to both of you for the  
22 answer to that question.

23           So I'm going to move on to a slightly different  
24 topic, one that I had discussed yesterday with Benga.  
25 So in CIAR 360, Table 2.1, PDF 85 -- and I don't think  
26 we need to turn this up -- Benga acknowledges that

1 nuisance effects are part of the suite of effects  
2 associated with changes in air quality caused by the  
3 project, including fugitive dust.

4 Table 2.1 on PDF and -- sorry, Table 2.1 on PDF  
5 pages 85 and 86 list several mitigation measures to  
6 reduce dust emissions. These include watering of haul  
7 roads and the plant access road using gravel or crushed  
8 rock as the base for haul roads, progressive  
9 reclamation, preservation of trees and bush around the  
10 project perimeter, and the closed coal processing  
11 plant, covered conveyors and coal loadout, wind shelter  
12 around the rail loadout area, speed limits on the mine  
13 roads, and dust suppression on railcars. The effect of  
14 these measures on residual adverse effects was not  
15 explicitly stated.

16 So does Health Canada have any guidance with  
17 respect to the nuisance effects of dust on health?  
18 I'm distinguishing nuisance as distinct from effects  
19 of PM 2.5 or other size fractions.

20 A MS. WOO: One moment, please.

21 Hi, this is Brenda.

22 Health Canada does not have any expertise in  
23 nuisance or any guidance on nuisance effects.

24 Q Okay. That might answer the next question as well, but  
25 I'll ask it anyway: Is Health Canada aware of any  
26 research between the -- between nuisance dust levels

1 and potential mental or physical health effects?

2 A One second. We'll double-check.

3 Q Okay.

4 A MR. LORUSSO: Hi. I'll be able to answer  
5 that question.

6 Unfortunately, we're not aware of any studies that  
7 look at nuisance and potential associated health  
8 effects, but I can point you to a recent project  
9 occurring -- ongoing project at Giant Mine Remediation,  
10 where they are looking at stress as a factor for the  
11 remediation and looking at the health effects  
12 associated with the stress caused by both the  
13 remediation and the contamination, so -- and then  
14 the -- the -- the ultimate or potential physiologic  
15 effects associated with the stress.

16 So that kind of approach you may be interested  
17 in -- by looking into by following up with the Giant  
18 Mine Project which is currently going through their --  
19 the Mackenzie Valley Review Board EA process.

20 Q Okay. Thank you.

21 Okay. I'm going to shift gears a little bit here.  
22 So in CIAR 313, on PDF page 1264, Benga states that  
23 comparisons of hazard quotients with a target HQ of 0.2  
24 for multimedia exposure to a chemical of potential  
25 concern is overly conservative and that even an  
26 exceedance of an HQ of 1 for multimedia exposure is not



1 necessarily an indication of potential risk.

2 Benga suggests an additional assessment of the  
3 assumptions built into the human health risk assessment  
4 is required to determine whether potential risk of  
5 adverse health effects is indicated.

6 Benga has concluded that the project will not pose  
7 a risk of adverse health effects at locations  
8 accessible to the general public, such as Blairmore  
9 Creek, Gold Creek, and the Oldman reservoir.

10 It states that while hazard quotients greater than  
11 1 were predicted, they were within the margins of  
12 safety of the human health risk assessment, that is,  
13 the margins of safety created by using conservative  
14 assumptions regarding the calculation of concentrations  
15 of chemicals of potential concern and the duration that  
16 people would be exposed.

17 Benga also stated that, in most cases, hazard  
18 quotients greater than 1 were due to naturally elevated  
19 concentrations measured in background?

20 So the question is: What is Health Canada's  
21 rationale for the use of a target HQ of 0.2 for  
22 multimedia exposure to chemicals of potential concern?

23 A MS. WOO: We need a minute. Thanks.

24 Q Sure.

25 A MR. LORUSSO: Hi, Panel. Thank you again  
26 for that time.

1           To answer your question, essentially Health Canada  
2 recommends the use of a hazard quotient of .2 when  
3 assessing risk from substances from a -- a contaminated  
4 source, specifically because the -- the individuals are  
5 exposed in everyday life to -- to potential substances  
6 through drinking water, through foods, consumer  
7 product -- consumer foods, consumer products in their  
8 home. So people already have a natural exposure, and  
9 unless you've assessed that individual's exposure,  
10 which wasn't assessed in the risk assessment, then we  
11 don't recommend the use of a hazard quotient of 1, but,  
12 rather, a hazard quotient of .2, which would be kind of  
13 the apportionment to the contaminant that's been  
14 exposed to outside of the other everyday life  
15 exposures.

16           There are cases, though, where if you can  
17 demonstrate that certain substances can only be found  
18 in your source or only be found in a couple of -- of  
19 the -- of the different media. So, for example, it's  
20 not in consumer products, it's only maybe in foods and  
21 water, then you could apportion it slightly  
22 differently, you know, making it up there from the  
23 soil.

24           But, in general, you know, unless there's a  
25 rationale provided, we always advise that -- to use a  
26 portion of the .2 so that you're -- you're sure to be

1 protective of human health because of the other  
2 everyday life exposures that can occur.

3 Q Okay. Thanks for that answer.

4 So does Health Canada believe that a target HQ of  
5 .2 is appropriate to apply to the COPCs associated with  
6 this project?

7 A Yes, I think that would be appropriate to apply.

8 Q Okay. Thank you.

9 Are there any circumstances where a target hazard  
10 quotient of .2 for multimedia exposure might be  
11 considered overly conservative?

12 A MS. WOO: We need a moment, please.

13 Q Okay.

14 A MR. LORUSSO: Hi, Panel.

15 Yes. Just reiterating what I said earlier, hazard  
16 quotient .2 is typically what we recommend, but where  
17 it can be demonstrated that exposure to any of the  
18 COPCs may only be coming either from the project or  
19 from limited additional exposure media.

20 So going back to my example whether it's just from  
21 water and soil and no other exposure media is expected  
22 for that chemical of interest, then you can -- you can  
23 use a higher hazard quotient to apportion between those  
24 different media, and, as such, the use of .2 could be  
25 construed as conservative.

26 The use of overly conservative is -- is kind of,

1           you know -- it -- we -- we can't say if something is  
2           overly conservative. I mean, that's adding an extra  
3           adjective to something that we don't know if the actual  
4           conservatism that's built into the assessment that's  
5           there to quantify all the different input parameters or  
6           the -- the conservatism built into each of the input  
7           parameters, which, you know, is not typically done.  
8           But it would be considered conservative if a specific  
9           substance was only found in one media and not all of  
10          the five different media that we typically are seeing.

11        Q    Yeah. Thanks. That's a helpful answer.

12                        So are any of the chemicals of potential concern  
13           which are predicted to exceed an HQ of 0.2 of  
14           particular concern to Health Canada in terms of  
15           precautionary additional mitigation requirements in  
16           order to predict sensitive subpopulations? So things  
17           like methylmercury, selenium, thallium, do any of those  
18           represent, you know, a unique concern for  
19           Health Canada?

20        A    MS. WOO:                                We will need a minute, please.

21        Q    Sure.

22        A    MR. LORUSSO:                        So if you can just repeat the  
23           question to make sure we're addressing it correctly.  
24           We feel we have a response, but we just want to make  
25           sure that we are addressing the question.

26        Q    Sure. Are any of the chemicals of potential concern

1           which are predicted to exceed an HQ of 0.2 of  
2           particular concern to Health Canada in terms of a need  
3           for precautionary additional mitigation measures to  
4           predict sensitive subpopulations; examples potentially  
5           being things like methylmercury, selenium, thallium, or  
6           others?

7    A    So I think the short answer is: No, we did not  
8           identify any additional need for measures to be taken.

9    Q    Okay. Thank you.

10                   Is Health Canada satisfied that Benga has  
11           adequately characterized baseline concentrations of the  
12           chemicals of potential concern in air and in water  
13           which are predicted to produce exposures resulting in  
14           hazard quotients greater than .2 from multimedia  
15           exposure?

16   A    MS. WOO:                   We need a minute, please.

17   Q    Okay.

18   A    MS. GORMAN:                Thanks for that moment. We  
19           have a lot of experts. We had to talk about it.

20   Q    Yea.

21   A    So my name is Melissa Gorman.

22                   So with respect to the baseline information that  
23           was provided with respect to water -- so for  
24           groundwater, that was scoped out. That was determined  
25           to not be a viable pathway in the human health risk  
26           assessment, so we don't have any comments on that. But

1 with respect to the surface water, we do rely on the  
2 expertise of other departments to determine whether  
3 that baseline information was accurate. Health Canada  
4 specifically looks at the results that are provided in  
5 the human health risk assessment, so we do rely on that  
6 expertise of other departments.

7 But with respect to air, I turn to my colleague  
8 Marie-Ève to speak to that.

9 A MS HÉROUX: Thank you, Melissa.

10 And my -- my answer will be very much in line with  
11 what was mentioned by Melissa and the fact that for the  
12 air quality side of things, in terms of how baseline  
13 is -- is assessed in the modelling and how it's carried  
14 through in the various stages of the assessment, we  
15 rely on -- on the expertise of -- of ECCC to -- to  
16 really fully assess this, and then we use the result in  
17 terms of identifying any issues of relevance for human  
18 health.

19 A DR. ASHER: And I might as well -- rather  
20 than just being referred to, just jump in and say,  
21 yeah, we -- we looked at the baseline data, and -- and  
22 obviously that -- that formed a portion of our  
23 submission in terms of what we found inadequate with  
24 Benga's baseline data, specifically referring to NO2.  
25 They provided updated modelling which corrected a  
26 couple aspects of -- of the baseline data that we

1           were -- we took issue with. One was the -- the fact  
2           that they had used Lethbridge data, which we thought  
3           was not representative of the location, and then also  
4           some specific aspects with respect to the modelling.  
5           They've revised that, and those revisions as --  
6           (UNREPORTABLE SOUND)

7    A    DR. ASHER:                    Those revisions only address  
8           the -- the --

9           THE CHAIR:                    Sorry to interrupt, Mr. Asher.  
10          We have some kind of alarm going on here that I'm just  
11          going to have to listen to for a moment. Sorry to  
12          interrupt.

13   A    DR. ASHER:                    No problem.

14          THE CHAIR:                    At the moment, it says, "Stand  
15          by for further instructions".

16                 Let's take a short break, and we'll just see if  
17          this alarm situation gets resolved. Sorry for the  
18          inconvenience. Maybe just stand by for five minutes.  
19          (ADJOURNMENT)

20          THE CHAIR:                    Apologies.

21                 So the alarm situation has still not been  
22          resolved. It's still sounding. We've not been told to  
23          evacuate, but there are now fire trucks outside. So I  
24          think we will break and take an early lunch. It's  
25          12:34 [sic]. So let's take an hour and plan on  
26          resuming at 12:30. And if the condition continues,

1 we'll advise at that time.

2 So see everybody at 12:30.

3

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4 PROCEEDINGS ADJOURNED UNTIL 12:30 PM

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1 Proceedings Taken via Remote Video

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3 December 1, 2020 Afternoon Session

4

5 A. Bolton The Chair

6 D. O'Gorman Hearing Commissioner

7 H. Matthews Hearing Commissioner

8

9 M. LaCasse AER Counsel

10 B. Kapel Holden AER Counsel

11

12 K. Lambrecht, QC Joint Review Panel Secretariat  
13 Counsel

14

15 T. Utting IAAC Staff

16 E. Arruda AER Staff

17 D. Campbell AER Staff

18 T. Turner AER Staff

19 T. Wheaton AER Staff

20 A. Shukalkina AER Staff

21

22 M. Ignasiak For Benga Mining Limited

23 C. Brinker

24

25 R. Warden For Ktunaxa Nation

26 T. Howard

1	K. Poitras	For Métis Nation of Alberta
2		Region 3
3		
4	Chief B. Cote	For Shuswap Indian Band
5		
6	B. Snow	For Stoney Nakoda Nations
7		
8	R. Drummond	For Government of Canada
9	S. McHugh	
10		
11	A. Gulamhusein	For Municipality of Crowsnest
12		Pass
13		
14	M. Niven, QC	For MD of Ranchland No. 66
15	R. Barata	
16	J. Nijjer	
17		
18	B. McGillivray	For Town of Pincher Creek
19		
20	D. Yewchuk	For Canadian Parks and
21		Wilderness Society, Southern
22		Alberta Chapter
23		
24	R. Secord	For Coalition of Alberta
25	I. Okoye	Wilderness Association, Grassy
26		Mountain Group, Berdina Farms

1		Ltd., Donkersgoed Feeder
2		Limited, Sun Cured Alfalfa
3		Cubes Inc., and Vern Emard
4		
5	R. Cooke	For Crowsnest Conservation
6		Society
7		
8	G. Fitch, QC	For Livingstone Landowners
9	C. Agudelo	Group
10		
11	M. Sawyer	For Timberwolf Wilderness
12		Society and Mike Judd
13		
14	(No Counsel)	For Barbara Janusz
15		
16	(No Counsel)	For Jim Rennie
17		
18	S. Elmeligi	For Alberta Chapter of the
19	A. Morehouse	Wildlife Society and the
20	S. Milligan	Canadian Section of the
21	M. Boyce	Wilderness Society
22		
23	J. Gourlay-Vallance	For Eco-Elders for Climate
24		Action
25		
26	L. Peterson	For Trout Unlimited Canada

1 R. Campbell For Coal Association of Canada  
2  
3 (No Counsel) For Alistair Des Moulins  
4  
5 (No Counsel) For David McIntyre  
6  
7 (No Counsel) For Fred Bradley  
8  
9 (No Counsel) For Gail Des Moulins  
10  
11 (No Counsel) For Ken Allred  
12 (Not Present)  
13  
14 (No Counsel) For Monica Field  
15  
16 S. Frank For Oldman Watershed Council  
17 A. Hurly  
18  
19 C. Forster, CSR(A) Official Court Reporter  
20 \_\_\_\_\_  
21 (PROCEEDINGS COMMENCED AT 12:32 PM)  
22 MARGARET FAIRBAIRN, JODY SMALL, PAUL GREGOIRE,  
23 MARIE-CLAUDE SAUVÉ, BRENDA WOO, BRIAN ASHER,  
24 GUILLAUME COLAS, MELISSA GORMAN, MARIE-ÈVE HÉROUX,  
25 GRAHAM IRVINE, LUIGI LORUSSO, LUKAS MUNDY,  
26 MARGARET YOLE, Previously Affirmed

1 Alberta Energy Regulator Panel Questions Government of  
2 Canada

3 THE CHAIR: Okay. Welcome back, everyone.  
4 Apologies for the interruption. It seems like things  
5 are back to normal, so we'll try again.

6 So just a bit of a refresher. So I had asked a  
7 question about whether Health Canada was satisfied that  
8 Benga had adequately characterized baseline  
9 concentrations in air and water, and we'd heard from  
10 Health Canada, and Dr. Asher was in the process of  
11 providing a further response from ECCC when I became  
12 distracted.

13 Q THE CHAIR: So perhaps, Dr. Asher, I could  
14 just return to you. If you remember that discussion,  
15 to kind of clarify your answer.

16 A DR. ASHER: Thank you.

17 Just to check, you can hear me okay?

18 Q I can.

19 A Thank you.

20 Yes. So we had explained earlier, and just to  
21 reiterate, that we were satisfied with the remodel of  
22 the NO2 concentrations that Benga had provided in their  
23 October 5th submission; however, the -- it should not  
24 be construed that that satisfaction with the modelling  
25 alleviates the need for effective baseline  
26 concentrations to be determined for NO2 and PM 2.5, and

1 so I'd like to reiterate that our recommendation for  
2 effective baseline concentrations in advance of the  
3 project, should it be approved commencing, be -- be  
4 implemented.

5 And it's worth noting that in that October 5th  
6 submission, Benga had pointed out that they had been  
7 conducting baseline monitoring for NO2, and they --  
8 they actually did a comparison between their modelling  
9 data and -- and their -- and this monitoring data.

10 However, for the -- for the purposes of their  
11 find -- base -- the modelling data, we found that that  
12 was -- that monitoring data was sufficient. However,  
13 our position would be -- or is that we would recommend  
14 that -- that -- that baseline NO2 and PM 2.5  
15 concentration data be -- that should be generated be of  
16 sufficient quality.

17 They -- Benga noted that they used a Vaisala  
18 sensor, which isn't necessarily at the standard that  
19 you -- that you may expect from the monitoring that you  
20 get in National Air Pollution Surveillance network  
21 stations across the country. I think they referred to  
22 it as "mere FEM". However, the -- there is a wide  
23 variety or -- of quality -- a wide variety of data that  
24 can come out from those types of sensors, and what we  
25 would recommend is that -- and I think earlier on in  
26 the hearing, they were -- mentioned that the proponent

1 would be following Alberta -- a monitoring directive.  
2 I don't know if that -- the monitoring directive would  
3 be followed in a wholesale manner, including  
4 specifically related to citing requirements and -- and  
5 the monitoring technologies.

6 But suffice to say, that our recommendation would  
7 be that the monitoring that is implemented, based on  
8 our recommendation or NO2 and PM 2.5, be of sufficient  
9 quality and that the -- and that following citing  
10 requirements and technologies -- monitoring  
11 technologies that would be in the Alberta monitoring  
12 directive would be sufficient to meet those  
13 recommendations.

14 Q Okay. Thank you, Dr. Asher.

15 Next question: Does Health Canada agree with  
16 Benga that the human health risk assessment results,  
17 including hazard quotients greater than 1, are within  
18 acceptable margins of safety considering the use of  
19 conservative assumptions for both exposure and effects  
20 assessment?

21 A MS. WOO: We'll need a minute, please.

22 Q Okay.

23 A MR. LORUSSO: Hi, Panel. In -- it's Luigi  
24 here.

25 And in response to your question of whether  
26 there's sufficient -- or their assertion of the risk

1 assessment being within safety margins, I think, you  
2 know, in -- in general, you can consider the risk  
3 assessment having, in certain areas, a level of  
4 conservatism that's protective to human health, and in  
5 other areas, some parameters used that may not be  
6 necessarily protective to human health. So overall, it  
7 would be difficult to say whether there was sufficient  
8 conservatism or, more importantly, protection to human  
9 health in the risk assessment as it was done, because  
10 some of the metrological problems that we have noted in  
11 the risk assessment that may not necessarily capture  
12 all the risks to human health.

13 So, for example, we talked about, you know, the  
14 coal dust and metals bound to the coal dust or  
15 substances bound to the coal dust that were not  
16 assessed in the exposure. We talked about the  
17 concentrations -- or, sorry, not the concentrations,  
18 but the low bioavailability that wasn't determined in  
19 the human health exposure. The use of a hazard  
20 quotient of 1 where actual background exposures were  
21 not assessed, and so they're more appropriate to use a  
22 hazard quotient of .2 exposure pathways that may have  
23 not all been included in the assessment.

24 So in -- in general, it would be difficult to say  
25 without quantifying all the different input parameters  
26 conservatism built in to be able to suggest that the --



1 the risk assessment is within a safety margin.

2 A MS. FAIRBAIRN: Mr. Chair, you are on mute.

3 THE CHAIR: Sorry. Apologies. Thank you.

4 Q THE CHAIR: So I'm going to ask a few  
5 questions now about the end-pit lake. And there's a  
6 bit of a preamble here. I don't know that we need to  
7 pull these up, but if you want to see any of the  
8 references, we can.

9 So Benga presents end-pit lake chemicals of  
10 potential concern concentrations in CIAR 38, Appendix A  
11 to Addendum 1, PDF page 1310. Benga describes these  
12 concentrations as representing upper case  
13 concentrations which were derived using geochemical  
14 source terms. Benga further describes these upper case  
15 concentrations as analogous to a boundary condition in  
16 that it is considered highly unlikely that the  
17 concentrations would be exceeded.

18 Benga stated that the end-pit lake concentrations  
19 were derived using data collected from three historic  
20 pit lakes. The extent to which these three pit lakes  
21 provide upper case COPC concentrations is not  
22 explained.

23 The Panel is interested in the uncertainty  
24 associated with the assumed concentrations regarding  
25 arsenic because the incremental lifetime cancer risk  
26 for exposure to end-pit lake water is 2.7 times 10 to

1 the -- 10 to the 4, which is about 27 times greater  
2 than the Health Canada target risk of 1 times 10 to the  
3 minus 5.

4 Sorry. I think that previous number should have  
5 been 2.7 times 10 to the minus 4, which is about  
6 27 times greater than the Health Canada targeted risk  
7 of 1 times 10 to the minus 5.

8 In its submission, Health Canada has recommended  
9 that levels of arsenic be as low as reasonably  
10 achievable in the end-pit lake given the estimated ILCR  
11 for arsenic.

12 Other chemicals of potential concern with HQs  
13 greater than 0.2 for exposure to end-pit lake water are  
14 aluminum, antimony, cadmium, cobalt, copper, lead,  
15 manganese, molybdenum, nickel, selenium, thallium,  
16 vanadium, and zinc.

17 So the question is: In light of the elevated  
18 end-pit lake incremental lifetime risk -- cancer risk  
19 for arsenic, which is substantially greater than the  
20 Health Canada target risk, does Health Canada believe  
21 additional risk assessment and mitigation for arsenic  
22 is warranted?

23 A MS. WOO: One moment, please.

24 A MS. GORMAN: Hi, Mr. Chair. It's  
25 Melissa Gorman.

26 So with respect to the end-pit lake -- just a

1 second. I'm hearing some feedback.

2 So with respect to the end-pit lake, we were  
3 requesting that it be monitored. So not specific to  
4 any mitigation, but in terms of monitoring, we would  
5 say that there are potential concerns with respect to  
6 the arsenic levels because they are approaching or  
7 exceeding the Canadian drinking water guidelines of the  
8 provincial standards.

9 In doing so, we are looking to have that source  
10 water be characterized at the postclosure phase and  
11 then monitored annually, at least at the beginning, and  
12 then that that monitoring program be adapted, whether  
13 or not the characterization says that there should be  
14 more frequent monitoring or if any of the chemicals  
15 that are measured are starting to approach or exceed  
16 those quality guidelines.

17 And so we also recommended that there should be  
18 some risk management considerations with respect to  
19 mitigations. So we note that the end-pit lake was for  
20 visual purposes only. However, there's no details as  
21 to how we can prevent people from using the end-pit  
22 lake, whether it be for recreational purposes, for  
23 consumption, or any other uses, and so we would like to  
24 see some of those mitigation measures be considered by  
25 the proponent as a precautionary measure.

26 Q Okay. Thank you.

1 Follow-up question on that, then. So if  
2 monitoring is kind of the approach, what do you see as  
3 the potential risks or consequences of going ahead with  
4 the end-pit lake and using monitoring showing that  
5 arsenic concentrations may be too high without any kind  
6 of identified or achievable arsenic mitigation measures  
7 that could be implemented?

8 A I'll just need a minute to speak to my colleagues.

9 Q Okay.

10 A Hi, Mr. Chair.

11 So with respect to arsenic, the fact is that the  
12 Canadian drinking water quality guidelines for arsenic  
13 is a risk-managed value based on the drinking water  
14 treatment achievability of the guidelines development.  
15 And so the health-based value, which is essentially the  
16 negligible risk of cancer, is a lot lower. So from our  
17 drinking water perspective, Health Canada, we would  
18 recommend that the levels of arsenic be as low as  
19 reasonably achievable, which you've indicated was in  
20 our submission.

21 In terms of arsenic, those health effects are  
22 usually due to if people are exposed to it for long  
23 periods of time. However, we don't see specifically  
24 those guidelines as ones that should be polluted up to.  
25 So they're not considered, essentially, a safe level.

26 So in terms of monitoring, you're asking whether

1 or not that would be sufficient. No, I don't think  
2 that that would be. So we believe that any mitigation  
3 that could be used to prevent levels of arsenic or any  
4 other chemical within the end-pit lake should be  
5 considered, but I also think that the monitoring should  
6 be also implemented as well to ensure that any of those  
7 mitigation measures are, indeed, doing what they should  
8 be doing.

9 Q Okay. Thank you.

10 So I think what I heard you saying is that, you  
11 know, as the design plans for the end-pit lake are  
12 developed further, looking at the various ways in  
13 which, you know, arsenic concentrations in the end-pit  
14 lake can be reduced as far as practical would be  
15 something you would want to consider in detail in the  
16 design phase and then do monitoring to ensure that the  
17 predictions are accurate?

18 A That's accurate, yes.

19 Q Okay. Okay. Other than arsenic, were there any  
20 particular chemicals of potential concern with HQs  
21 greater than 0.2 in the end-pit lake that Health Canada  
22 thought warranted particular attention? And I provided  
23 a bit of a list, which I can reread if you want to hear  
24 them again.

25 A Sure. If you would like to, please.

26 Q Yeah. Some of the other ones with HQs greater than .2

1           were aluminum, antimony, cadmium, cobalt, copper, lead,  
2           manganese, molybdenum, nickel, selenium, thallium,  
3           vanadium, and zinc.

4    A    Oh, just a second, please.

5           Thanks, Mr. Chair.

6           And so with respect to your question, at first,  
7           when we were looking at that information, we did not  
8           outline any other concerns with respect to those metals  
9           other than arsenic specific to the end-pit lake.  
10          However, given any of the uncertainties that we've  
11          raised and the reliability in the predictions, there is  
12          potentially -- you know, we can't specifically say that  
13          there -- that everything's fine.

14          It's important to also note that in terms of  
15          drinking water, there may be potential additive effects  
16          with respect to any of those metals that has not been  
17          looked at, and, you know, we don't have any input on  
18          right now 'cause there's -- information is not there.

19          So I would say that overall, I can't say that  
20          everything is fine.

21    Q    Okay. So I had a follow-up question which I think  
22          you've already started to speak to, but I'll just pose  
23          it to you to confirm. So how confident is  
24          Health Canada that Benga's risk estimates for the  
25          chemicals of potential concern in the end-pit lake are  
26          conservative? And what approach would you recommend to

1 deal with any uncertainty associated with the risk  
2 calculations or estimates?

3 A I will need another minute.

4 Q Yeah.

5 A Thanks for your patience.

6 So with respect to your question, the end-pit  
7 lake, we -- in terms of the modelled information that  
8 was provided, we relied on other departments for that  
9 information 'cause we don't have that expertise to  
10 determine whether it was done accurately. However,  
11 given some of the testimony in the past few weeks,  
12 there are some potential uncertainties as to how those  
13 numbers came about or whether they were representative,  
14 and that's why Health Canada, I would say, is not  
15 confident in the results. However, we would obviously  
16 recommend monitoring of that end-pit lake specific to  
17 those contaminants of potential concern that are  
18 determined based on the characterization of the source  
19 water. So it would be important to monitor overall  
20 given these uncertainties.

21 Q Okay. Thank you, Ms. Gorman.

22 I'm going to ask a few questions about nitrogen  
23 dioxide now. Has your quotients for exposure to  
24 predicted nitrogen dioxide concentrations in air  
25 exceeded 1 at 9 locations when compared to CCME  
26 Canadian Ambient Air Quality Standards? These

1 exceedances covered both inside and outside of the mine  
2 permit area, including Coleman, Frank, and Blairmore.  
3 However, when Benga compared predicted concentrations  
4 with USEPA toxicity reference values for nitrogen  
5 dioxide, exceedances only occurred at two locations:  
6 one in the mine property at the pit boundary, plus  
7 Blairmore north.

8 Benga stated that the results using the EPA TRVs  
9 represented low risk of adverse effects on human health  
10 because of the dominant contribution of predicted  
11 baselines to the total exposure, the conservatism in  
12 the air dispersion modelling, as well as the human  
13 health exposure assessment, and the infrequency of  
14 predicted exceedances.

15 Benga made specific reference to support from the  
16 Alberta Government that the use of the Canadian ambient  
17 air quality guideline should not be applied for the  
18 assessment of predictive -- predictive modelled air  
19 data.

20 So if we can pull up CIAR Document 251, Package 4.  
21 And I'm looking for page 514.

22 Does Health Canada agree that Benga's lines of  
23 evidence as listed on PDF 514 support Benga's  
24 conclusion that the potential risk of adverse health  
25 effects is low for predicted exceedances of the chronic  
26 nitrogen dioxide Canadian Ambient Air Quality Standards



1           which the Panel understands are not intended to be used  
2           as limits applied to specific projects? And so I'm  
3           referring to the list of bullet points here in terms of  
4           the evidence.

5    A   MS. WOO:                            One moment, please.

6    A   MS HÉROUX:                        Hi. Thank you, Panel. This  
7           is Marie-Ève Héroux speaking. I will provide an answer  
8           to your question.

9                        Can you hear me?

10   Q   I can.

11   A   Okay. Thank you very much.

12                        So you've had a few points in your question about  
13           the applicability of using the Canadian Ambient Air  
14           Quality Standards, particularly for assessing NO2  
15           levels and -- and the health risks, also related to  
16           specifically the nature of the health risks for NO2,  
17           and whether the bullets that are presented here -- if  
18           we feel that the conclusions that are -- that are  
19           mentioned here about the conservatism of the model,  
20           whether or not we -- we agree with them. So I will  
21           address these in order.

22                        The first point regarding the Canadian Ambient Air  
23           Quality Standards. So it is our opinion that they are  
24           appropriate to be used in this particular context of  
25           environmental assessments. Obviously there's -- they  
26           are health-based, they are environmental-based, but

1           there's a recognition specifically in this case for NO2  
2           that there are potential population health effects at  
3           levels below the CAAQS, so that's why there is this --  
4           this component of the CAAQS not being -- pollute up to  
5           levels as you've mentioned.

6           So in this case for NO2, there is evidence about  
7           health effects for NO2, especially on respiratory  
8           system, and so having the NO2 levels be as low as is  
9           reasonably possible, we believe, is a -- is a  
10          responsible measure in this case.

11          In terms of the bullets that are currently on the  
12          screen, we would say that we do not necessarily think  
13          that these are all appropriate and -- and relevant in  
14          this case in terms of building in conservative  
15          assumptions in the model.

16          Specifically, when we talk about the baseline  
17          values, we recognize it was mentioned in the assessment  
18          that they are relatively high and that the project  
19          doesn't necessarily always contribute significantly to  
20          those levels. But from a public health perspective, it  
21          is irrelevant where the source is for NO2. We look at  
22          the overall exposure of the population.

23          Thank you.

24    Q       Okay. Thank you.

25          So just a follow-up, then. So having regard for  
26          that, does Health Canada consider that there is a

1 sufficient level of conservatism in the air dispersion  
2 predictive modelling of nitrogen dioxide concentrations?

3 A Just a moment, please.

4 THE CHAIR: Zoom Host, you can take that  
5 exhibit down. Thank you.

6 A DR. ASHER: Thank you, Mr. Chair, for --  
7 for that time.

8 From -- from a modelling perspective, we don't  
9 have any reason to believe that the NO2 predictions  
10 are -- are not adequately conservative.

11 Our -- our earlier assessment was that they may --  
12 they may, in fact, be biased high, and our request for  
13 modelling in the -- the proponent's -- provided new  
14 modelling which presented lower concentrations of -- of  
15 NO2 predictions. So we don't have any outstanding  
16 concerns with respect to predict -- NO2 predictions,  
17 except to note that those predictions do show  
18 exceedances of Canadian Ambient Air Quality Standards.

19 Q THE CHAIR: Okay. Thank you.

20 Does Health Canada view the use of USEPA toxicity  
21 reference values for the calculation of hazard  
22 quotients as sufficiently conservative?

23 A MS. WOO: A minute, please.

24 A MS HÉROUX: Okay. Thank you, and sorry  
25 for the delay.

26 So in -- in general, when we conduct human health

1 risk assessment, we do consider available authoritative  
2 reviews for different contaminants from other  
3 regulatory agencies, such as USEPA; however, when there  
4 is something available, specifically for Canada, we  
5 will tend to use those.

6 And in the case here, we do have the Canadian  
7 Ambient Air Quality Standards, which are appropriate  
8 for Canada. They are also reviewed periodically, so to  
9 make sure that the latest evidence on health and the  
10 environment is built into those.

11 In the particular case of NO<sub>2</sub>, I think it's  
12 important to mention that there are CAAQS -- so  
13 Canadian Ambient Air Quality Standards -- available for  
14 hourly values and also annual values. They are meant  
15 to sort of lead to improvements in air quality in  
16 Canada over time, but they are not thresholds for  
17 health effects.

18 So for NO<sub>2</sub>, the literature tells us that there are  
19 no specific threshold for effects. So the effects  
20 occur below the CAAQS. So our line is still the same  
21 that although CAAQS are used in order to assess  
22 compliance and -- and enable different provinces and --  
23 and authorities to report on the case, the view is  
24 constant and continuous improvement and reduction of  
25 levels to ensure health benefits and just general  
26 improve public health.

1 Q Okay. Thank you.

2 Does Health Canada agree with Benga that the  
3 evidence shows a limited project contribution to the  
4 resultant application hazard quotients relative to  
5 baseline conditions?

6 A Sorry. Just to clarify, is this specifically about  
7 NO2?

8 Q NO2, yes.

9 A M-hm. Just a second, please.

10 A DR. ASHER: Thank you, Mr. Chair.

11 The relative contribution of project sources to  
12 resulting predicted concentrations of NO2 within the  
13 towns of Blairmore and Coleman, et cetera, in the  
14 Crowsnest Pass, those towns, are -- is -- is, indeed,  
15 relatively small.

16 That is not universal for all receptors in this  
17 assessment. There are assessments in -- further to the  
18 north -- or, sorry, there are receptors further to the  
19 north that have relatively larger contributions of  
20 project sources to their resulting NO2 predictions.

21 Q Okay. Thank you.

22 Does Health Canada agree with Benga's statement  
23 that marginal exceedances of the hazard quotient target  
24 of 1 for nitrogen dioxide are within the margins of  
25 safety in the assessment, given the level of  
26 conservatism in the model?

1 A MS HÉROUX: Just one moment, please.

2 Okay. Thanks for your patience.

3 With respect to NO<sub>2</sub>, as I mentioned previously,  
4 because it is considered a non-threshold substance,  
5 meaning that there are health effects below the CAAQS,  
6 it is not just a matter of -- of being sort of in  
7 compliance with the CAAQS, it's aiming for levels as  
8 low as is feasible.

9 Also, I would point out that there's been new  
10 modelling for NO<sub>2</sub>, but, as far as I can tell, there  
11 hasn't been a new health assessment associated with it  
12 with new hazard quotients, so I'm not sure the amount  
13 of which that would change. I know that the modelling  
14 has sort of been fairly consistent with previous  
15 modelling, but I don't know if it would lead to  
16 differences related to this at this stage.

17 Q Okay. Thank you.

18 So I just have a few more questions, and they  
19 relate to diesel particulate matter. In its review of  
20 Benga's human health risk assessment, which was in  
21 CIAR 167, Health Canada stated that it does not agree  
22 that the approach used by Benga is an adequate approach  
23 in determining human health risk from diesel  
24 particulate matter.

25 Health Canada said that assessing only known  
26 carcinogenic chemicals of potential concern does not

1 acknowledge the current science that considers diesel  
2 particulate matter as a mixture when determining  
3 impacts to human health.

4 Health Canada requested that the proponent  
5 utilized the CalEPA -- so that's big 'C' A-L, capital  
6 EPA -- approach for a quantitative assessment or,  
7 alternatively, provide a qualitative assessment that  
8 adequately reflects the conclusions of a number of  
9 governments ' scientific organizations, including those  
10 of Health Canada, the World Health Organization, USEPA,  
11 and California EPA. And that was in one of the earlier  
12 information request packages.

13 Health Canada's review of Addendum 10 repeated the  
14 same comment as it made in its review of Addendum 8 and  
15 added that while there were -- there are criticisms of  
16 the California EPA method and that the -- possible  
17 uncertainties arise from it, Health Canada is still  
18 supportive of the CalEPA method, as it is currently the  
19 only quantitative method available that can provide  
20 insight to the human health effects of diesel  
21 particulate matter as a mixture.

22 So the questions are: Could Health Canada comment  
23 on the potential for underestimation of risk from  
24 exposure to diesel particulate matter given that Benga  
25 did not use the CalEPA model as recommended by  
26 Health Canada? And in your response, could you include

1 consideration of diesel particulate matter as a  
2 mixture?

3 A Yes. Thank you for the question.

4 So what has been done in -- in that particular  
5 assessment was using individual compounds that are part  
6 of the diesel mixture to assess potential cancer risk,  
7 whereas our approach that we've recommended is to use  
8 the mixture approach, which is more appropriate. So in  
9 using individual compounds, there is a risk of  
10 underestimating the risk of -- of cancer effects in  
11 this case.

12 Q Okay. So would the use of the CalEPA model increase  
13 the margin of safety within the human health risk  
14 assessment?

15 A Just a moment, please.

16 Thank you.

17 At this point, because we haven't seen the  
18 calculations and we haven't seen the results, we're not  
19 in a position to say what -- how to -- it could be  
20 interpreted, unfortunately.

21 Q Okay. Thank you.

22 To your knowledge, has the CalEPA model been  
23 required or applied in other provincial or federal  
24 EIAs?

25 A Just a moment, please. Thank you.

26 Thank you, Mr. Chair. Sorry for the delay.



1           So we're aware -- we've been asking other  
2           proponents to include the quantification of diesel  
3           particulate matter cancer risk using the CalEPA  
4           approach. At this point, we're not in a position to  
5           say if it's been used in -- in other environmental or  
6           impact assessments.

7           What I can say is that we've also proposed, in  
8           this case and in other cases, should a proponent think  
9           that it is not suitable in a particular case to use the  
10          CalEPA approach to -- we've also offered for the  
11          proponent to have a qualitative approach to discuss the  
12          cancer risk related to diesel particulate matter in  
13          order to properly inform the Panel and participants  
14          about the level of -- of risk related to the project.  
15          So that's also another option.

16    Q    Okay. Thank you. One moment.

17                 Does Health Canada recommend a qualitative  
18                 assessment of diesel particulate matter as a follow-up  
19                 study prior to construction, if the project were to be  
20                 approved?

21    A    Just a moment, please.

22                 Thank you, Mr. Chair. Could you please just  
23                 repeat the question to make sure I understand it  
24                 properly?

25    Q    Sure. You talked about the option of doing a  
26                 qualitative assessment of DPM, and I'm just wondering

1 if Health Canada feels it's necessary to do a  
2 qualitative assessment of diesel particulate matter as  
3 a follow-up study prior to construction of the project,  
4 should it be approved?

5 A Okay. Thank you.

6 We do feel that addressing diesel particulate  
7 matter and the risk of cancer related to diesel exhaust  
8 mixture is important in -- in that particular project  
9 because there are many sources of -- of diesel in the  
10 project. And so our main approach has been to  
11 characterize, to quantify the risk using the CalEPA  
12 approach. But if the proponent explained why they feel  
13 that another approach, which would be a qualitative  
14 one, would be appropriate, explain why CalEPA is not --  
15 is not an approach that is appropriate in this case but  
16 still recognize that diesel particulate matter --  
17 diesel exhaust mixture has been recognized as a  
18 cariogenic by several recognized organizations that  
19 diesel is a main contributor to project emissions and  
20 to propose several options for mitigation, that that  
21 can be an appropriate option as well.

22 Q Okay. Thank you.

23 So I think I take from your answer that you would  
24 prefer use of the CalEPA model. That would be your  
25 first choice, and the qualitative method would be a  
26 follow-up if the proponent thought it justified?

1 A That is correct.

2 Q Okay. Thank you.

3 So those are all my questions related to the human  
4 health risk assessment. I do have some questions  
5 related to the wildlife health risk assessment, and  
6 I'll assume ECCC is probably going to respond to most  
7 of these.

8 But I'll start -- and there are fewer questions  
9 for this topic than there were for human health.

10 So in the most recently updated wildlife health  
11 risk assessment, Benga predicts selenium exposure  
12 ratios greater than 1 for mallard, American dipper, and  
13 great blue heron due to exposure in the end-pit lake,  
14 great blue heron in Blairmore Creek, and great blue  
15 heron and mallard in Gold Creek.

16 Although the selenium exposure rates were greater  
17 than 1, Benga stated that due to the conservatism built  
18 into the assessment, practitioners can have confidence  
19 that the potential for impact is negligible.

20 In your submission, CIAR 542, on page 17, ECCC  
21 discusses the purpose of the Migratory Birds Convention  
22 Act, which is to protect and conserve migratory birds  
23 as populations and as individuals.

24 You also discussed Canada's responsibility to  
25 protect and conserve migratory birds under the Act.  
26 Section 5.1 of the Migratory Birds Convention Act

1 prohibits the deposit of a substance that is harmful to  
2 migratory birds in waters or an area frequented by  
3 migratory birds or in a place from which the substance  
4 may enter such waters or such an area or -- sorry, may  
5 enter such waters or such an area, the deposit of a  
6 substance that's harmful to migratory birds.

7 In Benga's assessment of risk to wildlife health,  
8 Benga stated that the level of protection considered to  
9 be appropriate for the protection of ecological systems  
10 in general may not be sufficiently protective of  
11 threatened or endangered species in all cases.

12 Benga did not cite any regulatory guidance with  
13 respect to the level of additional conservatism  
14 required with respect to the Species at Risk Act.  
15 Instead, Benga relied upon the conservatism inherent in  
16 the derivation of USEPA toxicity reference values.

17 So the first question is: What are the  
18 implications of predicted selenium exposure ratios  
19 greater than 1 for migratory birds in the context of  
20 the requirements of the Migratory Birds Convention Act?

21 And maybe to make it more specific, does ECCC have  
22 a definition of "acceptable risk" for migratory birds,  
23 and does this definition apply to individuals,  
24 populations, or both?

25 A MS. FAIRBAIRN: Thank you, Mr. Chair. Just  
26 give us one moment, please. Thanks.

1 Q Okay.

2 A MR. MUNDY: Hello, Mr. Chair.

3 So I will try to address your question. Maybe,  
4 if -- if possible, could you break it down for me  
5 quickly again, and we'll try to work through it?

6 Q Sure. So the first part was: What are the  
7 implications of predicted selenium exposure ratios  
8 greater than 1 for migratory birds in the context of  
9 the requirements of the Migratory Birds Convention Act?

10 A Okay. If -- if we're talking about specific to the  
11 Act, the Act states a prohibition of a release of  
12 deleterious substance to bird habitat in breeding area.  
13 So, therefore, selenium sort of fits that mould of --  
14 of a substance that we would want to control and have  
15 mitigated so that the release to bird habitat is  
16 reduced in -- in -- in the confines of the Act.

17 Q Okay. The second part was: Does ECCC have a specific  
18 definition of what would be an acceptable level of risk  
19 for migratory birds, and does this definition apply to  
20 individuals, populations, or both?

21 A There is a -- a bird egg selenium tissue burden  
22 guideline as proposed by the USEPA that is -- has an  
23 EC 10 of 11.2-microgram-per-gram dry weight, and that's  
24 based on hatching successes, the health end point. So  
25 that's the -- in -- in the current state of literature,  
26 that is a -- a bird/egg level that would be deemed

1 protective and that exceedances of that level would  
2 imply that there is a -- an increased risk to birds and  
3 their hatching success.

4 Q Okay. So then a similar question related to species at  
5 risk. So given the results of the updated wildlife  
6 health risk assessment, what are the implications of  
7 predicted selenium exposure ratios greater than 1 for  
8 two bird species, mallard and American dipper, which  
9 have similar exposure pathways to two listed bird  
10 species, common nighthawk and barn swallow, in the  
11 context of the Species at Risk Act? And, again, what  
12 we're interested in is: How does ECCC define an  
13 acceptable level of risk to individuals of threatened  
14 or endangered species?

15 A If it's all right, let me confer with my colleagues  
16 just to get a better sense of --

17 Q Sure.

18 A -- the Species at Risk Act.

19 Q Okay.

20 A Mr. Chair, thanks for your patience.

21 Okay. So we're talking about dipper risk and  
22 mallard risk, HQs of greater than 1, and whether that's  
23 protective of species at risk and how we would sort of  
24 infer a risk to -- to common nighthawk and the barn  
25 swallow.

26 Ultimately -- and I'll -- I'll speak more to

1       dippers, but these are -- these are birds -- a songbird  
2       that are in the region year round. They have a fairly  
3       small home range. They consume aquatic invertebrates  
4       that we've shown are capable of accumulating selenium  
5       through diet, and it -- it -- it was mentioned and --  
6       and identified by Benga that these particular species  
7       are receptor -- receptors that may be at risk via their  
8       dietary pathway.

9                Ultimately, given that they are present year  
10       round, that they're foraging on the -- on the -- on the  
11       invertebrates for basically a hundred percent of their  
12       diet, they sort of act as a sentinel/protective  
13       species. And we -- we deemed that there would be  
14       health impacts -- there may be health impacts  
15       associated for those bird species, but they may be, in  
16       fact, protective of the other two SARA species that are  
17       not widely present or distributed within the region and  
18       that may not be consuming on the same sort of local  
19       watercourses as the dipper would be.

20               So in that sense, we (AUDIO FEED LOST), you know,  
21       the canary in the coal mine -- pardon the lame pun, but  
22       that -- that might be a protected species to look at  
23       and -- and should maybe be utilized for additional  
24       biotic monitoring that we've recommended in -- in our  
25       submission.

26    Q    Okay. Thank you. Just a moment, please.

1           So just a follow-up. So I think what I heard you  
2 say is that dipper, you know, is a good surrogate for  
3 common nighthawk and barn swallow. But what about  
4 specific individuals of common nighthawk or barn  
5 swallow that would inhabit the LSA?

6 A Sorry. Could you repeat that?

7 Q Yeah. Maybe I'll just seek a clarification here.

8           Okay. Here I'm going to provide a clarification  
9 to the question. So ECCC makes the point that risk  
10 estimates to dipper are protective of barn swallow and  
11 common nighthawk because the two listed species would  
12 not have the same degree of exposure. But since dipper  
13 are protected at a population level, while the two  
14 listed species are presumably listed at the individual  
15 level, is ECCC confident that individual common  
16 nighthawk and barn swallows who may spend considerable  
17 time in the LSA would be protected?

18 A Just give me one moment.

19 Q Okay.

20 MR. DRUMMOND:                   Mr. Chair, briefly, it looks  
21 as though Mr. Mundy has been lost from the meeting.  
22 I'm just going to ask if one of his ECCC colleagues  
23 could contact him and ask if -- about his ability to  
24 rejoin. Thank you.

25 A MS. SMALL:                   Mr. Chair -- Mr. Chair, it's  
26 Jody Small.



1           Lukas has confirmed that his internet has cut out,  
2           so he is trying to get reattached as we speak.

3   A   MR. MUNDY:                    I -- I'm back.

4   Q   THE CHAIR:                   Okay.

5   A   I -- I was lost for a couple of seconds there. We were  
6           just finishing up our discussion.

7           One more moment.

8   Q   Okay.

9   A   MR. GREGOIRE:                 Hi. It's Paul Gregoire here.  
10           We were just trying to tease apart your question  
11           regarding individuals versus populations.

12           So under the MBCA, I would say that the American  
13           dipper and nighthawk and barn swallow are treated  
14           similarly under the MBCA. They are protected as  
15           individuals, if that helps.

16           Or perhaps you can clarify.

17   Q   Well, I think our reading of the -- of the Act was that  
18           the species are protected both as populations and as  
19           individuals, and we were just trying to understand at  
20           what level protection is required, whether it's at the  
21           population level, or is it at the level of individuals  
22           within a given area? And, again, we're talking in  
23           terms of risk from contaminants.

24   A   MS. FAIRBAIRN:               Just one moment, please,  
25           Mr. Chairman.

26   A   MS. SMALL:                    Mr. Chair, it's Jody Small.

1 I'm going to try and take a stab at your question, and  
2 I think you're sensing that we're having some  
3 difficulty understanding. I think a couple of concepts  
4 might be getting a little conflated.

5 So certainly the -- the migratory bird (AUDIO FEED  
6 LOST).

7 Q I don't hear you anymore.

8 A MS. FAIRBAIRN: We seem to have lost her.  
9 Sorry, sir.

10 A MS. SMALL: Sorry about that.

11 The Act is meant to protect individuals and  
12 populations. When it comes to establishing -- I think  
13 what you are talking about in levels of protection and  
14 risk, certainly in the field -- in the study of risk  
15 assessment, listed species can be -- can be afforded a  
16 more conservative level of what, I guess, you might  
17 consider an acceptable risk because their populations  
18 are also already threatened.

19 And so, for instance, we are aware of some  
20 particular exposure scenarios that may affect  
21 individuals that would not be -- I don't want to say  
22 "acceptable". That wouldn't be a good thing. And  
23 Lukas can speak to, for instance, nesting and breeding  
24 activities in relation to selenium transport  
25 maternally.

26 But I'm -- I'm -- I'm not sure if that answers

1 your question.

2 The Act -- the Act speaks to individuals and  
3 populations, and the risk assessment sometimes can dig  
4 deeper to look at effects of the individual rather than  
5 population level, in particular, when there is a  
6 species at risk.

7 Q Yeah. No. I think that's sufficient. Thank you.

8 Okay. I'm going to move on to some questions on  
9 amphibians.

10 So in its assessment, Benga identifies two  
11 amphibian species, the Columbia spotted frog and the  
12 western toad, as being rated as "sensitive" in Alberta.  
13 The western toad is also rated by the Committee on the  
14 Status of Endangered Wildlife in Canada, or "COSEWIC",  
15 as "special concern". These species have been recorded  
16 as present in the local study area.

17 In CIAR 313, Addendum 11, Benga provides  
18 information from Teck's studies in the Elk Valley on  
19 the relative sensitivity of amphibians to nitrate,  
20 sulphate, and selenium.

21 In CIAR 334, CPAWS states that risk to amphibians  
22 are not properly considered by the use of only  
23 mammalian or avian surrogates.

24 So the question for ECCC is: Does ECCC accept the  
25 use of surrogate mammalian and avian species for  
26 amphibians as being appropriate, relevant, and

1 conservative, and ensuring the purpose of the Species  
2 at Risk Act is achieved?

3 A MS. FAIRBAIRN: I think that question -- one  
4 moment, please, sir.

5 Q Yeah.

6 A Jody, you're on mute. No, no, no. Okay. Sorry. She  
7 wasn't on mute. Okay.

8 A MR. MUNDY: Okay. Thank you for your  
9 patience, Mr. Chair.

10 In short, I would -- I would disagree that  
11 mammalian and avian TRVs would be deemed protective of  
12 amphibians and -- I do want to recognize, however,  
13 though, that when -- especially when it comes to  
14 selenium toxicity, the majority of data -- toxicity  
15 data that exists is based on mammalian avian species.  
16 We note that egg-laying vertebrates, amphibians, birds,  
17 and fish are the most likely and the most sensitive  
18 species to selenium exposure. So in -- in that sense,  
19 a TRV, from avian species to amphibians and -- you  
20 know, there might be an argument to be made there.  
21 However, there are great differences in terms of their  
22 life histories, their diet, how they would accumulate  
23 selenium, even if it's found to be that they are  
24 similar in terms of their sensitivity.

25 We would maybe suggest that fish would be a -- a  
26 better model to use, especially if we're -- we're

1 concerned about selenium bioaccumulation and tissue  
2 uptake of different selenium species, like selenite and  
3 selenate, that the fish may have been a more  
4 appropriate receptor if it was, in fact, deemed that  
5 there wasn't enough data for amphibians.

6 Q Okay. Thank you.

7 So a follow-up question, and this relates to the  
8 surge ponds that were discussed recently. So Benga  
9 states that the three surge ponds that receive runoff  
10 from waste rock were predicted to have elevated water  
11 quality parameters and presents results for sulphate,  
12 nitrate, cobalt, selenium, and zinc, which Benga  
13 confirmed yesterday were substantially in excess of  
14 Alberta water quality guidelines.

15 Benga did not assess the risks of exposure to the  
16 surge ponds, and we note that the predicted  
17 concentrations in the surge ponds are much higher than  
18 the end-pit lake and that the exposure ratios were  
19 greater than 1 for mallard, American dipper, and great  
20 blue heron for the end-pit lake.

21 Could ECCC comment on whether you believe that  
22 mitigation measures to reduce risk to listed amphibian  
23 species from exposure to selenium and other  
24 contaminants of potential concern in the surge ponds is  
25 practical and will be effective in the long term?

26 A Mr. Chair, there -- throughout this review of the

1 process, we did raise earlier IRs with respect to  
2 amphibians coming into contact with surge ponds, so we  
3 recognize that this is, indeed, a potential area of  
4 risk, that there would be concern about amphibians  
5 potentially using these untreated water bodies and --  
6 and water management ponds for breeding.

7 So while -- that being said, so from a contaminant  
8 standpoint, we do believe that there would be a -- a  
9 risk to -- to amphibians using these sites to -- to go  
10 on with their life history and recognize that Benga has  
11 stated that they -- they would implement mitigation  
12 measures in terms of using wildlife fencing and pitfall  
13 traps and other -- other methods to sort of limit that  
14 contact.

15 So we would be in agreement with those -- with  
16 those methodologies to limit that interaction with  
17 those highly -- pro-water quality water bodies.

18 Q Okay. And could you also comment on the effectiveness  
19 of the proposed mitigation measures to reduce risk of  
20 exposure to migratory birds and birds -- species at  
21 risk from exposure to the surge ponds and the end-pit  
22 lake in the long term?

23 A I'll take a stab at starting this, sir, and -- and  
24 perhaps my colleague Paul Gregoire can correct me if  
25 I -- if I make any errors.

26 But it -- it -- it sounds as though the -- the

1 use -- that Benga will be using potentially sound cans  
2 to limit the interaction with -- with -- with these  
3 water bodies from birds, the use of scarecrows and  
4 other effigies. We deem that this is sort of common  
5 practice of mine and development sites to -- to use  
6 these sorts of either effigies or deterrents to --  
7 to -- to try and keep birds off of the -- off of the  
8 water, and so we would -- we would -- you know, in sort  
9 of a big picture, we would agree that these are  
10 elements that should be incorporated.

11 You know, I would hazard to say that there should  
12 be an element of wildlife monitoring to -- to see what  
13 sort of interaction we're dealing with, what types of  
14 numbers, what types of species would be interacting  
15 with these ponds in the future. And -- and there may  
16 be deterrents that are more effective for the limit of  
17 certain species, like waterfowl, that -- that don't  
18 work as well for songbirds and those sorts of thing.

19 So I would say, you know, overall, we would be in  
20 agreement that these sorts of deterrents would -- would  
21 be useful but that there should be some element of --  
22 of monitoring and, perhaps, you know, a reverse  
23 feedback to ensure that the monitoring practices being  
24 used by Benga are, in fact, addressing the concerns  
25 that we're worried about in keeping the birds off.

26 Q Okay. Thank you for that.

1           We had a discussion -- or I had some questions  
2           yesterday to Benga about cumulative effects related to  
3           impacts to wildlife. And we discussed the fact that  
4           the SEIA technical guidance for cumulative effects  
5           assessment suggests consideration of simultaneously  
6           [sic] exposure to several stressors should be  
7           considered.

8           So given the technical guidance regarding  
9           consideration of the effects of a combination of  
10          stressors on each VC, could ECCC comment on the risk to  
11          wildlife of exposure to all combined contaminants of  
12          potential concern over very long durations?

13        A    I wouldn't mind conferring just for a moment before  
14          answering.

15        Q    Sure.

16        A    Thank you, Mr. Chair, for that moment.

17            I'll answer your question in -- in two parts. So  
18          the first part being we can't necessarily comment  
19          overall on additive risk of different contaminant  
20          stressors to wildlife 'cause this was something that we  
21          didn't necessarily evaluate, and it's something that  
22          also was not evaluated by the proponent. So we can't  
23          make a -- sort of a definitive response there.

24            The second part is, you know, it's recognized that  
25          additive effects of contaminants of concern can occur,  
26          synergistic effects can occur, antagonistic effects can



1 occur, and these sorts of interactions, I guess, are  
2 often largely shown in, sort of, lab studies using high  
3 doses under, you know -- like, rigorous sort of testing  
4 methods, and it -- it's -- I would think it would be  
5 something difficult to tease apart in the natural  
6 environment based on the concentrations that we're  
7 dealing with.

8         Further to this, in our submission, we note that  
9 selenium through water -- water and through the dietary  
10 pathway appears to be the -- the largest and most  
11 prominent risk in terms of a -- a contaminant and  
12 biotic receptor interaction. And given that the bird  
13 TRV I -- I mentioned earlier, the egg burden value, and  
14 that a lot of the end points from a health perspective  
15 are -- are fairly sensitive in terms of impacts to  
16 hatching success, I -- I would, I guess, emphasize that  
17 if there were to be contaminant effects, it would  
18 likely be through selenium and that any sort of  
19 additive effects from other contaminants that are much  
20 lower proportions in the environment around the mine  
21 site compared to selenium would sort of be drowned out  
22 by that relationship.

23         So I think selenium would be the sort of prominent  
24 route, and it would mask maybe some of the other  
25 contaminant effects. And I wouldn't necessarily be  
26 aware of any kind of effect with another contaminant in

1 the same sort of hatching success end point as -- as  
2 we're seeing for selenium.

3 Q Okay. Thank you.

4 So just one other question that we had talked  
5 about with Benga yesterday. Could ECCC comment on the  
6 potential risk from a combination of exposure to  
7 several contaminants as well as other effects, such as  
8 habitat loss or habitat degradation from the project,  
9 and, I guess, non-project activities as well?  
10 You know, the question is: Is there a potential for,  
11 again, those additive effects from different types of  
12 stressors?

13 A It's -- it's -- I -- I think the -- the potential  
14 certainly exists. It was not something that we -- that  
15 we analyzed or that we reviewed. But certainly, you  
16 know, if -- if a -- if a -- a bird is driven to feed in  
17 a particular environment that has high selenium and  
18 then they're doing so because some of their habitat has  
19 been destroyed adjacent to that environment, I mean,  
20 the potential for an effect exists there, so I would  
21 say it's not out of the realm of possibility, but it's  
22 not something that I've reviewed.

23 Q Okay. Thank you for that.

24 Last few questions relate to monitoring and  
25 follow-up. So in CIAR 542, ECCC recommends a  
26 biomonitoring program to adequately characterize

1 concentrations of chemicals of potential concern in  
2 media at baseline conditions and during operation, and  
3 then it provides a list of some of the things that  
4 should be considered in developing that program.

5 Are there specific chemicals of potential concern  
6 other than selenium which should be monitored in  
7 aquatic biota, and on what base should this choice be  
8 made?

9 A I mean, we -- we outright identify selenium because  
10 that's our greatest concern, but I would -- I would say  
11 other contaminants that are sort of predicted by the  
12 proponent -- if there are examples of water quality  
13 objectives that are changing and that are increasing  
14 because of a proponent's predicted effects on -- on  
15 water quality, I would suggest that those particular  
16 contaminants be included.

17 Contaminants, if we're talking about a  
18 biomonitoring program, any sort of compound that has  
19 the potential to bioaccumulate, to -- and move up and  
20 biomagnify through the food web -- aquatic food web, I  
21 would suggest, should be part of that assessment as  
22 well.

23 And other constituents associated with coal mining  
24 and water quality, such as nitrates, sulphates, I think  
25 warrant conclusion as well.

26 Q Okay. And does ECCC have any recommendations regarding

1 the frequency that monitoring should occur?

2 A I -- I -- I would say it's important to sort of adopt a  
3 before-and-after control impact design. So I'd like to  
4 see some baseline data be collected for biota -- biotic  
5 response to elements.

6 I -- biota -- eggs in particular from avian  
7 species are -- are a great impact -- or noted in the  
8 literature as good indicators that are integrative of  
9 accumulating compounds and getting a good picture of  
10 the overall contamination within the local aquatic  
11 environment.

12 After that, I wouldn't suggest that we collect  
13 eggs on a year-to-year basis. I think there are other  
14 maybe abiotic receptors or samples that could be  
15 collected, and those values then could trigger in  
16 additional egg monitoring data on a periodic basis,  
17 depending if certain thresholds are -- are -- are  
18 passed, I guess.

19 Q Okay.

20 A So the long answer short: Start up with some baseline  
21 data and then ensure that Benga has clear thresholds on  
22 potentially other non-egg samples that would then tease  
23 and pull in -- trigger in additional wildlife  
24 monitoring.

25 Q Okay. And in its recommendation, what does ECCC mean  
26 by: (as read)

1           Site-specific thresholds of selenium for  
2           algae, invertebrates, and vertebrates?

3           Are these site-specific thresholds meant to include  
4           modifying factors as has already been done by the  
5           proponent with respect to westslope cutthroat trout egg  
6           tissue?

7    A    If -- if you wouldn't mind, I'll -- I'll take a minute  
8           just to confer with my colleague.

9    Q    Okay.

10   A    Thank you.

11           Right. Thank you again for -- for that allowance.

12           So we -- we -- we emphasize site-specific  
13           thresholds of selenium, and I think the reason we  
14           mention "site-specific" is -- is because based on what  
15           we've already discussed at the -- the water quality  
16           topic, is there are a number of factors at play that  
17           sort of regulate and moderate selenium uptake into  
18           aquatic food webs, and so we would emphasize that if  
19           the monitoring were to go ahead, that it -- it would be  
20           in these water bodies that are -- that are on-site and  
21           so that all these sort of predicted variables around  
22           water chemistry are sort of -- are measured rather than  
23           being predicted.

24           And then that particular monitoring program would  
25           include the measurement of different compartments  
26           within that aquatic food web, including algae, which we

1 know is the sort of -- the enrichment stage -- step of  
2 the jump in terms of selenium going from water into  
3 the -- into the food web.

4 And so I think it's important to measure those  
5 lower compartments within the aquatic food web and then  
6 having Benga identify concentration levels and  
7 triggers, at which point would either trigger an  
8 additional action or would, you know, demonstrate that  
9 there is a -- that there may be an issue here that they  
10 may need to do some additional work to sort of rectify.  
11 And it sort of falls in line with recommendations that  
12 we had made previously in -- in our water quality  
13 section.

14 And my colleague Marie-Claude, if I've, you know,  
15 inaccurately characterized this, may step in and -- and  
16 have a few words.

17 A MS. SAUVÉ: No. Looks good. Thanks.

18 Q Okay. Just two follow-up questions on that, then. So  
19 the development of these site-specific thresholds,  
20 first of all, are they dependent upon site --  
21 sufficient baseline information regarding the transfer  
22 factors from water to algae and subsequently to  
23 invertebrates? And secondarily, how would the  
24 site-specific threshold be developed for vertebrates  
25 such as amphibians? Does ECCC have guidance for  
26 developing such thresholds?

1     A     MR. MUNDY:                     So to answer your -- your  
2           first question, I think, in the grand scheme of things,  
3           Benga's risk assessment identified a few watercourses  
4           where hazard proportions were found to be elevated, and  
5           that would require additional either mitigation, if it  
6           meant making changes to how an end-pit lake was to be  
7           filled or -- or situated on-site, or would require a  
8           sort of monitoring to -- to address those -- those key  
9           issues and uncertainties. And so a lot of the -- a lot  
10          of these conclusions are based on -- on models and  
11          using enrichment factors that are -- are maybe  
12          generated elsewhere or in the lab.

13                 So I think it's important that -- yes, that in  
14          terms of that initial level of baseline monitoring,  
15          that these -- these programs be developed on the site  
16          at the watercourses that we think will be at greatest  
17          risk of being impacted so that -- I know the end-pit  
18          lake, we're talking years down the road, but for --  
19          for -- for watercourses -- lotic watercourses on-site,  
20          like Blairmore and Gold Creek, we would -- we think  
21          that those thresholds and those parameters would need  
22          to be measured up front so that while the project is  
23          running, we can compare back to those baseline  
24          conditions to see whether or not there are changes  
25          being made.

26                 In terms of your second question, which was

1 site-specific thresholds for vertebrates, I -- I  
2 alluded to earlier that there is, indeed, a tissue/egg  
3 burden threshold for avian species that could be  
4 applied here that's based on hatching success and is --  
5 is deemed as a fairly conservative threshold that would  
6 be protective of avian species on -- within the local  
7 study and regional study area.

8 When it comes to amphibians, I think, you know, it  
9 was noted before that while being noted as susceptible  
10 to selenium because it is, in fact, you know, an  
11 egg-laying vertebrate, and it spends its breeding  
12 season in the water, and it feeds on periphyton and  
13 those sorts of things, there is -- there -- there  
14 wouldn't be a TRV or a threshold that I could point to  
15 at the moment. I think it's sort of identified as a --  
16 as a gap in the selenium literature that needs a --  
17 needs more debate and needs more information to sort of  
18 develop a similar threshold that we have for birds.

19 Q Okay. Thank you, Mr. Mundy.

20 THE CHAIR: So those are all the questions  
21 I had.

22 I'm just going to turn to Mr. Matthews and  
23 Mr. O'Gorman to see if there's any further Panel  
24 questions.

25 Mr. Matthews, any questions?

26 Q MR. MATTHEWS: Good afternoon, everyone.



1 I have one question with regards to ungulates and,  
2 in particular, the health of ungulates.

3 There's been a lot in the evidence about the  
4 ingestion as being a pathway or a medium or method for  
5 affecting ungulates or mammals. And I just wondered  
6 if -- does Health Canada or ECCC agree that the  
7 respiratory or the airborne contaminants could be  
8 another factor in wildlife health or, in this case,  
9 ungulate health?

10 A MS. FAIRBAIRN: Just one moment, please, sir.  
11 Thanks.

12 Q MR. MATTHEWS: Okay. I'm talking more about  
13 the inhalation, like, whether that's a factor.

14 A MR. MUNDY: Hello, Mr. Matthews.

15 Indeed, you're right. Inhalation of COPCs is a --  
16 is a pathway of exposure to both wildlife and humans,  
17 so you're -- you're right in bringing ECC [sic] and HC  
18 into the fold here.

19 Benga did, indeed, conduct -- within their  
20 wildlife health risk assessment, they looked at  
21 inhalation of COPCs in air and what those impacts would  
22 be to various wildlife receptor species from different  
23 feeding guilds. Ultimately, our -- our assessment and  
24 our review focused on waterborne exposure effects and  
25 dietary pathways, and I believe it was even mentioned  
26 by Benga -- I believe it was Ms. Mooney yesterday,

1 mentioned that COPCs deposited to water represented  
2 1 percent of the compounds that they found -- that they  
3 were detecting in water and predicted to be in water.  
4 So it's -- it's a pathway, to be sure.

5 I don't know quite what the risk would be, aside  
6 from that it's -- it's more of a minor pathway in terms  
7 of the other sort of routes of exposure that we'd be  
8 concerned about for wildlife.

9 Q Thanks, Mr. Mundy.

10 Again, I'm raising it because the MD of Ranchland  
11 have talked about their reliance on cattle ranching or  
12 livestock, and I was -- wanted to take this further  
13 into -- has anyone looked at the health of the -- or  
14 the impact of airborne and waterborne contaminants to  
15 cattle?

16 A If we're talking about both airborne and -- and  
17 waterborne exposure to cattle, we would not have looked  
18 at it, nor -- nor would have Benga. They -- their  
19 multimedia model and -- and -- looked specifically at  
20 sort of a subset of wildlife receptors, and -- and  
21 ungulates would not have been part of that grouping.

22 I believe they looked at effects to -- potential  
23 effects to the river otter, the beaver, the American  
24 dipper, the mallard, the great blue heron. I might be  
25 missing one. But, no, cattle would not have been a  
26 part of that assessment.

1 Q Okay. Are you aware of any studies that have been done  
2 on the impacts of coal dust on ranch -- ranching or  
3 cattle or herding, let's say, near operations?

4 A I myself am -- am not aware of any such studies, no.

5 Q Okay. Okay.

6 A Not to say they do not exist, but just -- I just don't  
7 know.

8 Q Okay. No, I was just curious because I was thinking  
9 could we use ungulates or, let's say, mule deer or the  
10 elk and other -- a surrogate to at least indirectly  
11 monitor the health of ungulates in the area, or --  
12 including cattle, or are we -- am I just shooting from  
13 the hip here?

14 A Well, you've got good aim, I guess, with your hip. I  
15 mean, we -- we do the same thing for assessing effects  
16 for avian species, and -- and we -- we talked a lot  
17 about the dipper already. That's sort of a seminal  
18 surrogate species for other -- other avian receptors  
19 that have similar diets and similar life histories.

20 So I think it wouldn't be a stretch to say you  
21 could compare and try to evaluate impacts to -- to  
22 other ungulates and compare them to cattle. I think  
23 you can make that argument.

24 Q Okay. Well, that's great. Well, thanks a lot for  
25 answering my questions. That's all I have.

26 MS. MATTHEWS: Thanks, Mr. Chair.

1 THE CHAIR: Okay. Mr. O'Gorman?

2 MR. O'GORMAN: Thank you, Mr. Chair.

3 Thank you, panel. I don't have any questions.

4 THE CHAIR: Okay. Thank you, panel.

5 Those are all of our questions.

6 Mr. Drummond, any re-direct?

7 MR. DRUMMOND: I have just one question,

8 Mr. Chair.

9 Mr. Drummond Re-examines Government of Canada

10 Q MR. DRUMMOND: And this would be directed to  
11 Jody Small of ECCC. And I just raise this: When  
12 Mr. Lambrecht was asking questions of you this morning,  
13 he asked about ECCC being consulted in assisting the  
14 Agency in drafting their portion of Canada's  
15 submissions. And, Ms. Small, you gave a response that  
16 ECCC was not involved with assisting the Agency in  
17 drafting their portion of the submissions.

18 Now, do you -- do you recall that discussion this  
19 morning?

20 A MS. SMALL: Yes, I do, Mr. Drummond.

21 Q All right. I just have one very brief question in  
22 respect of that.

23 Can you comment on whether ECCC was afforded the  
24 opportunity to provide any comments to the Agency in  
25 respect of its assessments of the effect of the project  
26 on Aboriginal or treaty rights?

1 A No. Mr. Drummond, I am not aware. It's not to my  
2 knowledge whether or not we were asked specifically to  
3 comment on that document. It probably happened, but I  
4 couldn't confirm that with certainty.

5 I would say that Environment Canada's scientific  
6 knowledge about the project would probably have been  
7 used to inform the drafting of that document, although  
8 I should not -- I'm not going to speculate on behalf of  
9 the Agency in what they wrote.

10 But ECCC's science is certainly brought to bear on  
11 consultation efforts, as well as on consultation  
12 reports such as the one that has been drafted by the  
13 Agency, and we would make ourselves available to the  
14 Agency to have our experts provide any specific  
15 information to support them as they determine any  
16 impacts to effects -- impacts to rights.

17 Q All right. Thank you, Ms. Small. That's my only  
18 question.

19 MR. DRUMMOND: And just, Mr. Chair, I think  
20 this is probably the last point at which I'll be  
21 speaking, and I just wanted to take the opportunity on  
22 behalf of the Government of Canada to thank the Panel,  
23 Panel staff, and I think especially the court reporters  
24 for all their efforts in ensuring that this proceeding  
25 has gone as -- gone quite well in all the difficult  
26 circumstances we're facing. So I did want to express

1 our thanks.

2 THE CHAIR: Okay. Thank you very much for  
3 that, Mr. Drummond.

4 And thank you to Ms. Fairbairn, Ms. Woo, and the  
5 other panel members for your written submissions and  
6 your participation here today. Greatly appreciated by  
7 the Panel. So thank you.

8 A MS. SMALL: Thank you.

9 (WITNESSES STAND DOWN)

10 THE CHAIR: It's 2:32. We'll take a  
11 15-ish-minute break. 2:45 we'll resume. And at that  
12 point, we'll hear direct evidence from the Coalition.

13 (ADJOURNMENT)

14 THE CHAIR: Okay. Please proceed,  
15 Ms. Okoye.

16 MS. OKOYE: Good afternoon, Mr. Chair.  
17 Good afternoon, Panel.

18 We have before you two witnesses for the Coalition  
19 on this topic block, and the first one is Cliff Wallis.  
20 He's already been -- was previously sworn and has  
21 appeared before the Panel. And the second person is  
22 James Farquharson. James Farquharson looked at the  
23 noise impact assessment.

24 So if I may have the court -- Madam Court Reporter  
25 swear or affirm Mr. Farquharson, please.

26 CLIFF WALLIS, Previously Sworn

1 JAMES FARQUHARSON, Sworn  
2 Direct Evidence of the Coalition of Alberta Wilderness  
3 Association and Grassy Mountain Group

4 THE CHAIR: Ms. Okoye, can we just have  
5 Mr. Wallis just affirm that he still is under oath or  
6 affirmation?

7 MS. OKOYE: Yes, I'll do that. So I'll be  
8 starting off with Mr. Wallis.

9 Q MS. OKOYE: Mr. Wallis, do you consider  
10 yourself to be bound by the oath you previously gave in  
11 respect of the evidence that you are about to give  
12 today?

13 A MR. WALLIS: Yes, I do.

14 Q You have also previously adopted your written evidence.  
15 Do you acknowledge that you have a duty to provide  
16 opinion evidence to the Joint Review Panel that is  
17 fair, objective, and nonpartisan?

18 A Yes, I do.

19 Q So I understand that you have an opening presentation  
20 that you would like to use in presenting your evidence  
21 which has been filed as CIAR 909.

22 MS. OKOYE: Mr. Zoom Host, if you could  
23 bring that up, please.

24 A MR. WALLIS: While we're waiting, I'll  
25 start.

26 Good afternoon, Mr. Chair, Panel Members, staff,

1 and other participants.

2 I'll first briefly go through a few of the  
3 wildlife materials from my report and interject that  
4 with a couple of responses to answers that Benga gave  
5 in cross over the last few days, but most of those  
6 responses to that will be at the end of my report  
7 materials.

8 Can we have the next slide, Number 2, please,  
9 Zoom Host.

10 It is important to remember the South Saskatchewan  
11 Regional Plan vision focuses on sustainability, and the  
12 plan recognizes a wide range of fish, wildlife, and  
13 plant species, as well as a broad range of ecosystem  
14 services. The project location, in one or more  
15 environmentally significant areas, gives context to the  
16 overall importance of the site.

17 Also important is the subject of wildlife species  
18 at risk and other species of management concern.  
19 You've already heard me discuss the 1995 AEP report on  
20 the montane and its importance for biodiversity.  
21 Mr. Kansas acknowledged in a couple of answers in cross  
22 the uniqueness of the Grassy Mountain area is the  
23 montane ecoregion representation.

24 Next slide, please, Mr. Zoom Host -- or Zoom Host.

25 So wildlife of -- conservation concern do occur,  
26 and the fifth addendum notes some moderate impact on



1 some wildlife species of concern.

2 Next slide, Zoom Host, please.

3 For little brown myotis, Canada's recovery  
4 strategy suggests that management consider a species  
5 requirements in management plans and policies for  
6 public lands, environmental assessments, and land use.  
7 That includes energy, forestry, mining, agriculture,  
8 et cetera.

9 I find it difficult to reconcile development of  
10 this coal project with conservation objectives for  
11 little brown myotis when significant use has been  
12 recorded in parts of the project. The mine would  
13 remove a variety of productive habitats for little  
14 brown myotis for decades or longer.

15 Zoom Host, next slide, please.

16 It's difficult to make an accurate assessment of  
17 cumulative effects on little brown myotis and the  
18 supporting habitats without sufficient data. In the  
19 project footprint are habitat complexes with mature  
20 forest along some of the small drainages which have  
21 pools of slow-flowing open water that may be suitable  
22 habitat for little brown myotis.

23 Even within areas mapped as moderate and low for  
24 little brown myotis habitat suitability, there are  
25 significant numbers of bat passes for the little brown  
26 myotis, long-legged myotis group.

1           Zoom Host, next, please.

2           The project would effectively remove a variety of  
3 productive habitats for little brown myotis for decades  
4 or longer. Alone this may not be sufficient reason to  
5 deny the project, but it adds weight to other valued  
6 components of this project, emphasizing the area's  
7 environmental significance.

8           Zoom Host, next slide.

9           Number 7. If you look at this slide, you will  
10 notice regionally that most of the little brown myotis  
11 habitat that Benga has mapped as high quality -- it's  
12 the dark green -- is found over on the right side of  
13 the picture. That is east of the Livingstone Range,  
14 which is the wider grey area to the left of that dark  
15 green.

16           West of the Livingstone Range, there is little,  
17 high, or moderate suitability habitat. That's the dark  
18 and bright green that has been mapped. A significant  
19 portion of this high and moderate suitability habitat  
20 west of the Livingstone Range occurs in the mine  
21 footprint.

22           Note the lack of moderate and the high habitat  
23 suitability that has been mapped in the northern half  
24 of the project footprint.

25           Next slide, Zoom Host.

26           Just a note that subsequent bat surveys done on

1 the northern half of the study area showed more  
2 significant use than would have been inferred from  
3 Station A1, which is outside of the project footprint.  
4 Unlike three bat survey sites, R1-7, R5A-3, and R5A-5,  
5 A1 is not as representative of the diversity of the  
6 pockets of mature habitats and streamside habitats in  
7 the subalpine in the northern part of the project  
8 footprint.

9 Those three bat survey sites showed a significant  
10 number of bat passes by the little brown myotis,  
11 long-legged myotis group. More on the importance of  
12 conifer habitats a bit later.

13 Zoom Host, next slide.

14 And we have discussed this a fair amount. Just to  
15 reiterate that the Atrum Elan South Coal Project is  
16 something that I think still needs to be considered if  
17 one wants to get a better handle on the regional  
18 cumulative effects. And some long-term effects were  
19 noted for Benga -- by Benga for species such as the  
20 olive-sided flycatcher.

21 Zoom Host, next slide, please.

22 In the tenth addendum, Benga notes a reduction of  
23 biodiversity persisting for some time.

24 Zoom Host, next slide, please.

25 To conclude, I will reemphasize that I think it is  
26 improper for Benga to universally characterize the

1 residual effects as not significant. If each project  
2 takes the view that there is no significance to the  
3 effects that it has on habitats and species, the  
4 declines of species and the loss of valuable habitats  
5 will continue.

6 While I may agree that many common species and  
7 habitats will be well-served from the reclamation  
8 effort, some species of conservation concern will not  
9 reappear on the landscape in significant quantities for  
10 decades or longer. That is a significant risk and  
11 impact of this project.

12 That concludes my brief overview of my report on  
13 the wildlife components.

14 Q Thank you, Mr. Wallis.

15 Have you had an opportunity to review the  
16 transcripts for the hearing proceeding to date or to  
17 hear Benga's responses, especially as it relates to  
18 Benga's witnesses' responses to cross-examination  
19 questions on wildlife?

20 A I have.

21 Q Are there any comments that you would like to make  
22 regarding their responses?

23 A Yes. I think it's important that we go into a bit of  
24 detail on that, but not too much.

25 It was interesting to hear more about Coal Valley  
26 from Mr. Kansas and a bit more from Mr. McCoy last

1 week, and I'm sure we could all have a long lively  
2 discussion about the successes and problems of Coal  
3 Valley.

4 As I noted in the vegetation portion, I advised  
5 Luscar and Coal Valley in the late 1970s, and I  
6 reiterate that we have gotten better at getting some  
7 diversity of native flora and associated fauna back  
8 into the reclaimed mine landscape, as well as creating  
9 more structure.

10 Given what Mr. Kansas and Mr. McCoy said or may  
11 have been provided in cross, I feel some other  
12 perspectives are needed, though, and I will take a wee  
13 bit of time on this.

14 So let's turn to reclamation of bighorn, or  
15 Beth MacCallum's report. Mr. Kansas said that the  
16 wildlife specialist Beth MacCallum for a Coal Valley  
17 Mine extension, the Mercoal West/Yellowhead project,  
18 was able to say how many birds, mammals, amphibians  
19 that are on the Coal Valley Mine after 35 years of  
20 reclamation.

21 Mr. Kansas, at transcript 5269 said: (as read)  
22 And what it basically showed was that after  
23 33, 35 years, more different wildlife  
24 species -- more species diversity was  
25 occurring on the Coal Valley Mine than was on  
26 the unmined areas.

1 So what did Ms. MacCallum say in her report provided by  
2 Mr. Kansas at CIAR 908, starting at PDF page 143?

3 Zoom Host, can we go to CIAR 908? Focus in on the  
4 top half of PDF page 143, please.

5 So she said a number of things, some of which I  
6 believe rise to the same level of puffery that I just  
7 quoted from Mr. Kansas. And I'll let you judge, based  
8 on Ms. MacCallum's findings, if that is a proper use of  
9 the term.

10 This relates to her false claim in the first  
11 paragraph that the number of -- quote: (as read)

12 The number of bird species associated with  
13 the reclaimed Coal Valley Mine, 142, is at  
14 least 50 percent higher than species  
15 identified in pre-disturbance LSAs and other  
16 mine areas, Section 9.

17 She states in the second full paragraph that the bird  
18 community -- quote: (as read)

19 The bird community on the Coal Valley Mine is  
20 composed of those bird species preferring  
21 early succession grasslands, species  
22 restricted to the aquatic environment  
23 provided by lake and pond development,  
24 species using the forest/grassland edge,  
25 species using the riparian/grassland edge,  
26 and those species which are present in the

1           undisturbed riparian and forested habitat.

2       So, Zoom Host, can we go to the top half of PDF  
3       page 90, which will be Section 9 that was just referred  
4       to above? Thanks. That's great.

5           So let's break this down. How did Ms. MacCallum  
6       arrive at 142 bird species shown in this list for the  
7       Coal Valley Mine? As you can see it there, "CV Mine:  
8       142 birds".

9           So, Zoom Host, can we now go to the top half of  
10       PDF page 94? Perfect.

11           This is the table in Section 9 that lists all the  
12       species in the various study areas. If you count up  
13       all those bird species in the "Coal Valley Mine"  
14       column, along for several pages, and I did, you get to  
15       the 142 species Ms. MacCallum claims is 50 percent  
16       higher on the reclaimed Coal Valley Mine than on the  
17       Mercoal West and Yellowhead West unmined areas.

18           So, Zoom Host, can we go now to the bottom half  
19       of PDF page 97 and follow that column down, 'cause it's  
20       not -- there's no headings on the page following this  
21       that -- you can see most of the observations are in  
22       that column.

23           And if you notice, there's a couple of those with  
24       a '1' superscript above them for footnotes on several  
25       of the warbler species. You will also see various  
26       letter designations. The 'O' refers to presumed

1 nonbreeding or accidental species, while those with a  
2 'B' in them refer to some level of breeding confidence.

3 So, Zoom Host, can we go to PDF page 99 at the  
4 bottom half of the page, please?

5 Here you can see just above the website references  
6 that Footnote 1 relates to my records, that's  
7 Cottonwood and Sweetgrass 1978, and Cottonwood 1981.  
8 You can also see what those various letter codes are on  
9 the second line at the bottom of that table related to  
10 birds.

11 Zoom Host, you can take that down now. Thanks.

12 So let's quickly summarize what we have just seen  
13 and read. Ms. MacCallum used data spanning several  
14 decades at Coal Valley compared with only a couple of  
15 years at the proposed extension areas at Mercoal West  
16 and Yellowhead Tower. That list included some of my  
17 records from pre-disturbance surveys in the late 1970s  
18 and early 1980s in addition to her records through the  
19 1990s and 2000s.

20 She included bird data from undisturbed sites at  
21 the Coal Valley Mine in the list of 142 species,  
22 purporting to show more bird species on the reclaimed  
23 mine than in surrounding habitats. It is no wonder  
24 that there are more records of bird species at the Coal  
25 Valley Mine compared with the surrounding habitats in  
26 the extension areas.



1           On top of that, more than half of the birds in  
2           this inflated list for the Coal Valley Mine are  
3           nonbreeding migrants and accidentals, many associated  
4           with water habitats that were poorly represented in the  
5           pre-development ecosystem, and I think Mr. Kansas  
6           acknowledged that.

7           If you add up all the breeding bird species from  
8           Mercoal West and Yellowhead Tower, you get 67 species  
9           and only 64 for Coal Valley, including the undisturbed  
10          areas of Coal Valley. That's a far cry from the number  
11          of bird species associated with the reclaimed Coal  
12          Valley Mine being 50 percent higher. None of this is  
13          an apples-to-apples comparison. There are no controls,  
14          no land (AUDIO FEED LOST) effort comparisons, and  
15          Ms. MacCallum's and, therefore, Mr. Kansas's claims are  
16          spurious.

17          So what is the truth? The mature and old-growth  
18          forests and rare wildlife habitats, like the fen  
19          wetland complexes and stream/valley habitat diversity,  
20          have not been brought back in that reclamation. These  
21          are not the plains of the Serengeti; they are coal  
22          mines.

23          In a 2012 environmental assessment process that I  
24          was involved in, a Coal Valley Mine extension called  
25          the "Robb Trend Project", Coal Valley Resources, in an  
26          information response, discusses a 2010 report by

1 Penny Longman on terrestrial reclamation at the Coal  
2 Valley Mine, and that detailed the lack of understory  
3 species in some reclamation areas. It also noted that  
4 natural ingress on its own will not provide the desired  
5 forest structure.

6 Ms. Longman's paper notes, "We Have a Way to Go":  
7 (as read)

8 Research on reclamation vegetation at Coal  
9 Valley Mine indicates that all the richness  
10 and native cover do increase with time.

11 Native species remain a small component of  
12 the vegetation communities.

13 In 2008, geographic dynamics, referenced in the report  
14 provided by Mr. Kansas, notes at Coal Valley that the  
15 reclaimed wetlands did not closely resemble natural  
16 regional wetlands and that these young reclaimed  
17 wetlands had a relatively high proportion of non-native  
18 and/or weedy species.

19 That lack of native plant species for an extended  
20 duration in the reclaimed landscape means they do not  
21 support a wide range of wildlife species and mining is  
22 not mimicking natural fires, as Mr. Kansas asserted at  
23 transcript 5746. Quote -- he said: (as read)

24 There's no strategy involved here. We're  
25 taking timber away, and we're replacing it  
26 with early successional, and the wildlife

1 will thrive by doing so.

2 Unlike on mine sites, native species recovery in  
3 natural habitats after fire in this part of the world  
4 results in immediate reestablishment of native plant  
5 species.

6 Wayne Strong's 2000 paper on the Coal Valley mine  
7 noted: (as read)

8 Comparable natural light vegetation could  
9 develop after these different disturbance  
10 regimes but with more rapid establishment or  
11 on burnt or clear-cut site relative --  
12 relative to reclaimed site.

13 At transcript 5271, Mr. Kansas stated: (as read)

14 Wildlife biodiversity is not necessarily  
15 driven by the diversity of plants that you  
16 bring them to. It's driven by the structure.

17 I find that statement simplistic 'cause you need both  
18 plant species and structural diversity.

19 With respect to plant species diversity, the  
20 species mix provides a variety of food sources for a  
21 variety of species. This is not just about large  
22 mammals.

23 The plant species diversity supports a richer  
24 invertebrate population on which various fauna feed and  
25 which also serve other ecosystem functions, such as  
26 pollination.

1           With respect to the structural diversity, I agree  
2 with Mr. Kansas that it is also important. We need  
3 structure both vertically, such as understory  
4 herbaceous cover, low and tall shrubs, as well as trees  
5 of various size and age classes; and we need structure  
6 horizontally, for example, moisture wet sites, as well  
7 as deep and gentle slopes with different aspects.

8           At page 2682 of transcript, Mr. Houston noted that  
9 the intent of showing all those pictures in Benga's  
10 reply was, "To show really typical reclamation".

11           So all of this is to say that what you saw in the  
12 Coal Valley Mine reclamation and other pictures in  
13 Benga's reply is quite different than proving  
14 equivalent land capability exists. It is not  
15 equivalent to or better than the natural disturbed  
16 habitats -- undisturbed habitats. Benga's  
17 characterizations are not borne out by the detailed  
18 studies done for the mines they showcased more than  
19 25 to 35 years after reclamation started.

20           At Grassy Mountain, even if we are wildly more  
21 successful than the Coal Valley experience, it will  
22 still take well over a hundred years to get back much  
23 of the forest structure and old-growth characteristics  
24 and the rarest or endangered wildlife that will be  
25 lost.

26           Just turn to agronomics now. I was concerned with

1 some of Mr. Kansas' response regarding using agronomics  
2 for reclamation. I hope I'm not reading too much into  
3 it. He noted in transcript at 5278 and 5279 that he is  
4 a specialist with big mammals and was extolling the  
5 benefits of agronomics.

6 In discussing grizzly bear, Mr. Kansas at  
7 transcript 5266 said: (as read)

8 The right food being agronomic grass species  
9 with legumes.

10 He went on to add: (as read)

11 If only native seed mixes are used and your  
12 goal is to establish plant -- plant diversity  
13 like you want all 300 plants the same in the  
14 mine as there are in nature beside it, you're  
15 going to have a long, hard task.

16 Further along he said: (as read)

17 Because these legumes are so high energy and  
18 full of nutrients, and the animals know that,  
19 but the seed mixes -- the native seed mixes  
20 don't have the same amount of digestible  
21 protein and things like that that these  
22 animals need.

23 I do appreciate that short-lived agronomics may have  
24 some role in some elements of erosion control, but I  
25 would strongly advise against replacing complex and  
26 diverse montane habitats, especially on public lands,

1 with habitats dominated by longer-lived agronomics. It  
2 is just not appropriate today. In my professional  
3 opinion, that would not translate to equivalent land  
4 capability as we know it in 2020.

5 I recommended getting more structure and more  
6 native species into the reclamation at Coal Valley in  
7 the late 1970s, and that led to some early success in  
8 increasing native species of all physiognomic types.  
9 Unfortunately, that approach was abandoned in the late  
10 1980s, only to be revived again recently.

11 Benga acknowledged the importance of Clark's  
12 nutcracker as the keystone species in the forest  
13 ecosystem. The relationship to very old whitebark pine  
14 is striking. I will reemphasize in the range-wide  
15 restoration strategy for whitebark pine that states:  
16 (as read)

17 Whitebark pine starts producing cones around  
18 30 to 60 years of age, although trees must  
19 attain good canopy volume to have high cone  
20 production, usually at about 125 to 250 years  
21 of age.

22 Plant diversity and structural diversity will be  
23 reduced in the post-mine reclaimed landscape in what  
24 was mapped as potential critical habitat for Clark's --  
25 for whitebark pine.

26 As I noted in the vegetation portion of this

1 hearing, making the landscape significantly more  
2 homogenous is at odds with structural and plant species  
3 diversity and, therefore, wildlife diversity, at least  
4 to a significant residual impact lasting well over a  
5 hundred years for more mature or old-growth wildlife  
6 habitats and inherent complexity and structure and the  
7 ecological goods and services those habitats currently  
8 provide.

9 With regard to the rating of "moderate" for  
10 impacts on little brown myotis habitat availability, at  
11 transcript 5304, Mr. Kansas seemed to be of the opinion  
12 that the rating of "moderate" and not "high" was  
13 because: (as read)

14 The impact of the footprint, based on its  
15 size, is within the range of natural  
16 variability.

17 At PDF 181, CIAR 69, Benga offers a different view when  
18 describing the magnitude of potential effects on  
19 habitat availability for olive-sided flycatcher and  
20 little brown myotis being characterized as "moderate".  
21 (as read)

22 Reclaimed landscape is anticipated to be  
23 different from the current landscape, more  
24 different than would happen when natural  
25 disturbance, such as fire.

26 I would submit that Benga's fifth addendum is correct;

1 that is, it is outside of the range of natural  
2 variability, not within it, as Mr. Kansas suggests.

3 At transcript page 5284, Mr. Kansas stated:  
4 (as read)

5 It's really clear in the literature -- in the  
6 scientific literature, which you just read  
7 some of, that little brown myotis strongly  
8 favours deciduous -- old deciduous forest  
9 like a balsam popular.

10 Although Mr. Kansas did admit that old-growth Douglas  
11 fir can provide habitat, he stated that Benga's  
12 approach to placing a low habitat suitability value on  
13 any old-growth conifer forests for bats was -- was  
14 accurate.

15 I submit, based on the research of what I'm aware,  
16 that those statements in cross and Benga's habitats  
17 suitability mapping represents somewhat of an  
18 obfuscation. From the bat survey data and the  
19 knowledge that conifers can play an important role  
20 where conifers are predominant or sometimes only trees,  
21 I think there must be pockets of unmapped moderate bat  
22 habitat suitability in more mature forests in the  
23 northern part of the mine area.

24 There are a number of papers on this topic showing  
25 the importance of conifer forest. I'll just note a  
26 few. And I have the full references for these and



1 other documents I've been referring to if you need  
2 them.

3 A recovery strategy for little brown myotis  
4 states: (as read)

5 In New Brunswick and Quebec, male little  
6 brown myotis primarily roosted in coniferous  
7 or conifer-dominated mixed-wood stands with a  
8 large number of snags.

9 Grindal and Brigham's 1998 paper from southern BC notes  
10 their data supports roosting in conifer forest, western  
11 red cedar, western hemlock, Engelmann spruce, and  
12 subalpine fir.

13 Parker et al. made reference to coniferous old  
14 growth and its importance for summer roosting little  
15 brown myotis in southeast Alaska and the Pacific  
16 Northwest. They noted that the structural diversity of  
17 old-growth forest provides suitable sites for  
18 cavity-roosting species and that bats were detected  
19 three to ten times less often in second growth than in  
20 the old-growth forests.

21 In Ontario, Jung et al. found that white pine was  
22 favoured over aspen and white spruce.

23 Nathan Schwab's 2006 thesis describes male little  
24 brown myotis roosts from western Montana. He found  
25 roosts exclusively in conifers, mostly large-diameter  
26 conifer trees, including Douglas fir, as Mr. Kansas had

1 noted. Roosts were found in lodgepole pine, but  
2 Engelmann spruce was used disproportionately more than  
3 its availability. Spruce was favoured over pine and  
4 subalpine fir. So conifers -- at least larger, mature,  
5 and old-growth -- do provide important habitat for  
6 roosting little brown myotis.

7 The data on maternity roosts in natural sites in  
8 western North America is still poorly known, but that  
9 roosting habitat for maternity colonies is critical to  
10 their survival. The lack of data is echoed in the  
11 report provided by Mr. Kansas for the Mercoal area as  
12 well as the recovery strategy.

13 The recovery strategy notes that the spatial  
14 extent of maternity roost is required to identify  
15 critical habitat. The strategy notes that some  
16 maternity colonies may contain most of the breeding  
17 females and offspring within a large area. So colony  
18 removal can have a significant impact on local  
19 populations.

20 Of the three species discussed, though, little  
21 brown myotis most regularly uses bat boxes for  
22 maternity colonies, but that comes with a few caveats.

23 As to the efficacy of bat boxes from their scan of  
24 the literature, Slough and Jung note in their 2020  
25 paper that: (as read)

26 For little brown myotis maternity colonies

1           that have been excluded by humans, the  
2           occupancy of replacement maternity roosts  
3           [that is, for example, bat houses] by the  
4           occupancy of replacement maternity roosts is  
5           not unknown but is reportedly uncommon.

6       In the paper by Rueegger provided by Mr. Kansas in the  
7       undertaking at PDF 174 -- we don't need to go to it, I  
8       don't think -- it notes that even though little brown  
9       myotis is one of the few species using bat boxes for  
10      maternity colonies generally: (as read)

11           The lack of maternity and overwintering roost  
12           records in boxes is a concern.

13                   [And] One difference between natural and  
14           artificial cavities is that boxes are less  
15           likely to provide the same variety of cavity  
16           diversity, such as size differences or  
17           microclimates found in a mature, intact  
18           forest.

19      While a few successful uses of bat boxes from maternity  
20      colonies for little brown myotis were identified in  
21      Rueegger's paper, two of those successes were only due  
22      to their replacement of the boxes on buildings.

23           A paper by Neilson and Fenton cited in the same  
24      paper provided by Mr. Kansas found no replacement use  
25      for displaced little brown myotis nursery colonies in  
26      43 bat houses of 4 different designs.

1 All of this seems to largely run counter to  
2 Mr. Kansas' testimony at transcript 5298 where he  
3 indicated that bat houses would adequately replace any  
4 lost maternity roosts.

5 To conclude, there will be significant residual  
6 impacts, particularly on species and habitats of  
7 conservation concern. The significance of that  
8 extended duration loss has not been adequately  
9 acknowledged in Benga's assessment.

10 That concludes my remarks.

11 You're on mute.

12 Q Thank you.

13 MS. OKOYE: Mr. Zoom Host, if you could  
14 please pull up AQ2, the noise map markup.

15 Q MS. OKOYE: So, Mr. Wallis, did you  
16 produce this map?

17 A Yes, I did.

18 Q Did you produce it from the noise contour map at  
19 CIAR 42, Consultant Report Number 2, PDF 40?

20 A Yes.

21 Q Can you explain to the Panel how you generated this  
22 map, including identifying the residences on the map?

23 A Sure. I first looked at the hand-drawn maps that were  
24 provided by the landowners to ascertain the approximate  
25 location of the residences. I then georeferenced those  
26 landowner-provided maps in the geographic information

1 system so they were accurate within a couple of metres.

2 I then looked at the georeferenced aerial  
3 photograph -- and I have the number of it. It's for  
4 Township 8, Range 3, West of the 5 -- provided by the  
5 MD of Ranchland No. 66 as part of the Southern Alberta  
6 partnership 2012 collection. That aerial photograph is  
7 an orthorectified half-metre, three-band, true-colour,  
8 compressed MrSID file generated from aerial  
9 photography. Ortho-photos are georeferenced remotely  
10 sensed images in which displacement in the photos due  
11 to internal sensor errors, sensor orientation, and  
12 terrain relief have been corrected.

13 I then identified structures appearing to be  
14 residences on those aerial photographs that were very  
15 close to where the landowners had identified the dots  
16 on their hand-drawn maps. Those are the pink dots in  
17 these maps on the screen.

18 I then took the sound impact mapping from CIAR 42,  
19 Consultant's Report Number 2, at PDF 40, and  
20 georeferenced it within a couple of metres for this  
21 location. This became the base that you saw in AQ2.  
22 The dots for the residences are overlain on that  
23 georeferenced map.

24 Based on subsequent discussions with the  
25 landowners, I noted that there is a slight inaccuracy  
26 for Fran Gilmar's residence, as I initially mapped the

1 barn location as the residence in the map that you have  
2 at AQ2. The barn is immediately north of the cabin;  
3 therefore, the pink dot is about 5 metres north of  
4 Ms. Gilmar's cabin. At the scale of AQ2, this  
5 difference would not be discernible.

6 Q So other than identifying mapping the residences at  
7 PDF 1 and including the project footprint at PDF 2 of  
8 AQ2, did you make any other changes to the base map at  
9 CIAR 42, Consultant Report Number 2, PDF 40?

10 A No, I did not.

11 Q Thank you, Mr. Wallis.

12 MS. OKOYE: So, Mr. Chair, I'd like to  
13 have AQ2 marked as an exhibit, please.

14 THE CHAIR: Mr. Ignasiak, any concerns?

15 MR. BRINKER: Coleman Brinker speaking,  
16 Mr. Chair. No concerns.

17 THE CHAIR: Okay. Thank you, Mr. Brinker.  
18 Can we get a number for that, please?

19 MS. UTTING: Mr. Chair, Tracy Utting, Panel  
20 manager. That would be CIAR 934.

21 THE CHAIR: Thank you.

22 MS. OKOYE: Thank you.

23 EXHIBIT CIAR 934 - AQ#2 - COALITION - NOISE  
24 MAP MARK UP - RESIDENCES EAST OF THE MINE PIT  
25 - AIR\_WILDLIFE TOPICS

26 Q MS. OKOYE: Next will be Mr. Farquharson.

1           Mr. Farquharson, are you there?

2   A   MR. FARQUHARSON:           Yes I am.

3           MS. OKOYE:                   Mr. Zoom Host, you can take  
4   the document down, please.

5   Q   MS. OKOYE:                   I'm referring you to your  
6   curriculum vitae filed as Appendix N and your report  
7   filed as Appendix M of CIAR 553. Were these documents  
8   prepared by you or under your direction or control?

9   A   Yes, they were.

10   Q   Are there any changes that you would like to make to  
11   the documents at this time?

12   A   No, there is none.

13   Q   Are the documents accurate, to the best of your  
14   knowledge and belief?

15   A   Yes, they are.

16   Q   Do you adopt your report as part of your evidence in  
17   this proceeding?

18   A   Yes, I do.

19   Q   Do you acknowledge that you have a duty to provide  
20   opinion evidence to the Panel that is fair, objective,  
21   and nonpartisan?

22   A   Yes, I do.

23   Q   Would you please provide the Panel with a brief summary  
24   of your professional qualifications and experience?

25   A   I've been an acoustical consultant since 1989, a focus  
26   on industrial settings, environmental situations. From

1 mining, I've done a number of mining projects across  
2 Western Canada: British Columbia, Alberta,  
3 Saskatchewan. Some of them include prairie coal mines  
4 for thermal uses. And other mines I've been to are for  
5 coal and other minerals where it's more of a  
6 hard-rock-type mine situation. I've measured equipment  
7 in the Elk Valley. I've measured -- done some other  
8 mining work in the foothills, as well as a number of  
9 the prairie mines.

10 I've also helped clients over the years address  
11 noise complaints in their mines with respect to their  
12 neighbours, and I've assisted them with resolving those  
13 complaints or -- or -- or working on them. Includes  
14 the development of noise control items for -- for  
15 mining equipment and noise mitigation strategies.

16 Thank you.

17 Q Thank you, Mr. Farquharson.

18 Would you please provide the Panel with an  
19 overview of your findings and analysis in this matter?

20 A So in view of this application and the noise impact  
21 assessment that goes with it, it was a -- it's a very  
22 typical mining assessment. I'll -- I'll say that if we  
23 go to page -- PDF page 52 of the assessment, it  
24 lists -- it lists the sound power levels of the -- of  
25 the mining equipment. And what I note here is when I  
26 first glanced at -- at these numbers that are shown,



1           they looked a little high.

2    Q   Mr. Farquharson, if I may stop you.  Maybe Mr. Zoom  
3           Host can pull that up.  CIAR 42, Consultant Report  
4           Number 2.

5           MS. OKOYE:                    You can go -- I think he's  
6           referring to PDF 52.

7    A   MR. FARQUHARSON:                52, please.

8           So in -- in this table here is a -- is a list of  
9           the mining equipment sound power levels.  And on first  
10          glance, if we look at the column that says "dBA", I  
11          noted that these numbers look a little bit higher to  
12          what -- than -- than what I'm used to or what I  
13          measured in the past.  But if I go down a little bit  
14          into the notes, I see in the "Notes" section here  
15          that -- that in preparation of this assessment, they --  
16          they describe the sources as being maximum levels  
17          measured from which they developed their power levels.

18          There is different ways to assess this mining  
19          equipment from a noise perspective.  You can establish  
20          working numbers; you can establish maximum numbers; you  
21          can then add duty factors in your model.  I must say  
22          that the -- the modelling for this project was done  
23          about four or five years ago, so there could have been  
24          some changes in what was available to the assessor  
25          since then in terms of how he models.

26          What he says in this -- this comment here is that

1 he's reduced the sources by 6 dB to account for breaks,  
2 idle periods, et cetera. And when I look at many of  
3 these numbers on here, if I reduce them overall by 6,  
4 it becomes more reasonable here as -- as -- some of the  
5 numbers, 'cause some of them were starting to get at  
6 the extreme levels.

7 We also on this table, which was very nice of  
8 the -- in preparation here by ECI is they provided  
9 heights. So over in that far right-hand column,  
10 there's heights of what we call the "acoustic centre"  
11 of these -- these items. That's where the noise  
12 emission would be placed in relationship to the  
13 landscape.

14 So, for example, the one at the top there, the  
15 Komatsu 5500, it has a source height of 7 metres above  
16 the ground elevation. Special note here too is the  
17 haul truck. So it gives a -- a number there of  
18 4 metres. And these numbers can be confirmed by going  
19 to a list of dimensional data for this equipment from  
20 the manufacturers on -- on the -- on the -- the shovel  
21 and the backhoe list at the top. They can be either  
22 configured to be shovels or backhoes. It depends on  
23 the situation for mining.

24 But your engines on those units are located on a  
25 deck behind the cab, and the -- the number of 7 metres  
26 holds pretty good for those compared to the -- the

1 manufacturer's numbers.

2           On the haul truck, your -- your motor is contained  
3 in a -- you know, at about the same height as the -- as  
4 the axle when you look at the wheels. And in that  
5 position, a 4-metre height is reasonable. The rad is a  
6 large source. It is in front of the -- the truck, but  
7 the -- a lot of the noise comes from the engine casing  
8 and the exhaust, which a 4-metre height is quite  
9 representative, so in quite good agreement with the  
10 sources, their levels, and such.

11           I know that just before this particular table, the  
12 page before and a couple of pages before that, is quite  
13 an extensive list of the sources used for some of the  
14 stationary items at the -- at the development.

15           I'd like you then to go to page -- PDF page 40.  
16 So these are the -- this is the results at the bottom  
17 of this page. It presents the -- the number for the  
18 daytime. So if we scroll up a little bit on the page,  
19 what's interesting here is of interest to -- to our  
20 clients, and interpretation of this -- this isopleth of  
21 the -- of the noise emissions of the -- of the site  
22 is -- at the north end here in the daytime, we heard  
23 from Mr. Houston and Mr. Bilawchuk in their testimony  
24 that they'd be conducting mining operations during  
25 day -- daytime periods. So it's where that arrow comes  
26 from the right and goes in and says "mining equipment".

1           So we can see in the yellow areas, there is some  
2 higher-level noise in that area. If we look at the two  
3 residences that are identified here, Residence 302 and  
4 301, we can see they're in the darker green-shaded  
5 area, which is the area, I believe, up to about 40.

6           If we go to PDF 39, which is the same map here but  
7 presenting the nighttime view of -- of operations, and  
8 we heard Mr. Houston and Mr. Bilawchuk say that there  
9 was going to be a curtailment of some of the operations  
10 at the north end of the mine during the -- the  
11 nighttime period. So that's the AER-defined nighttime  
12 period of 10 PM to 7 AM.

13           And -- and it shows up visually here in -- in this  
14 plot, is we don't have that corridor that extends down  
15 from the mining equipment arrow -- arrow down into the  
16 centre portion of the mine, a haul route probably used  
17 during the day but not in the evening.

18           What's also of interest in this map is if we look  
19 at -- if we look to the west of Residence 301. So we  
20 have a red area showing an elevated level just to the  
21 west, and then it's followed by a green area, which is  
22 a -- shows a reduction in the sound level that's  
23 predicted for that area, and then there's a steep  
24 increase into a yellow area where there's mining  
25 activities.

26           So this is -- when we have a noise contour map or

1 isopleths like this, it is representative of the  
2 very -- varying terrain in the area, and that varying  
3 terrain has produced this -- we're seeing what we  
4 would call "acoustics shadow zone" to the west of  
5 Residence 301, and it's all due to the topography  
6 and -- and such of the area.

7         We also heard in the testimony yesterday -- or a  
8 few days ago about how they proposed to haul rock to  
9 the waste dump in this area and that they would -- it  
10 would be more like a -- a layer-cake situation with the  
11 outer eastern portion of the -- the layer cake built up  
12 first to provide some shielding or barrier effect to  
13 receptors east of -- of that area and that they would  
14 continue this process as -- as they went.

15         Now, if we think back to the -- to the table we  
16 just looked at with the source heights, so a haul truck  
17 height is done at 4 metres of elevation, our barrier is  
18 going to have to be much higher than that on the outer  
19 -- outer ring, and we're going to have to try and  
20 maintain that elevation as we use that waste dump to  
21 protect homes to the -- to the -- to the east.

22         So we've -- in our review of the project area,  
23 I'll say this, that I, too, had difficulty accessing  
24 the study area to confirm or check on items as done by  
25 Mr. Bilawchuk in terms of residence and such. The town  
26 of Blairmore or -- is quite easy to check on residences

1 there, but some of these other properties are much more  
2 difficult to access.

3 When I was down there that way in this fall -- in  
4 the early part of the fall, I found it very difficult  
5 to access. I didn't have -- I was down there on other  
6 business and didn't have an opportunity to provide much  
7 forewarning to -- to anybody that might assist me in  
8 finding access. But I, too, missed the two residences,  
9 the Donkersgoed and the other home in the area, that  
10 are in the mine permit bound [sic] area -- area. I  
11 missed those in my initial review and in our report. I  
12 would have more to say. And I apologize for that. We  
13 didn't realize that until we had a -- a meeting of the  
14 experts involved in -- Mr. Gettel was present, and he  
15 was discussing valuations in the area. And from that  
16 discussion arose the -- the nature of these two --  
17 these two properties and -- and the buildings that are  
18 on them. They're pretty much homes, residences. It's  
19 a -- for recreational use, if we might call them that,  
20 or -- or part-time use.

21 I heard a lot of testimony from Mr. Bilawchuk and  
22 Mr. Houston about whether or not these are classified  
23 as -- as residences under Directive 38.

24 And I would just say, in my experience, since  
25 1989, working with the directive in its current format  
26 and the predecessor versions of it, the only kinds of

1 structures or -- or such that we've omitted or  
2 disregarded, in my experience, has been holiday  
3 trailers that have been pulled into an area for the  
4 sole purpose of -- of causing havoc with the directive.

5 Structures such as mobile homes have been, in the  
6 past, accepted regardless of the amount of use that  
7 they might seem. If they are fairly inhabitable, then  
8 we haven't applied whether or not they're used for 'X'  
9 number of days of the year or whether that's the magic  
10 six-week number that is written as a definition.

11 We've also had cabins that extends all the way  
12 into trappers' cabins. I know that many clients, when  
13 they see a trapper's cabin in a remote area, they ask  
14 us to place them on our list of receptors and to treat  
15 it as a -- as a receptor in our assessment. If they  
16 feel that it's a -- it's an impediment to their  
17 project, they might take steps to remedy that by  
18 looking at either a relocation or a purchase of -- of  
19 the property that cabin sits on.

20 In this case, we have two more homes. We heard  
21 testimony from -- from the individuals that own these  
22 properties about their use and about what types of  
23 structures they have there. I would say that they  
24 should be considered as residences, and I would say we  
25 could have them added to the noise impact assessment,  
26 with the addition of a couple more points in

1 Mr. Bilawchuk's model and a modelling of the sources to  
2 get -- to determine whether or not they comply.

3 Mr. --

4 Q Sorry, Mr. Farquharson. Before you proceed, just to  
5 clarify that. The other residence that you are talking  
6 about, is that Ms. Gilmar's residence?

7 A Yes.

8 Q If you go to AQ-- thank you.

9 You can continue.

10 A It would be the residences indicated in Exhibit 934  
11 that --

12 Q So, Mr. --

13 A -- Mr. Wallis prepared that we just had entered.

14 Q Thank you.

15 A So it is --

16 Q You may -- (INDISCERNIBLE - OVERLAP ING SPEAKERS)

17 A Yes. It would be as simple as adding those coordinates  
18 for those two points into the noise model, doing a -- a  
19 model for Year Number 1, as -- as this case here  
20 represents that we looked at, and determining whether  
21 or not there's compliance. And if there isn't, then  
22 steps would need to be taken to -- to remedy that  
23 particular situation to the satisfaction where there's  
24 compliance achieved.

25 I also heard lots from Mr. Houston in his  
26 testimony. He stated that he was willing to add



1 acoustics and noise specifications or requirements  
2 to -- to bid documents and purchasing requirements for  
3 equipment destined for the mine, should they be  
4 approved. That's a very good step. That's a very good  
5 commitment. It takes some extra effort to make sure  
6 that those requirements are adhered to and acknowledged  
7 by potential bidders. I appreciate those efforts made  
8 at this stage. The follow-through is important on  
9 that.

10 I also appreciate the -- the efforts that they  
11 have made to commitments to first -- first-year  
12 monitoring. I would say that any monitoring program  
13 needs to consider a -- a reasonable sample of the area.  
14 We know that weather conditions can have a big bearing  
15 on whether or not the noise can be heard at distant  
16 receptors. So our -- our survey period would need to  
17 encompass a -- a long-enough duration to capture some  
18 good -- good representation on that.

19 And, also, it might be important, should the mine  
20 go ahead, that -- that the community be notified of the  
21 start and when -- when operations might be considered  
22 normal, and, therefore, if there was any concerns or if  
23 the community was consulted about noise, the testers  
24 employed by Benga at that time could have that input to  
25 use to help identify where they should monitor and  
26 assist with durations or correlation to activities at

1 the mine.

2 Mines are active places. The noise sources move  
3 around. It's imperative that any monitoring that takes  
4 place indicative of any concerns or -- or such that  
5 might have come from the community about mining noise  
6 and -- and what their experiences have been to date  
7 within that first year.

8 We also had some discussion in the testimony  
9 and -- and such about the pristine conditions of the  
10 area. And I would say of any of the places that I've  
11 been over my 30-some years of monitoring noise in -- in  
12 Alberta and -- and such, that the homes and -- and at  
13 such in this Gold Creek valley east of the mine there,  
14 that area represents a pretty quiet area and is  
15 probably as close to the definition of "pristine" as we  
16 can with having homes still present. Very limited  
17 access to the area currently. It's not subject to,  
18 really, any nearby industrial forces or other regulated  
19 sources. There might be the odd bit of recreational  
20 use in the area, but, for the most part, it's -- it's  
21 pretty devoid of a lot of these other sources of noise  
22 that would be imposed by humans.

23 So any monitoring that was done out there or -- or  
24 look at that valley would -- would show that -- that it  
25 probably is very -- a quiet environment. There's a  
26 good chance that the levels at times could get well

1           into the -- into the 20s, I would speculate, and it  
2           would show that a level of -- you know, a cumulative  
3           level of 40 for receivers in that area is quite -- is  
4           quite an impact if our background is -- is in the 20s  
5           for periods. We're talking levels far above what's  
6           considered acceptable levels of impact, which is  
7           5 above background. It would definitely change the --  
8           the acoustic landscape of the area if such levels were  
9           experienced on a regular basis.

10                   Ms. Okoye.

11    Q    Okay. So do you have any comments to make regarding  
12           the responses of the (INDISCERNIBLE) ground factor  
13           coefficients that we discussed during cross with  
14           Mr. Bilawchuk?

15    A    Yes. Mr. Bilawchuk stated that he used .7. It's found  
16           in his report. In his testimony he was quite adamant  
17           to support that choice.

18                   We have a developed area here at times --  
19           different times. It'll change in size with the amount  
20           of ground that's stripped and where that ground is  
21           stripped in the area. We'd end up with a surface that  
22           is comprised of -- of -- of disposed materials, waste  
23           rock or waste materials, which can be a bit softer than  
24           haul roads and areas that are regularly travelled, as  
25           well as exposed new areas where you might be at the  
26           base material or harder rock of the area, which tend to

1 be acoustically quite reflective.

2 We have a large processing facility on-site. We  
3 have a large amount of equipment that moves around on  
4 these surfaces. I know from measurements of equipment  
5 in -- in mine sites that if we put, for example, a -- a  
6 dozer on a spoil pile or a waste material pile and we  
7 have it dozing that pile, it has a much different noise  
8 signature and it -- and level than if we put that same  
9 dozer on the floor of the mine pit where the rock might  
10 be hard and it might be doing some ripping or other  
11 activities.

12 So it would be good to -- to look at the mine. I  
13 noticed in Mr. Rudolph's testimony yesterday he talked  
14 about how many hectares of land would be exposed at one  
15 period in his dust calculations. I think we could  
16 reasonably section off an area, have it in the -- in  
17 the noise impact assessment. If it's harder ground,  
18 let's keep it as a -- as a -- more respect of that.  
19 It's not difficult to do. I do many assessments where  
20 we flag areas with a different ground type on purpose  
21 to represent their distant -- different acoustical  
22 surface and absorption coefficient. So we do have  
23 residents to the east where our margin of compliance is  
24 quite slim. We have a couple of residences that --  
25 locations that we should add. You know, we should  
26 get -- we should try and work towards the -- the best

1 available data so when the mine starts, there's a good  
2 assurance that it is in compliance on its activities  
3 and not wait for a complaint to occur, and the duration  
4 it would take to, first of all, measure to determine  
5 whether it was in compliance. And then if it failed --  
6 if it was out of compliance, it failed, then the -- the  
7 time that would be warranted to mitigate the situation  
8 through either management techniques, which would be  
9 the -- the fastest but might not be acceptable, or  
10 through mining equipment mitigation, which is -- tends  
11 to be much more difficult and far more time consuming.

12 Q Thank you.

13 So in Benga's reply evidence, Benga stated that it  
14 is committed to conduct full noise monitoring studies  
15 and -- and -- after the start of operations and five  
16 years thereafter. Mr. Houston spoke to it in his  
17 responses to cross-examination.

18 Do you have any comments to make regarding this  
19 commitment and specifically whether the NIA, the noise  
20 impact assessment, should be redone first before the  
21 comprehensive sound study is done?

22 A If a program is established, it should follow  
23 well-built programs that have been done in the past.  
24 Those would include having a -- a impact assessment or  
25 a noise model that accompanies impact assessment  
26 whereby the impact assessment reflects the operations

1 of the mine and equipment used. We currently have an  
2 impact assessment developed for the application which  
3 is -- the day on, it's now four years old. Benga's  
4 indicated they haven't purchased any of this equipment  
5 yet. So our -- our impact assessment should be --  
6 reflect the equipment that has been purchased; the use  
7 of that equipment in the mine, so its positioning and  
8 duty factors; and it should incur in -- incorporate all  
9 the receptors. So we have a few changes to do, and  
10 that would be good.

11 And with that, we could add in the community  
12 consultation program. I'm sure Benga will be speaking  
13 with the community on other matters. They can add  
14 noise issues to that and field that information as  
15 well. That would help build a good program for -- for  
16 follow-up.

17 And then once that canvassing is done and that  
18 input, a comprehensive sound survey can be done at  
19 select residence. We should try and capture a period  
20 of the year that -- that residents would be willing  
21 to -- and consider respective of the situation. So  
22 probably in most cases here it's a -- a summertime  
23 measurement. And we should have a duration that's  
24 sufficient to -- to capture enough data that we can  
25 have some periods where we have representative working  
26 conditions at the mine as well as reasonable weather

1 conditions to conduct the survey.

2 I know there's some limitations on the amount of  
3 equipment someone can put out, and there's some  
4 limitations on -- on how many days a survey could go  
5 for, but it -- it is doable, and I -- I would say that  
6 we should put Mr. Houston's concerns a bit to bed, and,  
7 no, we don't have to do every house everywhere with  
8 noise monitoring for really long periods of time. We  
9 just need to do a well-structured survey so that we  
10 capture a good representation of the homes. And using  
11 impact assessment to -- to assist with that, as well as  
12 the community comments, would be a -- a good path to  
13 follow.

14 There is other equipment available to monitor  
15 noise. It's -- it does it in real time and can be  
16 positioned in an area for very extended periods of  
17 time. If that should be needed, maybe it's a  
18 consideration to be taken.

19 Q Thank you, Mr. Farquharson. Would that be all?

20 A Yes, it is. Thank you.

21 Q Okay. Thank you.

22 MS. OKOYE: Mr. Chair, the panel is ready  
23 for cross-examination.

24 THE CHAIR: Okay. Thank you.

25 Mr. Brinker or Mr. Ignasiak, any questions for  
26 this panel?

1 MR. BRINKER: Yes, Mr. Chair, just a few  
2 questions.

3 Mr. Brinker Cross-examines Coalition of Alberta  
4 Wilderness Association and Grassy Mountain Group

5 Q MR. BRINKER: Thank you, Mr. Farquharson,  
6 and thank you, Mr. Wallis.

7 Mr. Wallis, I don't see you on the screen, but can  
8 you hear me?

9 A MR. WALLIS: Yeah. I see me, so I'm not  
10 sure why you're not seeing -- there we are.

11 Q I see you there now. Yeah. Great.

12 We spoke briefly before, I think, a few weeks ago.  
13 My name is Coleman Brinker. I'm one of the lawyers for  
14 Benga. Just have a couple more questions for you  
15 today.

16 A Okay.

17 Q Mr. Wallis, I just want to clarify something that came  
18 out of the transcript actually on the vegetation topic  
19 of this hearing where you answered questions about the  
20 submission or report you did for the Coalition.

21 You said at that time that you are a director of  
22 the Alberta Wilderness Association, or the "AWA" for  
23 short; is that right?

24 A That's correct.

25 Q Okay. Now, just looking at CIAR 842, the transcript  
26 from November 14th, 2020.



1 MR. BRINKER: Zoom Host, can we pull that up  
2 on the screen? So, again, that's CIAR 842. And if we  
3 can go to PDF 3164. 3164. Thank you. If we can  
4 scroll down to -- oops. That -- on there. Yeah. If  
5 we can go up just a couple of lines. There we go.  
6 That's -- that's good.

7 Q MR. BRINKER: Okay. Mr. Wallis, I just  
8 wanted to clarify here. You said you were originally  
9 retained to put together your report on behalf of the  
10 landowners who are part of the Coalition, not the AWA.  
11 Is that true?

12 A MR. WALLIS: That's my understanding, yes.

13 Q Okay. So it wasn't till after you were retained that  
14 you found out that the AWA was part of the Coalition  
15 that had retained you?

16 A Yeah. I'd have to go back to my emails to see, but as  
17 far as I know, there was a landowner that was involved,  
18 and I think they subsequently withdrew, and then it  
19 went from there anyways. And then other landowners  
20 were added, so ...

21 Q Okay. So at the time you were retained, was the AWA  
22 part of the Coalition that retained you?

23 A I don't -- you would have to ask Mr. Secord or Mr. --  
24 Ms. Okoye about that.

25 Q So you weren't sure at the time that you were retained  
26 who had retained you?

1 A Well, as I said in the transcript right there, that it  
2 was Mr. Secord and Ms. Okoye that had retained me. So  
3 it was Ackroyd, the company.

4 Q Okay. So you didn't actually know who you were doing  
5 the report for?

6 A Well, as I said, originally -- I mean, the -- things  
7 evolved; right? There was a landowner originally, and  
8 as I said, you'll have to get the details from  
9 Mr. Secord or Ms. Okoye on that as to who was the --  
10 part of the Coalition and when. That wasn't my  
11 concern. I had a job to do, which was to evaluate the  
12 materials, and that's what I stuck to.

13 Q Okay. And as a director of the AWA, you didn't know  
14 that the AWA had become part of this Coalition?

15 A Well, that's probably not where I learned it. I think  
16 it was probably from correspondence that turned up,  
17 because occasionally you get correspondence, whether  
18 it's with the Livingstone Landowners Group or whatever.  
19 So you get a copy of it along the way.

20 So I cannot recall the exact time. As I said,  
21 you'd have to ask Mr. Secord and Ms. Okoye when the AWA  
22 Coalition came in. And as I said, I cannot recall when  
23 I learned about it. It could have been in a joint  
24 email from another group, from the AWA, whatever. But  
25 certainly somewhere along the way, I did learn it, but  
26 it hasn't impacted how I have viewed my work on the

1 project.

2 Q Okay.

3 MR. BRINKER: Zoom Master, if we can scroll  
4 down to the bottom of this page. Oh, yes. That's good  
5 there.

6 Q MR. BRINKER: So, Mr. Wallis, you said you  
7 were retained in 2016 to put together this report for  
8 the Coalition. Is that true?

9 A MR. WALLIS: Well, this submission, it's --  
10 as I said, it's a continuing. I think in 2016, I was  
11 actually engaged by a First Nation -- lawyers on behalf  
12 of a First Nation, and somewhere between 2016 and 2018  
13 is when that transitioned over to working for Ackroyd.  
14 So, yes, it's part of the submission, if you want to  
15 look at it that way, but I was no longer working on  
16 behalf of the First Nation.

17 Q So you were retained in 2016 to put together this  
18 report that you have submitted in September of this  
19 year?

20 A No.

21 Q I'm just trying to get that straight. No?

22 A No. I -- I think, as I understood you there, as I'm  
23 reading the transcript, is when was I retained, and  
24 that's what I focused on. So I was first retained  
25 regarding this project, not regarding this specific  
26 submission or the nature of it, because I didn't start

1 writing that until this year. So, as I said, it's  
2 evolved as to who and when. But as part of the process  
3 and starting to look at materials, my first look at  
4 everything was back in 2016. It's evolved, as I've  
5 said. I'm no longer working for that original client.

6 Q I see.

7 So when you were first retained, you weren't being  
8 retained to produce this report that you actually  
9 submitted in September; is that right?

10 A Well, I think it was too early but -- in the process  
11 to -- to do that. I mean, that was certainly the  
12 expectation.

13 So, you know, you can look at it, but it was  
14 essentially leading to the submission, but, no, it  
15 wasn't. This submission, as I said, I didn't start  
16 working on that till this year.

17 Q Okay.

18 A I certainly worked -- worked on some information  
19 requests earlier when I was under the direction of  
20 Ackroyd, but not preparing this submission  
21 specifically.

22 Q Okay. And you said you started to prepare this  
23 submission within the last year?

24 A That's right.

25 Q When you started to -- okay. So at the time that you  
26 started to prepare this, your report or submission at

1           that time, did you know that the AWA was part of the  
2           Coalition that had retained you?

3    A    Yes.

4    Q    Okay.  And you didn't see any potential for there being  
5           a conflict of interest, given that you're a director of  
6           the AWA?

7    A    There's all sorts of conflicts that we have.  And as I  
8           stated earlier, you know, we -- I take that seriously.  
9           It's certainly part of our professional ethics in the  
10          Alberta Society of Professional Biologists.  And we  
11          have a duty to do that regardless of what our personal  
12          preferences are, what our memberships are, our  
13          political affiliations are.  Our duty is to provide the  
14          best advice based on our backgrounds and scientific  
15          information.

16   Q    Okay.  Thank you for that, Mr. Wallis.

17   MR. BRINKER:                    Mr. Chair, if I could just  
18          have, perhaps, five minutes just to check with my  
19          subject matter experts to make sure I don't -- I'm not  
20          missing anything that we want to cover.

21   THE CHAIR:                      Okay.  Yeah.  We'll take a  
22          five-minute break, and you can come back then.

23   MR. BRINKER:                      Great.  Thank you.

24          (ADJOURNMENT)

25   THE CHAIR:                      Mr. Brinker, anything further?

26   MR. BRINKER:                      No, Mr. Chair.  Those are all

1 the questions I have for these witnesses. Thank you.

2 THE CHAIR: Okay, thank you.

3 Ms. LaCasse or Ms. Kapel Holden, any questions for  
4 these witnesses?

5 MS. LACASSE: We don't have any questions,  
6 Mr. Chair.

7 THE CHAIR: Okay, thank you.

8 Mr. Lambrecht, any questions?

9 MR. LAMBRECHT: Mr. Chair, I have two  
10 questions for this panel regarding the little brown  
11 myotis under the Species at Risk Act.

12 The Alberta Energy Regulator Secretariat Questions  
13 Coalition of Alberta Wilderness Association and Grassy  
14 Mountain Group

15 Q MR. LAMBRECHT: Good afternoon, panel. My  
16 name is Kirk Lambrecht. I am one of the legal counsel  
17 to the panel, and I have a question for you from  
18 federal staff that are supporting the Panel.

19 The first one, I think, might be directed to you,  
20 Mr. Wallis, but I'm going to direct my questions to the  
21 panel and leave it to the panel to determine who's in  
22 the best position to provide a response.

23 The question here is: Based on your comments  
24 about the lack of success of the box -- the bat box,  
25 can you explain your views on the effects to the little  
26 brown myotis in the event that they should lose habitat

1           because of the approval of the mine, and whether there  
2           might be a limit to habitat loss for myotis in the  
3           local or regional study areas?

4    A   MR. WALLIS:                    Sure.  So I guess to get that  
5           context, it was in the map in my presentation today  
6           just how little mapped moderate or high suitability  
7           habitat there is for this species on Benga's maps.  I  
8           think there might be a little bit more, as I explained,  
9           along some of the drainages in the north part of the --  
10          the pit in some of the conifer forest.

11                 But -- so that -- a significant part of that --  
12           and that's the best habitat west of the Livingstones  
13           [sic] is -- is in this area.  So I would say, at least  
14           locally, one might say regionally, if you want to take  
15           west of the Livingstones as that regional area, that  
16           represents to me a significant part of the population  
17           potentially.  Partly because we don't know exactly  
18           where the maternity roosts are, and we haven't mapped  
19           all of the moderate suitability habitat, in my opinion.

20                 So those two things, the lack of data and the  
21           importance of things like maternity roosts, just get a  
22           lot of uncertainty.  So I can't say for certain that  
23           it's found, but my suspicion is that, yes, you are  
24           potentially going to have that impact.  And as I  
25           mentioned on maternity roosts, they service a large  
26           surrounding area.

1 Q Is the panel able to comment about the potential  
2 effects of project noise on the little brown myotis and  
3 including, perhaps, the effects of basting -- blasting  
4 noise on hibernacula, if any?

5 A It's beyond my level of expertise. I don't know if  
6 James has anything specific. Certainly noise impacts  
7 wildlife, but I have no information on noise impacts on  
8 bats.

9 Q Thank you, Mr. Wallis.

10 Mr. Farquharson, is there anything you may wish to  
11 add to that question?

12 A MR. FARQUHARSON: No. I -- I don't have  
13 anything professionally to add to that, other than I'll  
14 agree with Mr. Wallis that noise affects wildlife.

15 Q All right. And I have one final question for the  
16 gentlemen on this panel.

17 Benga had indicated that it would conduct fall  
18 swarming surveys within the mine permit boundary and  
19 that this would look for the presence of bat  
20 hibernacula. Also indicated that it would look for the  
21 presence or absence of bats in high-quality habitats,  
22 at least one year prior to the initiation in the event  
23 that maternal colonies and/or roosting sites were  
24 identified and Benga would develop mitigation plans for  
25 those.

26 And my question for you is: Do you have any views



1 on how Benga can account for seasonal use at different  
2 elevations in habitats sites in its mitigation and  
3 monitoring for the little brown myotis in the local  
4 study area?

5 A MR. WALLIS: I'm not sure I fully  
6 understand the question, but I'll take a stab at it;  
7 then they can say if I answered.

8 Certainly, I mean, the swarming studies would be  
9 useful to continue. Obviously, they didn't find  
10 anything in the initial studies. And they may be  
11 hibernating a long distance away. So that's the first  
12 point.

13 But in terms of --

14 Q Mr. Wallis, could you stop a moment?

15 A Sure.

16 MR. LAMBRECHT I've been notified we may have  
17 lost a Panel member.

18 THE CHAIR: Yeah. Looks like we lost  
19 Mr. O'Gorman, so just --

20 A MR. WALLIS: My apologies.

21 THE CHAIR: Just let's wait a minute and  
22 see if he's able to rejoin.

23 A MR. WALLIS: I admire the stamina of the  
24 Panel.

25 THE CHAIR: He's attempting to rejoin and  
26 indicates he's just having a bit of difficulty.

1 MR. LAMBRECHT: Mr. Wallis, when that occurs,  
2 let me rephrase the question for you. Perhaps --

3 A MR. WALLIS: Sure. Thanks. Just another  
4 typical day at the hearing, fire trucks, alarms, and  
5 dropouts.

6 THE CHAIR: Yes. It must be getting close  
7 to the end. The odds are conspiring against us.

8 MR. MATTHEWS: Also, the YouTube feed is  
9 frozen now too.

10 A MR. WALLIS: Saying "enough already".

11 THE CHAIR: I'll ask the remaining Panel  
12 members to go to the breakout room. We'll just break  
13 for a couple of minutes till we get this resolved, and  
14 then we'll be back.

15 (ADJOURNMENT)

16 THE CHAIR: Okay. We've found  
17 Mr. O'Gorman. Can everyone hear me?

18 A MR. WALLIS: I can.

19 THE CHAIR: Okay. We found Mr. O'Gorman.  
20 We do seem to be experiencing a bit of instability,  
21 though, so we're going to try and finish this panel and  
22 then see how it goes from there.

23 So, Mr. Lambrecht, are you there?

24 MR. LAMBRECHT: Mr. Chair, I am. Can you hear  
25 me okay?

26 THE CHAIR: If you could -- you're a

1 little quiet. Can you repeat your last question and  
2 then Mr. Wallis can answer?

3 Q MR. LAMBRECHT: Yes. During the break I've  
4 resolved to reframe my question so that it's a little  
5 clearer.

6 Mr. Wallis, I take it you would be familiar with  
7 the Coalition's written submission?

8 A MR. WALLIS: No. Actually, I'm not.

9 Q Okay.

10 A Other than my portion of it.

11 MR. LAMBRECHT: Well, Zoom Host, are you able  
12 to pull up CIAR 553 at PDF page 307? All right. If  
13 you can zoom --

14 Q MR. LAMBRECHT: Mr. Wallis, are you able to  
15 see this on your screen okay?

16 A MR. WALLIS: It's a little small, but it  
17 can -- yes, that's --

18 Q It's the second paragraph that I want to refer to.

19 A Okay. So this is mine, so that's fine. I do know  
20 this.

21 MR. LAMBRECHT: All right. Not that page,  
22 Zoom Host. Yeah, right there.

23 Q MR. LAMBRECHT: In the middle of that  
24 paragraph, Mr. Wallis, let me draw your attention to it  
25 by reading out the specific passage.

26 A MR. WALLIS: Sure.

1 Q And it is this: (as read)

2 There are issues of seasonal use at different  
3 elevations and habitat types that may not  
4 have been fully captured in the original  
5 assessment and upon which the cumulative  
6 assessment is based.

7 I take it that that was a contribution that you made to  
8 the final -- the written submission of the Coalition?

9 A That's correct.

10 MR. LAMBRECHT: All right. Zoom Host, just --

11 Q MR. LAMBRECHT: Mr. Wallis, Benga has  
12 indicated that it would do sweeps for surveys for the  
13 little brown myotis, and we're wondering if you can  
14 comment on or elaborate upon how Benga can account for  
15 seasonal use at different elevations and habitat types  
16 in its mitigation and monitoring plans so that these  
17 little brown myotis are not overlooked if they are on  
18 that site?

19 A Yeah. And so there's several pieces to this. One is  
20 obviously direct impact. If -- if you're talking about  
21 removing the habitat, then the seasonality, I guess,  
22 goes away. You -- you've made that decision, and I'm  
23 not sure you can mitigate for it.

24 What you can mitigate for would be, say, maternity  
25 roosts, if you are able to discover them, or to avoid  
26 that season by doing your construction vegetation

1 removal during the non-maternity roost season, so  
2 through the fall and the winter months. So that's  
3 that. So I'm not sure if that has answered that part  
4 of it.

5 And in terms of doing the surveys, obviously  
6 you're doing your swarming surveys to try and locate  
7 hibernacula in the fall, and you're doing your  
8 maternity roost surveys through the late spring and  
9 summer to be most effective.

10 But the part -- other part that I'm saying is that  
11 because of the more significant hits that were later  
12 found in the subsequent surveys, and they weren't  
13 included in the earlier work, several sites in the  
14 northern part of the mine look like there's activity  
15 there of note, and so that area should be looked at  
16 more closely in terms of trying to look for maternity  
17 roosts.

18 So, you know, good practice would be to look for  
19 those critical habitats in the late spring and summer  
20 and then also do your swarming surveys close to areas  
21 where you think there's logical sites. There may not  
22 be if there's no good buildings or underground mine  
23 cavities that aren't already surveyed, but -- so those  
24 would be my overall recommendations.

25 Q Thank you, panel. I appreciate your evidence this  
26 afternoon in response to my questions and your

1 participation in the Joint Review Panel process. That  
2 concludes the questioning from the federal analysts for  
3 you. Thank you.

4 THE CHAIR: Okay. Mr. Matthews, any  
5 questions?

6 MR. MATTHEWS: Thank you, panel. I don't  
7 have any questions.

8 THE CHAIR: Okay. Mr. O'Gorman?

9 MR. O'GORMAN: Thank you, Mr. Chair.  
10 Thank you both for appearing today, but I don't  
11 have any further questions for you.

12 THE CHAIR: Okay. Thank you.

13 And, Mr. Wallis, Mr. Farquharson, I have no  
14 questions for you either, so thank you very much for  
15 your written submissions and your participation here  
16 today. Much appreciated.

17 A MR. WALLIS: Thank you.

18 THE CHAIR: Ms. Okoye, any re-direct?

19 MS. OKOYE: Just one item, just to clarify  
20 the record, and this is for Mr. Wallis.

21 Ms. Okoye Re-examines Coalition of Alberta Wilderness  
22 Association and Grassy Mountain Group

23 Q MS. OKOYE: When Mr. Brinker was asking  
24 you about when you commenced the preparation of your  
25 report, you -- at one point you said you started that  
26 earlier this year, and then at another point you

1           said -- you said that -- you agreed with him that you  
2           started preparing the report last year.

3                        So just so the --

4   A   MR. WALLIS:                        No.

5   Q   -- record is clear, yeah, which one is it?

6   A   Yeah. I thought --

7   Q   Just a minor thing --

8   A   Sure.

9   Q   -- but I wanted to clarify that.

10  A   During this last year, I guess, it's -- you know, we  
11       can be referring to 2020.

12  Q   Okay. Perfect. Thank you. That is all. Thank you,  
13       panel.

14  MS. OKOYE:                            Mr. Chair, thank you. That is  
15       all.

16  THE CHAIR:                            Okay. Thank you.

17                        And thank you, panel.

18       (WITNESSES STAND DOWN)

19       Discussion

20  THE CHAIR:                            Mr. Fitch, are you -- are you  
21       here?

22  MR. FITCH:                            I am, Mr. Chair. Can you hear  
23       me?

24  THE CHAIR:                            I can.

25  MR. FITCH:                            Okay.

26  THE CHAIR:                            Given the time of day, I

1 wanted to hear from you first whether it's your  
2 preference to do your direct today and get it done or  
3 whether you would prefer to have it held over till  
4 tomorrow morning?

5 MR. FITCH: Well, I can tell you that I  
6 think we will be at least an hour in direct. One of my  
7 witnesses, Dr. Young, is in Ontario, so it is 6:35,  
8 roughly, for him.

9 But both my witnesses have said they're prepared  
10 to go today. I guess it's just a question of whether  
11 you, sir, and the other panel members would like. I  
12 mean, normally I'm not a big fan of starting this late  
13 in the day, but this close to the end of the hearing,  
14 I'm -- like many people, I'm sure, I'm just as glad to  
15 get it over with.

16 THE CHAIR: Okay. Yeah. That's what  
17 we're trying to weigh.

18 So, Benga, do you have a preference? Would you  
19 like to continue tonight or hold this over till  
20 tomorrow?

21 MR. BRINKER: No preference, Mr. Chair.  
22 Anything that the -- that the witnesses prefer, and the  
23 Panel.

24 THE CHAIR: Okay. So I understand from  
25 the court reporter that they're, you know, able to go  
26 probably till about 6:30 before they would need a



1 break. So, you know, if you're anticipating,  
2 Mr. Fitch, an hour, and then if cross isn't too long,  
3 it seems like we could get through this today, and I  
4 think the Panel is inclined to do that as long as the  
5 participants are willing.

6 MR. FITCH: All right. Well, last time I  
7 checked with my witnesses, they were both willing and  
8 able.

9 Dr. Young, are you -- are you with us?

10 THE CHAIR: He's on mute.

11 UNIDENTIFIED SPEAKER: You're on mute.

12 MR. FITCH: There you are. Yes. Okay.

13 DR. YOUNG: You see me?

14 MR. FITCH: Yes, I can see you.

15 DR. YOUNG: Okay.

16 MR. FITCH: Okay. All right. Well, then  
17 let's proceed.

18 So, Mr. Chair, by way of introduction, we're going  
19 to have two witnesses sit as a virtual panel. The  
20 first is before you right now, Dr. James Young, who  
21 will be testifying on air quality and dust, and then  
22 the second is Dr. John Dennis, who reviewed the human  
23 health risk assessment.

24 So I'm just going to start with Dr. Young, and I  
25 would ask the court reporter to swear or affirm him,  
26 please.

1 THE CHAIR: Mr. Fitch, I cannot hear you  
2 if you are speaking.

3 MR. FITCH: I am not speaking. I was  
4 waiting for the court reporter.

5 JAMES YOUNG, Sworn  
6 Direct Evidence of Livingstone Landowners Group  
7 (Wildlife, including migratory birds and species at  
8 risk, wildlife health, and human health risk  
9 assessment)

10 Q MR. FITCH: Thank you.

11 Dr. Young, I can tell you that first you're the --  
12 you have the most dramatic lighting of any witness  
13 we've seen so far in the hearing, so well done on that.

14 A DR. YOUNG: I'm sorry. It's late here,  
15 and I'm -- I'm in a dark room.

16 Q That's quite all right.

17 Okay. So, Dr. Young, firstly, can you confirm  
18 that you were retained by the Livingstone Landowners  
19 Group to review the air quality assessment done for the  
20 Grassy Mountain Project, having particular regard to  
21 the assessment's consideration of Chinook winds?

22 A Yes, I was.

23 Q All right. And can you confirm that you prepared --

24 MR. O'GORMAN: Mr. Fitch.

25 MR. FITCH: Yes.

26 MR. O'GORMAN: I'm sorry. I see we just lost

1 our chair for a second.

2 MR. FITCH: Okay.

3 MR. O'GORMAN: So maybe you can just pause.

4 MR. FITCH: Yeah.

5 MR. O'GORMAN: I decided this time not to let  
6 it go on, but to take the initiative and -- yeah. So  
7 then we got a message he's trying to get back in.

8 As you see, I've resorted to logging into Zoom  
9 through my personal iPad, having given -- having given  
10 up faith in my work laptop.

11 MR. FITCH: Well, I moved home over the  
12 weekend, so you might notice the background looks a bit  
13 different than it has over the past four or five weeks.

14 MR. O'GORMAN: Okay. So I'll ask you all,  
15 folks, just to hold for a few seconds. We've got some  
16 dialogue going on here. People are trying to get back  
17 in, so ...

18 THE CHAIR: Yes. Sorry. I dropped again.  
19 I'm wondering if a power higher than me thinks we  
20 should not continue tonight.

21 MR. FITCH: Well, let me --

22 Q MR. FITCH: Dr. Young, are you okay if we  
23 were to take this up in the morning?

24 A DR. YOUNG: That's fine with me.

25 Q Yeah.

26 MR. FITCH: Dr. Dennis, what about you?

1 DR. DENNIS: Yeah, that works for me.  
2 Tomorrow is fine too.

3 MR. FITCH: Okay.

4 THE CHAIR: Okay. I think that might be  
5 the best course. We seem to have some ongoing  
6 instability here. I am in the AER office, so it's not  
7 my own network. It's affecting all of the AER folks.  
8 So I think we should probably hold over till 9:00  
9 tomorrow morning.

10 MR. FITCH: Very good. Thank you,  
11 Mr. Chair.

12 A DR. YOUNG: Thank you.

13

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14 PROCEEDINGS ADJOURNED UNTIL 9:00 AM, DECEMBER 2, 2020

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1 CERTIFICATE OF TRANSCRIPT:

2

3 I, Claire Forster, certify that the foregoing  
4 pages are a complete and accurate transcript of the  
5 proceedings, taken down by me in shorthand and  
6 transcribed from my shorthand notes to the best of my  
7 skill and ability.

8 Dated at the City of Calgary, Province of Alberta,  
9 this 1st day of December 2020.

10

11

12 <Original signed by>

13

— —

14 Claire Forster, CSR(A)

15 Official Court Reporter

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