

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

GRASSY MOUNTAIN COAL PROJECT - BENGA MINING LIMITED

VOLUME 26

VIA REMOTE VIDEO

November 27, 2020

1	TABLE OF CONTENTS		
2			
3	Description		Page
4			
5	November 27, 2020	Morning Session	5547
6	Discussion		5550
7	Submissions by Benga Mining Limited		5552
8	submissions by Livingstone Landowners Group		5555
9	Submissions by Canadian Parks and Wilderness		5556
10	Society		
11	GARY HOUSTON, MIKE BARTLETT, RANDY RUDOLPH,		5557
12	JANET BAUMAN, DANE MCCOY, Previously Affirmed		
13	STEVE BILAWCHUK, IAN MITCHELL, JOHN KANSAS,		
14	LINDSEY MOONEY, Previously Affirmed		
15	(Dust, air quality, greenhouse gas emissions,		
16	noise, and light; wildlife, including migratory		
17	birds and species at risk, wildlife health, and		
18	human health risk assessment)		
19	Mr. Yewchuk Cross-examines Benga Mining Limited		5578
20	Response to Undertakings by Benga Mining Limited		5598
21	Mr. Yewchuk Cross-examines Benga Mining Limited		5599
22	Mr. Barata Cross-examines Benga Mining Limited		5620
23	Ms. Janusz Cross-examines Benga Mining Limited		5639
24			
25	November 27, 2020	Afternoon Session	5666
26	GARY HOUSTON, MIKE BARTLETT, RANDY RUDOLPH,		5670

1	JANET BAUMAN, DANE MCCOY, Previously Affirmed	
2	STEVE BILAWCHUK, IAN MITCHELL, JOHN KANSAS,	
3	LINDSEY MOONEY, Previously Affirmed	
4	(Dust, air quality, greenhouse gas emissions,	
5	noise, and light; wildlife, including migratory	
6	birds and species at risk, wildlife health, and	
7	human health risk assessment)	
8	Alberta Energy Regulator Staff Questions Benga	5670
9	Mining Limited	
10	Certificate of Transcript	5758
11		
12		
13	EXHIBITS	
14	Description	Page
15		
16	EXHIBIT CIAR 920 - AQ#7 - LLG - SPARWOOD	5575
17	LIVABILITY STUDY - AIR AND WILDLIFE TOPICS	
18	EXHIBIT CIAR 921 - AQ#3 - CPAWS - SMALL	5620
19	AMPHIBIANS SEARCH WETLANDS OVERLAP - AIR AND	
20	WILDLIFE TOPICS	
21	EXHIBIT CIAR 922 - AQ #1 - JANUSZ -	5661
22	1-S2.0-S0006320719307797-MAIN - AIR AND	
23	WILDLIFE TOPIC	
24	EXHIBIT CIAR 923 - AQ#4 - AER - ONTARIO MINISTRY	5721
25	OF ENVIRONMENT NCP - 119 - AIR AND WILDLIFE	
26	TOPICS	

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

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1 Proceedings Taken via Remote Video

2

3 November 27, 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 A. Porco, CSR(A) Official Court Reporter
20 _____
21 (PROCEEDINGS COMMENCED AT 9:00 AM)
22 Discussion
23 THE CHAIR: Good morning, everyone.
24 Just a reminder that live audio and video streams
25 and video recordings of this proceeding are available
26 to the public through the AER's website and YouTube.

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

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

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

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

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

1 the timing that's been proposed.

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

3 Submissions by Benga Mining Limited

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

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

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

1 afforded for argument.

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

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

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

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

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

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

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

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

6 Thank you, sir.

7 THE CHAIR: Thank you, Mr. Ignasiak.

8 Any other comments?

9 Submissions by Livingstone Landowners Group

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

12 Firstly, the EIA in this matter was filed in April
13 2016. It's now November 2020, so it's been
14 four-and-a-half years. The idea that an extra two
15 weeks is in any way material is laughable, I would
16 submit.

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

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

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

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

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

20 THE CHAIR: Thank you, Mr. Fitch.

21 Any other comments?

22 Submissions by Canadian Parks and Wilderness Society

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

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

7 THE CHAIR: Thank you, Mr. Yewchuk.

8 Anyone else?

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

12 Any other preliminary matters?

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

15 MR. FITCH: Yes. Thank you, sir.

16 GARY HOUSTON, MIKE BARTLETT, RANDY RUDOLPH,
17 JANET BAUMAN, DANE MCCOY, Previously Affirmed
18 STEVE BILAWCHUK, IAN MITCHELL, JOHN KANSAS, LINDSEY
19 MOONEY, Previously Affirmed
20 (Dust, air quality, greenhouse gas emissions, noise,
21 and light; wildlife, including migratory birds and
22 species at risk, wildlife health, and human health risk
23 assessment)

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

26 Mr. Rudolph, I just wanted to revisit, hopefully

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

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

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

12 A MR. RUDOLPH: It is, yes.

13 Q Yeah. Okay.

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

21 A Yes.

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

1 A That's what we've assumed, yes.

2 Q Okay. So then let's go to June 15th, so two weeks
3 later. And let's assume that now Benga has moved on,
4 either wholly or marginally, to a different
5 12 hectares. So the 12 hectares that they were mining
6 on June 1st, they've completed. They've now moved on
7 to a different area, presumably adjacent to what they
8 were just doing.

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

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

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

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

6 Q Okay. So --

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

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

12 A Yeah.

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

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

20 A MR. MITCHELL: Yes, I do.

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

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

1 Q Okay. And, sir, was your point that the conclusions of
2 the study would have been more robust if it had not
3 been a lab test?

4 A There are different types of studies that tell you
5 different things. I don't think I would necessarily
6 say that the conclusions would be more robust. It --
7 each type of study provides part of the picture.

8 Q Then what was the point of telling me that it was just
9 a lab test?

10 A The -- the point is that it doesn't -- it -- it -- the
11 study demonstrates that when these particles come in
12 contact with -- with cells, they do cause effects, but
13 it doesn't necessarily reflect the actual exposure
14 conditions. So it talks about the -- I guess the --
15 the inside-the-body toxicity part of it, but it doesn't
16 sort of talk about the -- all the processes that
17 happened before that. So, again, it provides valid
18 conclusions for part of the picture, but it doesn't
19 give you the whole picture by itself. That's why you
20 have --

21 Q I see.

22 A -- multiple lines of evidence and different types of
23 studies.

24 Q Would a study of people actually breathing in the
25 particles be more robust?

26 A Again, each study provides part of the picture, and you

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

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

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

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

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

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

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

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

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

18 A MR. RUDOLPH: Something like that, yes.

19 Q Okay.

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

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

26 A That's right.

1 Q Okay. And I'm told that you used that data to generate
2 something called a "wind set". Is that right?

3 A We use it to generate a CALMET wind file or
4 meteorological data set, yes, a 3D -- a 4D data set,
5 yes.

6 Q Okay. And that data set, sir, is it specific to the
7 site?

8 A It is, yes.

9 Q Okay. And what's the spacing used in the model?

10 A The grid spacing over the -- over the mining area is a
11 half a kilometre.

12 Q That's what you used, half a kilometre?

13 A That's what we used.

14 Q Okay.

15 A And that's -- that's based on terrain data that's
16 available to us for modelling, which is available on
17 about a 30-metre-or-so spacing in the area.

18 Q Okay. And then just to move to the discussion that you
19 and I had yesterday about the assumption that in the
20 winter you'd be able to achieve 90 percent dust control
21 efficiency because roads will be iced or snow-covered.
22 So, firstly, that's from November to April; correct?

23 A Approximately, yes.

24 Q Okay. So have you assumed in your modelling that from
25 November to April, the haul roads will be snow-covered
26 or iced 100 percent of the time?

1 A That's what the modelling assumes, yes.

2 Q Okay.

3 A What the modelling doesn't discuss is whether there's
4 additional snowfall during that period, which would
5 tend to continue to maintain those conditions. We
6 don't have the -- the ability in the model to -- or
7 the -- the -- the guidance from Alberta Environment
8 that we don't consider the effects of precipitation
9 itself --

10 Q Right.

11 A -- which obviously occurs in the winter and in the
12 summer.

13 Q So this next question is for either you or
14 Mr. Mitchell. I'm not sure who will want to answer it.

15 But would you agree with me that air quality
16 objectives or standards should not be construed as
17 limits to which polluting up to is allowed?

18 A I think the -- the goal is to have those concentrations
19 in air be as low as reasonably possible, but the
20 standards are in place that are meant to be protective
21 of health.

22 A MR. MITCHELL: I would agree with
23 Mr. Rudolph's answer.

24 Q Would you acknowledge that health risks exist below
25 guideline levels for some contaminants?

26 A There are -- there are some -- some contaminants for

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

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

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

1 purposes, what may be achievable.

2 Q Okay. Just going back to my discussion just a moment
3 ago with you about the grid that you used. I'm told
4 there is a different grid for meteorology and air
5 quality. So when you told me that the grid you used
6 was 0.5 kilometres, was that the meteorology grid or
7 the air quality grid?

8 A It was the meteorology grid.

9 Q Okay.

10 MR. FITCH: Zoom Host, could we turn to
11 the Consultant Report Number 12, which is the human
12 health risk assessment. PDF 7, please.

13 A MR. MITCHELL: I would point out, I believe
14 that is a superseded version.

15 Q MR. FITCH: Well, my understanding is the
16 part I'm going to refer you to, Mr. Mitchell, is not
17 superseded, but if it is, you can let me know. All
18 right? I mean, I appreciate there's an updated
19 document, but the content, I am told, is the same. So
20 I'm just going to proceed, if you don't mind.
21 Mr. Mitchell, I assume --

22 A Okay.

23 Q You are the one who spoke; is that right?

24 A Yeah. You -- you can proceed, and if what's in there
25 is --

26 Q Thank you. Yeah. Thank you.

1 All right. So you talk about data being -- data
2 on current health. So we're looking at Section 3.1,
3 "Current Health Status in the Region". And you state
4 that the data on the current health status is from a
5 2006 report from Alberta Health; correct?

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

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

9 A Correct.

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

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

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

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

22 Q Right.

23 A -- series that required an update on that.

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

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

1 referred to that as the "south zone".

2 Q Yeah. And that does not include data specific to
3 smaller populations such as specific towns; correct?

4 A No. I -- I believe that data set is based on
5 administrative zones.

6 Q Yeah. Would you agree with me that the south zone is
7 quite large?

8 A Yeah. They're a relatively small number of zones, so
9 they -- they do reflect an area of the province as
10 opposed to a specific municipality.

11 Q Right. And if one were to go on the Alberta Health
12 website and search for "south zone", would you agree
13 with me that you would see that it stretches from Oyen
14 in the northeast to Medicine Hat and Cypress Hills in
15 the southeast to Crowsnest Pass in the southwest? Does
16 that sound right to you?

17 A I'll take your word for it, but it doesn't sound
18 unreasonable.

19 Q Okay. I assume you're aware that Alberta Health says
20 that in the south zone, there's a population of
21 approximately 300,000 people?

22 A Again, that number sounds in the right ballpark to me.

23 Q Okay. So, then, based on that, I take it you would
24 agree with me that when you prepared your human health
25 risk assessment, Benga had no information on the
26 incidents of respiratory diseases, including asthma, in

1 Blairmore and the Crowsnest Pass?

2 A I can -- you'd have to check with the people that wrote
3 that section, but I don't think the data is available
4 on that scale, at least not with any high level of
5 reliability. It's usually once you get to the smaller
6 scale, you get a lot of noise in the data.

7 Q Okay. Well, do you need to check, or do you, in fact,
8 know?

9 A If you need confirmation on that, I'll need to check.

10 Q All right.

11 A I just got the answer. No, we do not.

12 Q All right. So, Mr. Houston, a long time ago, in Topic
13 Session Number 1, you probably were listening when one
14 of my clients, Bobbi Lambright, testified?

15 A MR. HOUSTON: Yes.

16 Q Okay. And do you recall her referring to something --
17 a document called the "Sparwood Livability Study"?

18 A I don't specifically recall that comment.

19 Q Okay. Well, what she said was that the Sparwood
20 livability study, among other things, stated that
21 74 percent of respondents in Sparwood agreed or
22 strongly agreed that mine-related dust in Sparwood was
23 affecting their quality of life. Do you recall that?

24 A Well, I've -- I've looked at the Sparwood livability
25 study, and -- and I can't recall that specific
26 statistic, but I believe that's representative of what

1 I -- I remember reading.

2 Q Okay.

3 MR. FITCH: Okay. Well, Zoom Host, can we
4 call up Aid to Cross AQ7, please. And could we go to
5 PDF page 42. Zoom in a little bit. That's good. And
6 scroll down just a short way. That's fine. Thank you.

7 Q MR. FITCH: So you can see, Mr. Houston,
8 that in the part of that page we're looking at, that is
9 titled "The Community is Saying": (as read)

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

14 Correct?

15 A MR. HOUSTON: Yes, I can read that.

16 MR. FITCH: Okay. So can we now turn to
17 PDF page 36, please. And scroll down farther. That's
18 good.

19 Q MR. FITCH: So with respect to air
20 quality, again, we read that the community is saying:
21 (as read)

22 75.4 percent of survey respondents either
23 disagree or strongly disagree that the air
24 they breathe in Sparwood is clean and
25 healthy.

26 Do you see that?

1 A MR. HOUSTON: Yes, I do.

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

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

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

14 Do you see that, sir?

15 A MR. HOUSTON: Yes.

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

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

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

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

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

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

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

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

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

3 A That's my understanding, yes.

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

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

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

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

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

25 Q Okay.

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

1 this document as the next exhibit.

2 THE CHAIR: Mr. Ignasiak, any concerns?

3 MR. IGNASIAK: None, sir.

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

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

8 THE CHAIR: Thank you.

9 MR. FITCH: Thank you.

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

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

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

18 A MR. HOUSTON: That's right.

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

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

1 the various filings for this project.

2 Q Okay. So if we could go to Table 2-1, so the first of
3 those tables. So you talk about mitigations. You were
4 asked to summarize mitigations, and one reason for that
5 is because your residual effects assessment can only be
6 undertaken in the context of what are the mitigations
7 you're proposing --

8 A That's --

9 Q -- correct?

10 A -- right. That's right, Mr. Chair. Residual effects
11 are after mitigations.

12 Q Okay. So we don't need to go through this entire set
13 of tables, but, sir, would you agree with me that for
14 all residual effects, be it air, noise, groundwater,
15 surface water, fish, wildlife, soil terrain,
16 vegetation, socioeconomics, health, you name it, Benga
17 has concluded that there are either no residual effects
18 or the residual effects are not significant?

19 A I -- I don't think that's entirely true, Mr. Chair. I
20 don't -- I don't think that's entirely true. I -- I
21 remember, for example, in the Indigenous -- some of the
22 Indigenous sections, that the residual effects are
23 not -- not classified in that way.

24 Q Well, I -- I didn't think we were going to have to do
25 this, sir, but do you want to take a minute and go
26 through every one of those tables and point out to me a

1 single one where you conclude that residual effects are
2 significant?

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

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

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

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

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

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

25 Mr. Yewchuk, you're up next.

26 MR. YEWCHUK: Perfect. Thank you,

1 Mr. Chairman.

2 Mr. Yewchuk Cross-examines Benga Mining Limited

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

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

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

12 Q Sure. Who would that be?

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

14 Q Either of those is fine with me.

15 A They're just caucusing.

16 Q Okay.

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

24 Q Thank you.

25 What is an "ecological trap"?

26 A Pardon me. Can you repeat that?

1 Q What is an "ecological trap"? Are you familiar with
2 that term?

3 A An "ecological trap"?

4 Q Yes.

5 A I'm not familiar with that term.

6 Q Is anyone on the panel familiar with that?

7 A (NO VERBAL RESPONSE)

8 Q Okay. Can selenium bioaccumulate from aquatic species
9 up into terrestrial species?

10 A Yes.

11 MR. YEWCHUK: Can we get the 11th Addendum?
12 That's Number 313, PDF 1287.

13 Q MR. YEWCHUK: If I have the right page, this
14 will be a table that explains how Benga decided which
15 metals to consider as chemicals of potential concern.
16 That is what this is? This table was used to explain
17 how Benga decided which metals to consider as chemicals
18 of potential concern?

19 A MS. MOONEY: So this -- this table presents
20 the process for identifying bioconcentration factors,
21 which is aligned with the Canadian Environmental
22 Protection Act's definition on how to define
23 "bioaccumulation". So according to the CEPA
24 definition, selenium doesn't qualify. However,
25 selenium was considered as a bioconcentrating substance
26 within the risk assessment.

1 Q But on the table, it says selenium doesn't
2 bioconcentrate?

3 A It doesn't meet the CEPA definition.

4 Q Now, this table shows bioconcentration; right?

5 A So the process of identifying or labelling a compound
6 as bioaccumulative has three components. You can see
7 the -- the top -- the bottom two are listed. So
8 Number C, as part of the CEPA definition, identifies a
9 bioaccumulation factor, or its bioconcentration factor
10 can be determined in accordance with a method that they
11 referred to, and so that -- that is what that table
12 refers to.

13 Q Sorry. You used Option C to make this table?

14 A That's just the definition of the -- what the Canadian
15 Environmental Protection Act considers as how they
16 determine if a substance is bioaccumulative.

17 Q Sorry. When you say "that", you mean Section C is how
18 they determine if it's bioaccumulative?

19 A One moment, please.

20 Hello.

21 Q Hey.

22 A Hi. Yeah. I think there was maybe a little bit of a
23 misunderstanding on the question. So Section C listed
24 above refers to using the law of Kow, which wasn't how
25 Table 2.1 was put together.

26 Q Okay. So Table 2.1 shows the bioconcentration factor

1 for each of these metals?

2 A Correct.

3 Q Okay. So you used Option B from the CEPA guidelines on
4 this page; right?

5 A One moment, please.

6 So the Table 2.1 is presenting bioconcentration
7 factors that were identified from regulatory agencies
8 or primary scientific literature.

9 Q And that's using the Option B at the top of this page;
10 right?

11 A That table is presenting Option B, but we did consider
12 bioaccumulative as well.

13 Q So this table shows bioconcentration, but Millennium
14 did consider bioaccumulation?

15 A (NO VERBAL RESPONSE)

16 MR. YEWCHUK: Zoom Master, can we just
17 scroll up so I can see Option A on the screen above?
18 Perfect.

19 A MS. MOONEY: So all three of those criteria
20 were applied. If they met the criteria, they were
21 included, but Table C specifically presents the
22 bioconcentration factors.

23 Q MR. YEWCHUK: Can you tell me where the
24 table setting out the bioaccumulation factors is?

25 A My colleague is telling me it's on -- see Table 5-1-2
26 in Addendum 10, PDF page 468.

1 Q Can we go to that for one moment?

2 A CIAR 251, Package 4, page 468. Oh.

3 Q Where's the bioaccumulation?

4 A One moment, please.

5 So what this table is showing is the physical
6 chemical properties of the substances that indicate
7 whether or not it has an affinity for bioaccumulation,
8 but how the compound was screened into the assessment
9 was based on its bioconcentration factors that is
10 presented in Table 2-1.

11 Q Is that not actually complying with the approach of the
12 guidelines that you said you were following because the
13 first step would have been determining the
14 bioaccumulation?

15 A So it says in the guidance if the bioaccumulation
16 factor cannot be determined, if its bioconcentration
17 factor is equal to or greater than 5,000, it would be
18 considered bio -- bioaccumulative, which is what we've
19 done.

20 Q So you weren't able to determine whether any of those
21 metals were bioaccumulative because you didn't provide
22 any numbers, apparently, anywhere?

23 A What we did screen against was the bioconcentration
24 factor, which is part of the CEPA process.

25 Q It's the second step if you can't use the first step,
26 and you didn't do the first step?

1 A There isn't bioaccumulation factors available for all
2 of these metals.

3 Q Is there bio --

4 A A consistent process of evaluating bioconcentration
5 factors across compounds was applied.

6 Q That's not what the guidelines recommend, though. You
7 should have started by checking the bioaccumulation,
8 where available?

9 A I think at the end of the day, because we have screened
10 through multiple methods, including the chemical
11 properties and the bioconcentration factors, that we're
12 confident that we've carried compounds in the
13 assessment that would be considered bioaccumulative.

14 Q But was selenium considered bioaccumulative under your
15 approach?

16 A So selenium doesn't meet the CEPA definition of
17 bioaccumulative, according to the BCF factor
18 evaluation. However, it was carried in the assessment
19 as a bioaccumulative -- or bioconcentrating compound.

20 Q Does selenium bioaccumulate?

21 A So selenium bioconcentrates at the lower part of the
22 food chain -- aquatic food chain. So it concentrates
23 in periphyton and subsequently can concentrate in the
24 trophic levels that lay on top of that, so in
25 invertebrates and then up to fish.

26 MR. YEWCHUK: Okay. Zoom Master, can we go

1 back to the page we had before?

2 Q MR. YEWCHUK: Now, I'll suggest to you, on
3 the approach that you took, you would have determined
4 selenium was not a bioaccumulation risk because you
5 were looking at bioconcentration instead of
6 bioaccumulation; is that what happened on that table?

7 MR. YEWCHUK: If we go down one page,
8 please. I guess one more 'cause I need selenium --
9 selenium.

10 Q MR. YEWCHUK: You can see it's below your
11 5,000 threshold for selenium?

12 A MS. MOONEY: That's correct. That's what
13 the bioconcentration factor reported for selenium is,
14 but we've taken a conservative approach and included
15 selenium based on the literature and our understanding
16 of the transfer of selenium in the aquatic food web.

17 Q What about all the other metals? Did you try to check
18 the bioaccumulation factors?

19 A We applied, as I stated, multiple screening methods,
20 including a review of chemical properties as well as an
21 evaluation of bioconcentration factors for all metals.

22 Q So your conservative approach consisted of skipping a
23 step, the first recommended step, bioaccumulation
24 factors?

25 A As I said, bioaccumulation factors aren't available for
26 all compounds, and an evaluation -- a consistent

1 evaluation of bioconcentration factors across metals
2 was applied.

3 Q Is that the wrong approach?

4 A MR. MITCHELL: Factors that were used --

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

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

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

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

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

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

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

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

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

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

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

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

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

18 A Not -- not precisely, Mr. Chair.

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

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

24 John Kansas here.

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

1 A No. It was 20 percent of -- yeah, the wildlife
2 regional study area, yes.

3 Q What percentage of the wildlife regional study area is
4 within the mine permit boundary?

5 A Perhaps Mr. Bartlett knows the mine plan a little bit
6 better than I do.

7 Q So, Mr. Bartlett, I'll suggest to you an answer: The
8 mine permit boundary is 28 square kilometres, and the
9 wildlife regional study area is 735 square kilometres,
10 so the answer is 3.8 percent; right?

11 A Correct.

12 Q Unless an area five times larger than your mine permit
13 boundary is lost as habitat, you determined there was
14 no significant impact due to habitat loss?

15 A Correct.

16 Q Okay. And using that approach, Benga concluded the
17 project had no significant habitat loss impacts for any
18 species?

19 A That's -- that's correct.

20 Q Great.

21 A But we didn't use that approach for -- for all species,
22 and coming up with a significance determination was
23 more than just looking at the 20 percent and doing math
24 that way. It had to do with the effects rating
25 criteria, irreversibility or reversibility, analogue
26 studies from other similar ecological conditions. So

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

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

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

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

15 A No.

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

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

20 Q Sure.

21 A Thank you.

22 No, there were no cases.

23 Q Thank you, Mr. Kansas.

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

- 1 A MR. HOUSTON: So let me answer, Mr. Yewchuk.
2 Yes, we've talked about having --
3 Are you muted, John?
4 We talked about having a literal zone, and so
5 certainly there's going be life in the end-pit lake,
6 vegetative life, and -- and other life as well.
- 7 Q And how long will it take for that life to get there?
8 What year after you start mining is there life in the
9 end-pit lake?
- 10 A Well, the end-pit lake is a feature that's formed after
11 the mine is finished operations. And -- and then we --
12 we expect to have the basic work done to restore that
13 area two or three years after end of mining, and then
14 we expect to be monitoring the end-pit lake for a
15 number of decades afterwards to monitor the
16 establishment of -- of vegetation, for example.
- 17 Q So the end-pit lake has vegetation?
- 18 A It will have, yes.
- 19 Q Will it have algae?
- 20 A Yes.
- 21 Q What will live in the lake that eats the algae?
- 22 A I -- I don't know that anything needs to eat the algae,
23 Mr. Yewchuk.
- 24 Q Will there be invertebrates living in the end-pit lake,
25 buttons [phonetic]?
- 26 A I presume so, yes.

1 Q Will there be amphibians in the end-pit lake?

2 A I presume so, yes.

3 Q Will there be waterbirds?

4 A Yes.

5 Q Will it be safe for waterbirds to nest and live on the
6 side of the end-pit lake, eating aquatic life from the
7 end-pit lake?

8 A One -- one minute, Mr. Chair.

9 A MS. MOONEY: Hi. Lindsey here.

10 I can answer this from the perspective of the
11 wildlife risk assessment. So the initial stages of a
12 wildlife predictive risk assessment are to not
13 underestimate exposure. To align with this,
14 conservatism is layered into the assessment. So under
15 conservative assumptions, including the upper
16 distribution of predicted exposure, specifically the
17 upper case for the numerical modelling output for
18 surface water concentrations in the end-pit lake,
19 assuming species spend all of their -- their time,
20 365 days a year, foraging exclusively from the end-pit
21 lake, you know, despite their preference for different
22 habitat types or, you know, a migration factor, risk
23 low in magnitude for selenium exposure is predicted for
24 insectivorous, piscivorous, and omnivorous birds.

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

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

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

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

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

1 that one.

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

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

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

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

- 1 MR. YEWCHUK: Can I get CIAR Number 360.
2 This is Addendum 12, and I'd like PDF page 241.
- 3 Q MR. YEWCHUK: That's where I got this 78
4 percent more than its daily threshold exposure. Am I
5 reading that wrong? I'm not a scientist.
- 6 A MS. MOONEY: That is the predicted exposure
7 ratio whereby the exposure is estimated, and it's
8 divided by the daily threshold exposure dose, and that
9 value of 1.78 is produced.
- 10 Q So if the American dipper lives on the side of the
11 project and eats out of the end-pit lake for years on
12 end, 'cause I know that's a very conservative approach,
13 what would happen to it?
- 14 A As I indicated, select feeding compartments for avians
15 within the end -- end-pit lake do have exposure higher
16 than the daily threshold exposure dose.
- 17 Q What will that exposure -- that selenium exposure do to
18 the bird?
- 19 A One moment, please.
20 So the toxicology end point for selenium applied
21 is based on hatchability.
- 22 Q So to make this clear, if that American dipper lays an
23 egg, will that egg produce a new American dipper?
- 24 A No.
- 25 Q No, it will not.
- 26 Can --

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

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

12 A So the American dipper is an insectivore.

13 Q Are you certain? Because I thought --

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

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

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

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

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

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

1 A That is a hypothetical. No fish are currently planned
2 or predicted in the end-pit lake.

3 Q Can the people of Blairmore expect to see some birds
4 with some twisted spines in about 40 years?

5 A MR. HOUSTON: So, Mr. Chair, I think what
6 we've talked about is a conservative assessment on a
7 conceptual end-pit lake plan. Obviously these
8 calculations highlight that attention needs to be paid
9 to certain species, and we would intend to do that.

10 Q Ms. Mooney, do you think it's likely that the people of
11 the nearby town will see some birds with twisted spines
12 in the next couple decades if you build this project?

13 A MS. MOONEY: No.

14 I would also like to highlight that that -- the --
15 the toxicology end point that's been applied for birds
16 is different than what you stated.

17 Q Sorry. I don't understand that. Can you explain what
18 that meant?

19 A You referenced something different than I had noted as
20 the toxicology end point that's been applied in this
21 assessment.

22 Q Now, when you -- you said the -- the egg might hatch;
23 right? The American dipper's egg in this case might
24 hatch and make an American dipper; is that correct?

25 A So the toxicology end point is based on the
26 hatchability, so eggs are considered nonviable if they

1 don't hatch or have problems hatching or deformities.

2 Q Okay. Oh, a deformed one actually counts as a
3 nonhatched to you?

4 A The toxicology information, as per the end point that's
5 been applied for the daily threshold exposure dose,
6 lists hatchability, which would include nonviable eggs.

7 Q Does an American dipper with a twisted spine count as a
8 hatched American dipper, or does it count as a
9 nonhatch?

10 A Again, I think that's a hypothetical, and it would
11 depend on the specific instance.

12 Q The hypothetical here being that you would build the
13 mine, build the end-pit lake, and that birds would
14 exist?

15 A MR. HOUSTON: Mr. Chair, you know, we've --
16 we've talked about a conservative assessment, and --
17 and there's a reason for doing a conservative
18 assessment to screen which areas are important for the
19 future design of the end-pit lake. We're going to keep
20 this in mind as we move forward. We're going to
21 monitor chemicals of potential concern in the end-pit
22 lake, and we're going to, in the time between now and
23 then, learn a lot more about the -- the tendency for
24 chemicals of potential concern to leach into the water.

25 So we -- we've got a long ways to go to this
26 hypothetical situation that we're talking about, and I

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

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

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

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

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

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

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

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

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

1 yeah, just before 10:30. So let's break to -- until
2 10:45.

3 MR. YEWCHUK: Thank you.

4 (ADJOURNMENT)

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

7 Response to Undertakings by Benga Mining Limited

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

14 THE CHAIR: Okay.

15 MR. IGNASIAK: Go ahead, Mr. Rudolph.

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

26 In testimony, I referenced dust control

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

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

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

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

22 THE CHAIR: Okay.

23 MR. IGNASIAK: Thank you.

24 THE CHAIR: Thank you, Mr. Ignasiak.

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

26 Mr. Yewchuk Cross-examines Benga Mining Limited

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

3 THE CHAIR: I think that's a --

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

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

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

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

20 A (NO VERBAL RESPONSE)

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

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

26 Q Thank you.

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

3 A MR. KANSAS: That's correct.

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

7 A Correct.

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

11 A Yes.

12 Q The frog and toad are wetland-dependent species?

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

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

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

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

24 A I have no reason to disbelieve that.

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

- 1 A That's right.
- 2 Q Did Millennium locate frog and toad breeding habitat on
3 the project site?
- 4 A Yes.
- 5 Q Okay. Where is it?
- 6 A It's very scattered, first of all, distributed widely.
7 It's in -- primarily in treed fens and shrubby fens.
- 8 Q Benga committed to pre-disturbance surveys to find
9 those breeding sites; right?
- 10 A Yes, yes.
- 11 Q And Millennium's search consisted primarily of acoustic
12 surveys?
- 13 A Yes. There was two -- two summers of -- of survey.
14 2014, they used acoustic primarily at 40 sites. And in
15 2016, they used a mix of acoustic and visual at
16 20 additional sites.
- 17 Q Did Millennium do acoustic surveys for the frog and
18 toad all year?
- 19 A No. Just in May and June, when -- when they're
20 actually calling.
- 21 Q Why are they only calling in only May and June?
- 22 A It's just their life -- life history.
- 23 Q Is that their breeding season?
- 24 A Yes.
- 25 Q Did you locate 11 amphibians in the 2014 search?
- 26 A 11 amphibians, you said?

1 Q Yeah. Is that how many you located?

2 A I think that's a little high. The first -- the -- in
3 June, one call and six visuals is what I have.

4 Q Sorry, that was the entire 2014 search? You found
5 seven amphibians?

6 A Yes. They're widely distributed, as I -- as I said.
7 Their -- their habitat is -- is distributed widely.

8 Q Okay. And how many did you find in 2016?

9 A 2016, there was -- 6 of the 20 sites had -- had
10 Columbia spotted frogs. And at one of the sites, there
11 was 25 adult frogs at one site, and it was at the old
12 historic mine lakes in the -- in the centre --
13 approximate centre of the study area.

14 Q Perfect.

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

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

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

1 Q MR. YEWCHUK: And this will hopefully be a
2 map of the wetlands showing the large patch of shrubby
3 open fen.

4 A MR. KANSAS: Okay. And thank you for the
5 aid to cross, by the way.

6 Q You're welcome.

7 And so when this map comes up -- but you might
8 know already -- the large area of shrubby open fen
9 abuts against old-growth forest?

10 A I -- I'm not familiar with -- with that old-growth
11 forest, but I'll -- I'll take your word for it.

12 Q It's on PDF 277, if you want to double-check it, but
13 that's okay.

14 A Okay.

15 Q And the -- the little blue spots in between the lime
16 green and the orange, those are the historic pit lakes
17 you were talking about; right?

18 A Yes. Could -- could the Zoom Master -- yeah. Thank
19 you. You're a step ahead of me.

20 Yes, to the -- to the west, about a kilometre, is
21 the three lakes, yeah.

22 Q And the lime green area is the large shrubby open fen?

23 A Yes.

24 Q Okay. Is that the largest wetland on the project site?

25 A That's a significant wetland, yes.

26 Q Is it the largest wetland?

1 A I think if you go south down to the -- the river,
2 Crowsnest River, there's a -- maybe a bigger one, but
3 it's -- it's a big -- big wetland, yes.

4 Q Let's scroll down here a little and check. I'm not
5 seeing it.

6 A You're right. Yes.

7 Q Okay. That's a big one.

8 So those small ponds in the middle, those are
9 actually in the legacy mine disturbance area; right?

10 A Yes.

11 Q And the small ponds have plant and amphibian life?

12 A Indeed, yes. They have a -- a 2-to 3-metre littoral
13 zone of cattail around the edges, for the most part.

14 Q And those small ponds are where Benga found most of the
15 amphibians during the site searches?

16 A That was a particular hot spot for -- for Columbia
17 spotted frogs, western toads, and long-toed
18 salamanders.

19 Q Are the small pond and the large shrubby open fen
20 breeding wetland for the frog and toad?

21 A Yes.

22 Q Benga plans to replace the large shrubby open fen with
23 the southeast surge pond?

24 A Yes. The -- my understanding is that in the
25 conservation and reclamation plan, the -- the habitat
26 that will be replaced is at -- and by creating new

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

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

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

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

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

23 Q Since --

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

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

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

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

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

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

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

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

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

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

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

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

14 Q And you see it on the map; right?

15 A Yes.

16 Q Have you seen it in person?

17 A Yes.

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

20 A No.

21 Q No. Okay.

22 The project involves removing 9.7 hectares of
23 wetland?

24 A That sounds about right, yes.

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

1 A Yes.

2 Q And Benga plans to replace the lost wetland?

3 A Yes. With -- primarily with the -- at the sediment
4 ponds in addition to, potentially, the end-pit lake,
5 depending on -- on how that goes, yes.

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

19 Q So the frogs and toads would be trying to get back onto
20 the water features on the mine permit pretty quick?

21 A They -- they may, yes, and they'll do it in a -- in a
22 way that they feel is safe.

23 Q Do frogs and toads do a lot of water quality testing?

24 A Not that I'm aware of.

25 Q Did Benga conclude the project will have a positive
26 contribution to wetlands following planned reclamation

1 in the LSA?

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

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

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

11 Q Ms. Bauman, do you know offhand?

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

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

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

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

22 A I believe so.

23 Q Perfect. Thank you.

24 And to replace the wetland loss at the end of mine
25 life, Benga adds 20 hectares of wetland, being
26 18.2 hectares of treed wetland and 1.8 hectares of

1 end-pit lake littoral zone?

2 A MR. KANSAS: Sounds right, yes.

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

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

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

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

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

19 Q And when will that be?

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

22 Mr. Kansas, can you turn off your microphone?

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

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

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

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

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

12 Could you repeat the question? I'm sorry.

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

17 A Yes.

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

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

22 Q Mr. Houston?

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

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

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

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

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

19 A Yes, that's the prediction, yes.

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

22 A Yes, it will have high selenium in it.

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

25 A Yes.

26 Q Are amphibians sensitive to heavy metal contaminants?

1 A Yes.

2 Q Will the end-pit lake, southeast surge pond, raw water
3 pond, and northwest surge pond be toxic to amphibians
4 for an amount of time you cannot determine?

5 A We're just going to consult for a minute on this,
6 Mr. Chair.

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

12 Q Sorry. Was the answer to the actual question "yes",
13 though?

14 A Yes.

15 Q Perfect. Okay. I got the follow-up and missed the
16 answer.

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

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

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

1 high level.

2 Mr. Kansas, can you speak to that?

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

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

13 A (NO VERBAL RESPONSE)

14 Q No. Okay. Hearing nothing.

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

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

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

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

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

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

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

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

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

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

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

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

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

9 Q Does -- does --

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

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

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

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

20 A Yes.

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

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

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

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

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

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

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

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

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

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

1 A It's possible. It seems that birds would be more of a
2 vector for that than an amphibian.

3 Q And if those amphibians or insects from the southeast
4 surge pond get as far as Gold Creek, anything that eats
5 them will (INDISCERNIBLE)?

6 THE COURT REPORTER: I'm sorry, sir. Excuse me.
7 You cut out. "Anything that eats them will"?

8 Q MR. YEWCHUK: Bioaccumulate the heavy metals
9 from those amphibians and insects?

10 A MR. KANSAS: I'll have to ask Lindsey to
11 comment.

12 A MS. MOONEY: Yes. If insects or
13 invertebrates left the southeast surge pond and went to
14 other habitats, they could be consumed by other forms
15 of wildlife.

16 Q Does Benga materials include an assessment of the risk
17 of that happening and what that would contribute in
18 terms of metals and selenium to life in Gold Creek?

19 A The risk assessment was focused on habitats that will
20 remain post closure. I think we've also discussed that
21 amphibians with -- within the mine footprint during
22 operations would be captured and moved to a -- a
23 different location.

24 Q And then when you say "within mine operations", you
25 mean within the time in which the surge pond needs to
26 be monitored because it has high metals and selenium?

1 A MR. HOUSTON: That would be right,
2 Mr. Yewchuk.
3 MR. YEWCHUK: And my last order of business.
4 Can I get my Aid to Cross Number 3 marked as an
5 exhibit, 'cause I think it's kind of useful?
6 THE CHAIR: Mr. Ignasiak, any concerns?
7 MR. IGNASIAK: No, sir.
8 THE CHAIR: Number, please, staff?
9 MS. UTTING: Mr. Chair, that would be
10 CIAR 921.
11 THE CHAIR: Thank you.
12 EXHIBIT CIAR 921 - AQ#3 - CPAWS - SMALL
13 AMPHIBIANS SEARCH WETLANDS OVERLAP - AIR AND
14 WILDLIFE TOPICS
15 MR. YEWCHUK: And that is it. Thank you to
16 the expert panel for answering my questions.
17 And thank you to Mr. Chairman for being a little
18 bit lenient on my time. Thank you.
19 THE CHAIR: Okay. Thank you, Mr. Yewchuk.
20 Next up is the MD of Ranchlands.
21 Mr. Barata Cross-examines Benga Mining Limited
22 MR. BARATA: Good morning, Panel Members.
23 Ryan Barata with Carscallen LLP. I'll be jumping in
24 for Mr. Niven today. I don't have very many questions.
25 My questions will be about 15 to 20 minutes, so I'll
26 try and get through this as quickly as I can.

- 1 Q MR. BARATA: Mr. Houston, good morning.
- 2 A MR. HOUSTON: Good morning.
- 3 Q I think when you were originally discussing with
4 Mr. Niven, we correctly established that the Grassy
5 Mountain Coal Mine is going to be entirely within the
6 MD of Ranchland; correct?
- 7 A That -- that's correct.
- 8 Q Okay. And you heard the MD councillors' evidence at
9 the beginning of this proceeding; correct?
- 10 A Yes.
- 11 Q And you heard those councillors say that the main
12 business in the MD is ranching; correct?
- 13 A Yes.
- 14 Q And you have -- you or no one on the Benga witness
15 panel has any reason to dispute that statement;
16 correct?
- 17 A No.
- 18 Q Okay. And, obviously, one of the key things needed for
19 ranching are grazing lands; correct?
- 20 A Yes.
- 21 Q Okay. And I understand that the grazing lands in the
22 MD of Ranchlands, those are made up primarily of --
23 sorry. The grazing lands in the -- yes, in the MD of
24 Ranchlands are made up primarily of fescue grasslands;
25 correct?
- 26 A So I -- I can't comment on that, but maybe Ms. Bauman

1 could -- could come in here.

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

4 Could I get you to repeat the question, please?

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

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

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

15 A Correct.

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

19 A MR. HOUSTON: Yes.

20 Q Okay. Thank you.

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

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

1 Q Okay. But the coal mine will produce some dust;
2 correct?

3 A Primarily from the haul roads, yes.

4 Q Okay. And I know you said that there's going to be
5 some mitigation plans to capture that dust, but, you
6 know, Benga can't guarantee that every single speck of
7 dust will be caught by those mitigation measures;
8 correct?

9 A Not so much caught, but prevented in the first place.
10 We've talked about watering roads, grading roads,
11 perhaps putting other -- other sealants on -- on the
12 roads to minimize the dust at the source.

13 Q Okay. And when you say "minimize" dust, you're saying
14 that obviously some dust will leave, and it's not
15 possible that Benga will be able to prevent every piece
16 of dust or every speck of dust leaving the coal mine;
17 correct?

18 A No. It's much like the roads in the MD of Ranchlands.
19 When a truck drives down the road, dust is emitted. In
20 our case, we have the luxury of having a confined site
21 with defined roads and -- and the ability to, you know,
22 have a watering program that keeps that dust down.

23 Q Okay. Again, some of that dust could leave the coal
24 mine; correct?

25 A Yes. And we've modelled that.

26 Q Thank you.

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

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

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

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

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

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

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

1 Ranchland in terms of its effect on the adjacent
2 rangeland.

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

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

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

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

20 A Correct.

21 Q Thank you.

22 A Correct. Yeah.

23 Q Thank you, Ms. Bauman.

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

1 A MR. HOUSTON: Yes.

2 Q Okay. And I think it's fair to say if there was
3 enough -- and maybe it's not fair to say this, but
4 could we say that if there was enough coal dust, that
5 could impact, say, the acidity levels of soils?

6 A Again, we -- we're anticipating that -- the lion's
7 share of the dust to come from the haul roads in this
8 case.

9 Q Okay. But that doesn't answer my question, sir. So if
10 there was enough coal dust, that could impact the
11 acidity levels of these soils; correct?

12 A I think it would depend on the acidity of the -- of the
13 dust itself, and -- and I don't believe that we've
14 determined there's a -- you know, a high acidity
15 factor.

16 Q Okay. But acidity could change in soil; correct? That
17 is something that could happen?

18 A I -- I can't really speak to that, Mr. Barata.

19 Q Can Ms. Bauman speak to that? Can she speak to the
20 fact that acidity could -- or soil levels -- or soil
21 acidity levels could change?

22 A MS. BAUMAN: Sorry. I've got too many
23 things to click on here. It's Ms. Bauman speaking.

24 We assessed potential acid input and nitrogen
25 deposition in the vegetation section -- or in the
26 vegetation consultant report, Section 4.10, and --

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

3 A Consultant Report 8.

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

5 A PDF page 235.

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

8 A MS. BAUMAN: So in the application case,
9 potential acid input is not likely to affect vegetation
10 in the LSA or the RSA. And then the baseline soil
11 survey and impact assessment report talks
12 specifically -- more specifically, I think, about
13 potential soil acidification. So it comes from the air
14 quality, and then it goes -- then it's assessed through
15 the soils and the vegetation. Plant -- there -- you
16 see under -- if you go down to the next page,
17 4 point -- whoa. In the first paragraph, it says "due
18 to the limited extent", kind of the middle of that
19 paragraph: (as read)

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

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

1 expand on that a little bit.

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

5 Thank you.

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

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

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

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

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

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

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

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

25 A Yes, that's correct.

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

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

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

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

12 A Yes, that's my understanding.

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

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

18 Orthic Black Chernozems are typical under
19 grasslands.

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

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

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

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

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

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

16 Q I apologize for the mispronunciation.

17 A Yes. They're common under grasslands.

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

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

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

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

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

5 A "Cher", "Chernozem".

6 Q "Chernozem."

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

9 A The sixth row? Yes.

10 Q Yes, I believe it -- yeah.

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

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

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

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

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

25 A Apparently not.

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

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

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

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

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

1 cating grazing going on within the LSA. That is
2 happening, correct, within the adjacent grazing lands?

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

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

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

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

19 Q Okay.

20 A So ...

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

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

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

1 A MR. RUDOLPH: Yes, 2019.

2 Q Okay. And looking at 3.5 here, it looks like -- that
3 one of the reasons that -- that air monitoring
4 station -- was because that was recommended by the
5 Municipality of Crowsnest Pass; is that correct?

6 A MR. HOUSTON: Not -- not strictly speaking.
7 We felt a need to gather more information about the air
8 quality in terms of baseline information before the
9 project starts, so we proactively took that step to
10 install that air monitoring station.

11 Q Okay. Was the air monitoring station installed before
12 or after the Municipality of Crowsnest Pass made that
13 recommendation in 3.5?

14 A The recommendation in 3.5 was made in, I believe,
15 August of -- no, sorry, September of this year, and
16 it's more aimed at measuring air quality after the
17 project is implemented.

18 Q Did Benga install any air monitoring stations within
19 the MD of Ranchland?

20 A We have dust collection stations, for example, but, no,
21 we haven't installed the same type of air monitoring
22 station.

23 Q Thank you.

24 That is all my questions. I guess the last bit of
25 business I have is, if there is not a response to that
26 undertaking, to get an undertaking number.

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

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

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

13 PAI --

14 Q And I appreciate that.

15 A Yeah. (as read)

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

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

24 A So you're asking --

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

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

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

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

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

13 A I'll do my best.

14 Q As best you can.

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

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

22 A Orthic Dark Brown versus Black.

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

1 A Yeah. Fair enough.

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

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

6 Sorry, Mike.

7 Q Okay. Here we go. Okay.

8 A MR. BARTLETT: Yes. Thank you.

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

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

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

16 Zoom Host, you can take that down.

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

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

22 Q Okay. Please continue.

23 Ms. Janusz Cross-examines Benga Mining Limited

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

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

1 document that I'm looking for. I'm looking for a
2 transcript from about a week ago. I believe it's the
3 19th of -- of October -- sorry, November. Is this
4 CIAR Number 876, Zoom Host? Oh, there we go. Perfect.
5 And PDF page 168.

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

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

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

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

18 MS. JANUSZ: Sorry. Pardon me.

19 Q MS. JANUSZ: (as read)

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

24 So I asked Mr. Houston: (as read)

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

1 are that will require water?

2 And Mr. Houston answered: (as read)

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

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

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

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

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

24 A We --

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

1 transfer licence for York Creek?

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

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

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

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

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

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

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

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

14 A So --

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

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

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

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

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

1 investors; yes?

2 A We have --

3 Q Corporations, that's what they do; they -- they hope
4 that investors will invest in their business. And if
5 you were considering which mining company to invest in,
6 wouldn't you choose a mining company that has several
7 water licences under its belt over one that doesn't?
8 Mr. Houston, wouldn't you choose a company that has
9 several water licences under its belt over one that
10 doesn't?

11 A So, Ms. Janusz, we have regulatory requirement to have
12 water licences that match the water use that is
13 expected at the project, and that's -- that's exactly
14 what we've -- we've done.

15 Q But I understand from questioning you last week and --
16 and other individuals that you -- even the Panel that
17 Benga was committed -- at least, it has expressed a
18 commitment to recycle and to conserve water?

19 A Exactly. And we -- we are serious about that, but,
20 unfortunately, or the -- the fact of the matter is that
21 recycling -- even though you recycle the water, it's
22 still counted as water use. It's much like when a
23 municipality takes water from a water body for -- for
24 treatment and then uses drinking water. It returns
25 water in the form of treated sewage to the river, but
26 that's -- that's not deducted from the original

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

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

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

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

14 A Yes.

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

17 A Yes.

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

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

24 Q In --

25 A -- in the city of Calgary?

26 Q Yes.

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

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

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

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

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

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

7 Q But you -- you yourself don't know for sure whether or
8 not there won't be a hum that people will be able to
9 hear, such as myself, for instance? I live about
10 7 kilometres from the mine. That I won't hear a hum
11 all the time from the mine, you -- you can't assure me
12 that I will not hear that hum?

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

16 Q No. I live in Coleman, actually.

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

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

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

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

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

1 you. Okay. So ...

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

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

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

11 Useful: All lights should have a clear
12 purpose; Targeted: Should be directed only to
13 where needed; Low Light Levels: Should not
14 be brighter than necessary; Controlled:
15 Should be used only when it is useful.

16 [And then you have] Colour: Use warmer
17 colour lights where possible.

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

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

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

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

8 A Yes.

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

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

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

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

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

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

10 A That -- that's correct.

11 Q Yes. Okay.

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

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

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

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

26 Insects around the world are rapidly

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

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

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

15 Both local sources of artificial light and
16 diffuse sky glow could impact the physiology,
17 behaviour, and fitness of insects.

18 Positively photostatic insects, including
19 macro-moths and beetles, exhibit a fatal
20 attraction to ALAN.

21 So this is known as "fatal attraction".

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

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

5 A MR. HOUSTON: Yes.

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

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

12 Q No?

13 A -- but I'll try my best.

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

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

21 A I do.

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

25 A Yes. Almost entirely.

26 Q And -- I'm sorry?

1 A Almost entirely, yes.

2 Q Okay. So bats are very, very dependent on insects,
3 yes.

4 And so what will happen when everything is cleared
5 away and you have these patches? What's that going to
6 do with -- for the insects and -- and for the bats?

7 A Sorry. These patches are, what, patches --

8 Q These -- these forest patches. When Ms. Okoye was --
9 was questioning yourself and Ms. Bauman the other day
10 about roosting sites and about preserving remnant
11 forest habitats, there was mention that patches would
12 be left for connectivity. So this was basically a --
13 a -- a mitigation against clearing everything out. And
14 so when I heard that -- and, of course, I knew that I
15 was going to be bringing this up today -- I wondered
16 what those patches would do as far as insects are
17 concerned.

18 A These -- these patches are openings in the forest,
19 you're saying?

20 Q Well, no. They're remnants. My understanding is that
21 these patches were remnants of -- of -- of forest so
22 that, you know, these -- this wildlife could -- could
23 still -- excuse me -- could still thrive. And so I'm
24 wondering, as far as the bats are concerned and the
25 insects that they feed on, how are these insects going
26 to thrive in these patches? Any idea? I realize

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

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

7 The --

8 Q Okay.

9 A Remnant patches, I remember speaking to those.

10 Q Of forest. Remnant patches of forest, yes?

11 A On the mine site?

12 Q That's correct.

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

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

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

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

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

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

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

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

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

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

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

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

25 Q MS. JANUSZ: That: (as read)

26 Long wavelength light (amber or red) tends to

1 induce relatively low levels of
2 flight-to-light behaviour across insect
3 groups and has the least suppressive effect
4 on melatonin production.

5 Now, again, Mr. Houston, you don't have any reason to
6 doubt this particular study that -- that light can have
7 an effect on insects?

8 A MR. HOUSTON: No, but I -- I believe you've
9 just educated me why -- why warm lights are better. It
10 seems like the warm -- warmer lights -- i.e., the ones
11 closer to the red end of the spectrum -- apparently
12 have less impact on the insects. So I -- I have
13 learned something here.

14 Q Okay. And so this would be another commitment -- is
15 that right -- on your part, that you would basically
16 source out a type of -- of light bulbs that, you know,
17 are -- are amber in colour, so to speak, are -- are
18 warmer; is that -- is that right?

19 A That is the commitment we've made to follow the
20 Dark-Sky guidelines, and that's one of them.

21 Q Okay. Now, are you aware how complicated lighting has
22 become over the past decade?

23 A It's become complicated, but also it's become simpler.
24 There's a lot of technology around lighting that is
25 helpful. We've got -- especially with the LED
26 lighting, we've got a lot more ability to select

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

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

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

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

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

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

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

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

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

26 THE CHAIR: Mr. Ignasiak, any concerns?

1 MR. IGNASIAK: No, sir.

2 THE CHAIR: Okay. Ms. Janusz, just a
3 question about this document first. So it's a
4 relatively recent or current publication, and the
5 secretariat staff tell me that for us to post it on the
6 registry, we would need a licence; we can't just
7 distribute it. So I just had a --

8 MS. JANUSZ: I see.

9 THE CHAIR: I just had a question. Would
10 it --

11 MS. JANUSZ: Sure.

12 THE CHAIR: Would it be sufficient --
13 given that you read parts of the document that I
14 thought -- I think you thought were important, and we
15 discussed them, would it be sufficient to just post the
16 abstract?

17 MS. JANUSZ: Sure. That's -- that's fine
18 with me.

19 THE CHAIR: Okay.

20 MS. JANUSZ: Absolutely. Yeah.

21 THE CHAIR: Okay.

22 MS. JANUSZ: I didn't -- I didn't realize
23 that. As an author, maybe I should have, and my
24 apologies.

25 THE CHAIR: Yeah. No worries.

26 MS. JANUSZ: Okay.

1 THE CHAIR: Okay. Thank you, Ms. Janusz.

2 MS. JANUSZ: Okay.

3 THE CHAIR: Oh, and so let's get a number
4 for the abstract.

5 MS. UTTING: Mr. Chair, that would be
6 CIAR 922.

7 THE CHAIR: Thank you.

8 EXHIBIT CIAR 922 - AQ #1 - JANUSZ -
9 1-S2.0-S0006320719307797-MAIN - AIR AND
10 WILDLIFE TOPIC

11 MS. JANUSZ: All right. So we can take
12 this down.

13 Q MS. JANUSZ: But, Mr. Houston, I just
14 wanted to mention that the authors of this study on
15 Elan and -- or Elan and insect declines, they concede
16 that the development of the type of lighting that
17 they're recommending that would mitigate fatal
18 attraction is still a few years off; it's -- it -- this
19 is -- this is new technology.

20 And when that technology comes onstream, the
21 adoption by Benga of those types of light bulbs would
22 be an example of adaptive management; wouldn't you
23 agree with that?

24 A MR. HOUSTON: I -- I --

25 Q Assuming you're going to be committing to this.
26 This -- this would be an example of adaptive

1 management?

2 A We're going to follow the technology, Ms. Janusz.
3 We've -- we've committed to following the Dark-Sky
4 guidelines, which is the current thinking, but
5 certainly we'll -- we'll follow the -- the advances in
6 this area, and if there's a significant benefit to be
7 gained by -- by upgrading, let's say, then that's
8 something we would consider.

9 Q Right. And by doing so, you would be, basically,
10 exercising a policy of -- of corporate social
11 responsibility? You understand that term; right?

12 A Yes, of course.

13 Q Right. And do you know the difference between "social
14 corporate obligation" and "social corporate
15 responsibility"?

16 A I -- I think I'm going to have to have you enlighten me
17 on that, Ms. Janusz.

18 Q Okay. In a nutshell, corporate social obligation
19 entails following the law without more, whereas
20 corporate social responsibility goes beyond that, is
21 governed by ethics, adopting best practices, basically
22 taking into consideration all the different
23 stakeholders of a corporation, not just strictly the --
24 the shareholders.

25 A Yes , I -- I understand that corporal -- "corporate
26 social responsibility" definition.

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

4 A Yes, I understand the distinction.

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

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

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

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

5 Q For instance, in your opening statement: (as read)
6 Benga will pursue additional greenhouse gas
7 emission reductions associated with rail and
8 marine transport by requesting Canadian
9 Pacific Railway to dedicate its lowest
10 emitting units to the project and encouraging
11 the marine contractor to use large
12 fuel-efficient vehicles.

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

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

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

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

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

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

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

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

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

21 THE CHAIR: Thank you, Ms. Janusz.

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

25

26 PROCEEDINGS ADJOURNED UNTIL 1:20 PM

1 Proceedings Taken via Remote Video

2

3 November 27, 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 A. Porco, CSR(A) Official Court Reporter
20 _____
21 (PROCEEDINGS COMMENCED AT 1:21 PM)
22 THE CHAIR: Okay. Welcome back,
23 everybody. We're going to turn to secretariat
24 questions next.
25 Ms. LaCasse or Ms. Kapel Holden, do you have
26 questions for this panel?

1 MS. LACASSE: I do. I'm going to go first.
2 GARY HOUSTON, MIKE BARTLETT, RANDY RUDOLPH,
3 JANET BAUMAN, DANE MCCOY, Previously Affirmed
4 STEVE BILAWCHUK, IAN MITCHELL, JOHN KANSAS, LINDSEY
5 MOONEY, Previously Affirmed
6 (Dust, air quality, greenhouse gas emissions, noise,
7 and light; wildlife, including migratory birds and
8 species at risk, wildlife health, and human health risk
9 assessment)
10 Alberta Energy Regulator Staff Questions Benga Mining
11 Limited

12 Q MS. LACASSE: Good afternoon, panel. I'm
13 Meighan LaCasse, AER counsel to the Joint Review Panel,
14 and I'm going to ask you some questions prepared by AER
15 staff under the supervision of the Panel.

16 MS. LACASSE: If I could please have pulled
17 up CIAR 360, and could you please go to page 85 --
18 PDF 85.

19 Q MS. LACASSE: So this is Benga's summary of
20 project air quality mitigations and commitments. Benga
21 states at Item Number 2 of this page, in the third
22 column, that it will investigate alternative ammonia
23 nitrate fuel oil, or ANFO, formulations that reduce
24 nitrogen oxide emissions during blasting.

25 My first question from staff for you is whether
26 Benga has made any progress in evaluating alternative

1 ANFO formations?

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

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

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

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

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

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

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

10 Do you have any view on such a condition?

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

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

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

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

4 Q Okay.

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

8 Q Okay. Thank you.

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

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

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

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

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

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

1 A Yes, we've made that commitment.

2 Q Thank you.

3 And so Benga wouldn't have any concerns with an
4 approval condition requiring them to -- that would
5 require mine mobile equipment that met those standards?

6 A No, that's correct.

7 Q Thank you.

8 Okay. So I'd like to refer to the transcript from
9 November 2nd, and maybe we should get it pulled up so
10 you can see exactly what Mr. Youl said.

11 MS. LACASSE: So that's CIAR 771. Thank
12 you. And I'm looking for -- and I hope the numbering
13 I've got is okay -- page 227 or PDF 227 out of 308.
14 And I'll just see -- yeah, 1151. That's the right
15 page.

16 Q MS. LACASSE: So starting on line 16, Benga
17 started to respond to questioning relating to the use
18 of electric mine mobile equipment, and Mr. Youl states
19 that: (as read)

20 The area that requires a bit more analysis is
21 the operation of the excavators. And in some
22 of the larger open-cut coal mines around the
23 world, electric-powered excavators are quite
24 common.

25 He then goes on to state that this equipment relies on
26 large cables, and due to the project's number of mining

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

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

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

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

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

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

18 A Okay.

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

22 A Okay.

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

1 equipment?

2 A So, again, it would be helpful to have Mr. Youl be in
3 on this, but I would expect it would be the -- the
4 larger backhoes that we'd be looking at, so the -- the
5 first two pieces of equipment that are listed there.

6 Q All right. If electric excavators were to be used --
7 and you've indicated the backhoes would be a
8 possibility -- what would be the resulting net emission
9 reductions? And we're looking for an estimate, of
10 course, nothing precise.

11 A So I am not sure. The emission of NOx, is that what
12 we're talking about, or the emission of greenhouse
13 gases?

14 Q Primarily NOx.

15 A Mr. Rudolph, are you able to weigh in on this?

16 A MR. RUDOLPH: Poorly, I think.

17 Perhaps if we just scroll, you know, relatively
18 slowly to the bottom of the table. We haven't done
19 that calculation, and it would have to be a very quick
20 eyeball here. Are there -- that's the train loadout.
21 Is this the entire table? It appears to be.

22 A MR. HOUSTON: But -- this is a table of the
23 types of equipment, but the numbers of each are not on
24 this table.

25 Q So, you know, I'm sure nobody wants more undertakings
26 at this stage, but if you're able to undertake to

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

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

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

9 A Please.

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

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

20 Does Benga have any comment on such a condition?

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

1 Q Okay. Thank you.

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

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

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

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

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

1 A MR. HOUSTON: Yes, I see that.

2 Q Okay. Could you provide an explanation for why Benga
3 chose not to estimate and incorporate vented dust
4 emissions from the coal-processing plant?

5 A As a -- as a design parameter, there would be filters
6 on that kind of a system to eliminate dust.

7 Q Thank you, Mr. Houston. Just one moment.

8 So is Benga confident this would completely
9 mitigate dust?

10 A Mitigate it to a level where it's not significant
11 compared to the other dust sources.

12 Q And so Benga's committing to using the filters and the
13 vents?

14 A Yes. If -- if dust emissions from the CHPP become an
15 issue, then there will be a system to remove the dust
16 in -- in the venting system.

17 Q So that would only happen if -- if the dust becomes an
18 issue, as you described it, or would it be set up from
19 the outset?

20 A So I think that -- to -- to be sure, I'm not clear on
21 the design details around how this would be done,
22 whether it would be done from the outset or if it would
23 be done as a -- you know, a contingency plan. To be
24 honest, if people are working in the building, there --
25 there can't be a high level of dust inside the
26 building. The -- the -- the cladding on the building

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

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

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

11 Project total suspended particulate modelling
12 predictions.

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

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

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

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

1 account for dust collection vegetation.

2 And that's sort of second-from-the-bottom cell, third
3 column, that says that.

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

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

8 A MR. RUDOLPH: Yes, I can.

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

1 because it's not a typical approach in Alberta.

2 Q Okay. Mr. Rudolph, if you had applied it, how would
3 this have impacted the air assessment conclusions?

4 A They probably wouldn't have changed dramatically. I
5 think we -- we believe that we would not have predicted
6 exceedances of the larger dust sizes TSP and PM 10
7 beyond the mine pit boundary as we did in this -- in
8 our modelling to date. But otherwise, the conclusions
9 would not have changed.

10 Q Thank you.

11 Just a moment, please.

12 Mr. Rudolph, are you able to tell us if this
13 vegetation cover mitigation factor accounts for the
14 complex topography surrounding the mine? And, for
15 example, is the mitigation as effective where the
16 terrain is sloping down?

17 A Yes, I believe it would be 'cause, in general, the
18 winds would follow the terrain.

19 Q So the mitigation factor does account for the
20 topography?

21 A Well, the -- the factor of 4 would typically do that,
22 yes. I think we're -- we're suggesting in this case
23 that that's probably not appropriate for the kind of
24 terrain and vegetation that we have in the area, that
25 that would be a -- certainly an overestimate.

26 Q Okay. Thank you.

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

9 Q Okay.

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

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

16 Is that 10 percent of overall project emissions?

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

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

22 A Thanks.

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

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

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

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

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

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

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

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

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

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

21 Q Okay. Thank you, Mr. Houston.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

9 Q Okay. All right. Thank you.

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

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

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

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

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

5 A No.

6 Q Oh, you're satisfied?

7 A Yeah.

8 Q Okay.

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

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

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

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

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

12 Q Sorry. I'll unmute myself.

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

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

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

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

1 the mine as -- as opportunities become available.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

1 minimize the drop height and drop time of the
2 coal.

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

7 A No. That would be okay.

8 Q Okay. We'll move on quickly, but not too quickly for
9 the court reporter's sake, to Number 15: (as read)
10 The rail loadout will have full cladding on
11 the sides of the loadout structure to create
12 a wind shelter and will utilize a movable
13 discharge chute located as close as practical
14 to the coal within the railcars.

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

19 A Sorry. I'm on mute again.

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

21 Q Okay. And finally, Number 17: (as read)
22 Benga will use a water-based, nontoxic dust
23 suppression product.

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

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

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

10 Q Okay. Thank you for that.

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

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

10 Q Okay.

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

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

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

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

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

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

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

24 Q Thank you. Just give me one moment.

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

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

3 A Yes.

4 Q Okay. Good. Thank you.

5 Just give me one moment, please.

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

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

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

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

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

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

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

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

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

10 A No. Sorry.

11 Q That's okay.

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

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

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

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

25 A Okay.

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

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

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

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

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

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

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

24 Q MS. LACASSE: (as read)

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

1 residences south of the loadout area?

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

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

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

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

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

12 Q MS. LACASSE: It states: (as read)
13 For a good sleep, it is believed that indoor
14 sound pressure levels should not exceed
15 approximately 45 dBA [I'm not sure what the
16 next unit is. I'll say] L_{max} more than 10
17 to 15 times per night.

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

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

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

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

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

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

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

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

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

25 Q Just a moment, please.

26 MS. LACASSE: Okay. Tammy, you can take

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

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

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

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

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

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

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

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

1 141, on the last row, the table lists the sound power
2 level of a locomotive at the train loadout.

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

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

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

1 going to be going the entire time, day and night.

2 Q Will the rail loadout operation take place partly or
3 fully during the nighttime, so between 10 PM and 7 AM?

4 A I was just going to say in terms of the -- the noise
5 modelling, again, we assumed that it was operating all
6 the time, to be -- to be conservative. And so
7 they're -- given the -- the context of -- of
8 approximately five rail loadouts per -- per week,
9 there's going to be -- and I'm assuming they're sort of
10 coming and going at all different times based on
11 whatever the CP schedule is, which -- which -- I don't
12 know how much input Benga has to that, but we have
13 assumed, again, that it could be loading at any given
14 time on any day in order to be as -- as -- essentially,
15 as conservative as we can in the results.

16 A MR. HOUSTON: That was going to be my
17 comment as well, Mr. Bilawchuk, that we would be having
18 to work with CP on -- on the scheduling and -- and so
19 we -- we need to be conservative and assume that it
20 could happen at any time of day or night.

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

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

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

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

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

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

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

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

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

4 Q Just a moment, gentlemen.

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

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

9 Q MS. LACASSE: (as read)

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

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

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

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

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

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

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

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

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

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

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

26 MS. LACASSE: Darn it.

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

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

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

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

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

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

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

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

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

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

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

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

1 highway.

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

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

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

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

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

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

6 Q Okay. Thank you.

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

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

14 THE CHAIR: Okay. That's fine.

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

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

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

24 MR. IGNASIAK: No, no concerns.

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

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

3 THE CHAIR: Thank you.

4 MS. LACASSE: Thank you.

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

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

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

19 So the question is -- and Mr. Bilawchuk seems quite
20 familiar with Directive 38 -- will the committed-to
21 follow-up noise monitoring include a comprehensive
22 sound level survey as described in Directive 38 at
23 critical receptors?

24 A MR. HOUSTON: So I think we'd want to define
25 the receptors that -- that are critical. I think we've
26 heard about the hospital, for example, as being one of

1 those, and -- and we have identified a number of
2 critical and representative receptors in -- in our --
3 in -- in CR 2. So I -- I just wouldn't want any
4 ambiguity around the word "critical".

5 And maybe I'm talking out of turn, Mr. Bilawchuk,
6 if that terminology is -- is clear for you.

7 A MR. BILAWCHUK: Yeah. I mean, I guess it --
8 it -- like, typically, with noise impact assessments,
9 again, as -- as per Directive 38, post-commissioning
10 noise monitoring is -- is not required unless there is
11 a complaint that has been received, and then the
12 complaint investigation procedures kick in.

13 And so to -- to the best of my understanding, the
14 commitments that Benga has made was to conduct sound
15 level measurements of the -- of the noise sources
16 associated with the site, which are more specific to --
17 to the individual noise sources, and then updating the
18 model and -- and doing the results that way.

19 I don't -- I don't believe -- and, again,
20 Mr. Houston can confirm -- that there has been a
21 commitment at this time to do comprehensive sound level
22 survey monitoring unless there has been a valid
23 complaint received from a -- from a resident.

24 Q Unmute myself.

25 Let me try this out on you: How would -- what
26 does Benga have to say about an approval condition that

1 requires Benga, irrespective of whether there's been a
2 noise complaint, to conduct a comprehensive sound
3 survey at critical sensitive receptor locations in
4 addition to the commitment on the follow-up noise study
5 within the first year after start-up of operations?

6 A MR. HOUSTON: I -- I think that we would
7 want to identify what those critical locations are.
8 You know, if it was one or two or three representative
9 locations, I think we could agree to that, but it would
10 be important to define what -- what the scope of that
11 was.

12 A MR. BILAWCHUK: One thing that I will add to
13 that, as it pertains to comprehensive sound level
14 surveys, having done hundreds of them over the years,
15 is it's important that we obtain access to -- to the
16 location in which we want to do the monitoring. And so
17 part of the comprehensive sound level survey involves
18 involvement with the community and -- and their --
19 their approval or willingness to -- to let a -- a noise
20 monitor be placed upon their -- their property and --
21 and so that -- that will -- that could potentially form
22 part of the basis upon, you know, where these locations
23 might be.

24 We've had situations where -- where -- from
25 previous projects where residents are concerned about
26 noise but are unwilling to allow a monitor to be placed

1 on their property. So I just want to make sure that
2 if -- if that's something that's being considered, that
3 the -- the location selection -- that that's part of
4 that process.

5 Q Okay. Just one minute, gentlemen.

6 I feel like this is going to be for you,
7 Mr. Houston. During Ms. Okoye's examination of Benga
8 on November 25th, there was a discussion of structures
9 in the -- on the Donkersgoed and Gilmar properties.
10 And I can take you to the transcript if you want to
11 have a look at it. So it's Document 907, and it's
12 PDF 5320 to 5323. And on PDF 5321, Mr. Houston
13 indicated --

14 MS. LACASSE: Thank you, Tammy.

15 Q MS. LACASSE: So at -- 5321 is the page,
16 lines 14 to 16. You -- I'll give her a chance to catch
17 up. 5321. Okay.

18 MS. LACASSE: So if you go to line 14,
19 please.

20 Q MS. LACASSE: So there, Mr. Houston, you
21 indicated that Benga was aware of buildings on those
22 properties. Can Benga indicate if it is aware if those
23 buildings are a mobile home on the Donkersgoed property
24 and a cabin on the Gilmar property?

25 A MR. HOUSTON: I -- I believe that's correct,
26 you know, without getting into a discussion of, you

1 know, what those structures look like, but that --
2 that's generally correct, that one is a mobile home,
3 and the other is a cabin.

4 Q You sound like you want to say something else,
5 Mr. Houston. Anything else?

6 A You know, when I said "cabin", that could be anything
7 from, you know, something you'd see on a -- the West
8 Coast overlooking the ocean to, you know, a very modest
9 structure in -- in -- in the woods. So I -- I just was
10 uncomfortable with the word "cabin" as, you know, being
11 descriptive enough. It's -- it's rustic, let me say.

12 Q Just give me a moment, please.

13 Okay. I'm going to take you a step further. How
14 do you define "rustic"?

15 A No paint, sparse insulation. I'm not sure if it's got
16 a foundation. That kind of rustic.

17 Q And the other structure? Do you recall it being a
18 mobile home, not a holiday trailer?

19 A I -- I don't believe you'd call it a "holiday trailer".
20 I don't -- I don't think it's on wheels. But it's --
21 it's -- it's smaller than what you would see in a
22 mobile home park, is my recollection.

23 Q And did the cabin appear to be mobile?

24 A No, no. It's nailed down.

25 Q Okay.

26 MS. LACASSE: Mr. Chair, could I have two

1 minutes? And then I think I'll probably be done.

2 THE CHAIR: Sure. Yeah.

3 MS. LACASSE: Thank you.

4 THE CHAIR: Go ahead.

5 MS. LACASSE: Okay. Panel, those are all of
6 my questions. Thank you very much. My colleague,
7 Barbara Kapel Holden, has questions.

8 But I wonder, Mr. Chair, if now would be a good
9 time for a break.

10 THE CHAIR: I think we'll take a break
11 now, and then Ms. Kapel Holden can start after the
12 break. So it's just about 3:15. So we'll resume at
13 3:30.

14 (ADJOURNMENT)

15 THE CHAIR: Welcome back. Just before
16 Ms. Kapel Holden starts, I just thought I'd give the
17 panel a bit of an insight into what's coming. There
18 may have been an expectation that we'd be able to
19 complete this panel today. That's not going to be
20 possible. Ms. Kapel Holden has some questions.
21 Mr. Lambrecht also has questions. And I'm going to be
22 asking the questions related to the wildlife health
23 risk and the human health risk assessments, and I have
24 a lot of questions in that area that I've worked on
25 with the staff. I'm anticipating for those questions
26 probably requiring a half a day-ish, kind of four

1 hours. But I'm a notorious bad estimator of time. So
2 we wouldn't be able to finish the panel by sitting late
3 today, and we can't sit tomorrow because the AER's IT
4 systems are all down, and our systems are unavailable
5 throughout tomorrow. So we will have to continue this
6 panel on Monday morning.

7 So it might be disappointing to the panel, I
8 realize, hoping to be done, but I just don't see a way
9 to kind of get it done before Monday.

10 Okay. With that, Ms. Kapel Holden.

11 MS. KAPEL HOLDEN: Thank you, Mr. Chair.

12 Q MS. KAPEL HOLDEN: Good afternoon, Panel. I am
13 Barbara Kapel Holden, AER counsel to the Joint Review
14 Panel, and I will be asking you some staff questions in
15 regards to the wildlife section.

16 So I believe I will direct my questions to
17 Mr. Kansas and also to Mr. Houston, but anyone on the
18 panel can answer them.

19 MS. KAPEL HOLDEN: And if I can get the Zoom host
20 to please pull up -- the reference is CIAR 251,
21 Addendum 10, Package 5, and it's PDF page 218.

22 Q MS. KAPEL HOLDEN: My first set of questions are
23 to clarify Benga's use of a 20 percent threshold to
24 assess potential project effects on habitat
25 availability and effectiveness. And if we can scroll
26 down to the last paragraph on page 218 there, it's the

1 second sentence where I'll start. Here Benga states:
2 (as read)

3 This threshold, which was used to assess
4 changes in habitat availability between the
5 baseline case and the planned development
6 case, was based on species-specific habitat
7 suitability modelling conducted for four
8 species in the wildlife regional study area
9 and one species in the grizzly bear regional
10 study area.

11 And if we can move to the next page, which is page
12 219 -- PDF 219, Benga then states: (as read)

13 Listed species were considered to be more
14 sensitive and, therefore, more likely to be
15 affected at the population level than more
16 stable, generalist species. Therefore,
17 threshold values were more stringent for
18 species at risk (i.e., those listed under
19 SARA) than for valued species (e.g., moose,
20 elk). Based on the valued component
21 selection process, habitat suitability
22 modelling for the selected valued components
23 and reviews of existing information on
24 habitat availability thresholds, the use of a
25 20 percent threshold to assess potential
26 project effects on habitat effectiveness for

1 selected wildlife valued components is
2 reasonable.

3 And then if we could move to -- well, actually, I don't
4 think we need to go there, but I'll just read out the
5 next reference. And this was in CIAR 42, Consultant
6 Report 9, Part 3, and it's PDF page 20. Here (AUDIO
7 FEED LOST) states --

8 THE COURT REPORTER: Excuse me, Ms. Kapel Holden.
9 You cut out there for a moment just after "PDF page 20".

10 Q MS. KAPEL HOLDEN: Okay. So it's CIAR 42,
11 Consultant Report 9, Part 3.0, PDF page 20. Here Benga
12 states: (as read)

13 According to Andrén, species are not
14 necessarily at the risk of regional
15 extirpation, even when only 10 to 30 percent
16 of the landscape remains effective habitat,
17 although these species are still affected by
18 the loss and fragmentation of habitat through
19 reduced body condition, reduced productive
20 potential, and declining population.

21 MS. KAPEL HOLDEN: And then if I can get the Zoom
22 host to pull up my next reference, which is CIAR 55.
23 That is Addendum 4, Attachment 2, and it's PDF page 63.
24 This is Benga response to IR 22(d).

25 And if we can just scroll down to the response
26 just in the middle there; I think it's the third

1 sentence.

2 Q MS. KAPEL HOLDEN: Here Benga states that:
3 (as read)

4 Every species will have a unique
5 area-specific threshold for the maintenance
6 of its health, reproductive output, and
7 population size. Although these thresholds
8 are not known for the valued components in
9 general and the valued components within the
10 region and project area specifically, Benga
11 believes that the use of 20 percent loss as a
12 residual effect to determine significance is
13 a conservative threshold at which healthy
14 populations will exist.

15 And so my question to you, Mr. Kansas, 'cause I think
16 you should be able to answer this -- if not, just let
17 me know -- does the 20 percent habitat threshold
18 consider the cumulative effect of the various species
19 sharing or overlapping habitat requirements?

20 A MR. KANSAS: The 20 percent threshold is
21 for the PDC case, which is the cumulative effects case.
22 It's simply a -- a guiding red flag that allowed Benga
23 to understand how -- potentially how close the loss of
24 effective habitat, which is moderate- and high-quality
25 habitat, in the region has affected the significance of
26 the impact for -- for key species.

1 It's -- it's only -- it was only used as one of
2 a -- of a -- of a range of -- of factors for
3 determining significance. Just as important as if it
4 was the -- if it -- if we were closing in on the
5 20 percent amount, just as important as that would be
6 if we had analogue studies that -- that -- for a
7 certain species that allowed us to say, Okay. Well,
8 for example, pine marten, I had -- I looked at nine --
9 nine studies informally, and the amount of habitat
10 required to keep pine marten going as a population
11 with -- in the face of forest -- forestry impacts. And
12 I added them all and divided by 9 and came up with
13 38 percent rather than 20 percent.

14 So I would go with the -- when assigning a
15 significance rating of "insignificant" or
16 "significant", I would go with the studies before I
17 would go with the 20 percent rule which applies to a
18 broad range of species.

19 The other -- the other factor would be the effects
20 ratings in -- that most people use to come up with a
21 significance rating. Significance really is -- it's an
22 irreversible impact to the species.

23 Anyways, that -- that -- that's -- that's as far
24 as I'll go right now, anyways.

25 Q Can you clarify for me: Is there a cumulative effect
26 of habitat loss where species overlap in their ranges

1 for the planned development case?

2 A Yes. We modelled spatially in a -- in a geographical
3 information system the -- the effect of -- of logging
4 in the region over a 14-year period and a
5 27-year period and also a couple of mines that were in
6 the region as well as a twinning of the -- of the
7 highway. And the contribution -- the relative
8 contribution of the residual effects of the -- of
9 the -- of the local study area mine project and the --
10 and the logging, the logging contributed about 90, 92,
11 93 percent of the total. And that's a true cumulative
12 effect on top of other things that have been happening
13 out there, as well as the 5 or 6 percent effect of
14 the -- of the mine, of the Grassy Mine.

15 So the answer is yes, the short answer.

16 Q Thank you for that.

17 And is the 20 percent habitat loss considered per
18 species only?

19 A Yes, for species. For five key species, value
20 components.

21 Q Could you just clarify which ones those are, the five?

22 A Yes. It was American marten, Canada lynx, the --
23 sorry -- the flycatcher -- olive-sided flycatcher, and
24 little brown myotis.

25 Q Does Benga take into consideration how wildlife species
26 may have lower thresholds near the centre of their

1 species range versus near the boundaries in your
2 threshold assessment?

3 A I didn't take that -- we didn't take that into account.

4 Q Do you think that would change your assessment if you
5 had taken that into account?

6 A No. The assessment is too coarse. It can't pick up
7 that kind of detail.

8 Q How does Benga intend to monitor the habitat threshold
9 effects on wildlife body condition, reproductive
10 potential, and population size to validate the
11 20 percent threshold change used in the effects
12 assessment as adequate and ensures adaptive mitigation
13 measures are in place?

14 A The -- the 20 percent rule was strictly a rule to help
15 aid in the -- in the determination of significance.
16 It -- it -- it's not a -- in my professional opinion,
17 it's -- it's not necessary to -- to test that model.
18 It's not even a model. It's just a -- strictly a -- a
19 very cautionary -- ecologically, a conservative value
20 that was picked to -- as a red flag. No, I don't
21 believe that that's necessarily to -- to model.

22 Q Okay. One moment, please.

23 A Okay.

24 MS. KAPEL HOLDEN: Zoom Host, I think you can
25 take down this reference while we're just waiting for
26 my next question from my wildlife expert.

1 Q MS. KAPEL HOLDEN: Based on your last response, I
2 wanted to refer you to the quote that I read. It was
3 from Andrén, and I'll repeat it again: (as read)

4 According to Andrén, species are not
5 necessarily at the risk of regional
6 extirpation, even when only 10 to 30 percent
7 of the landscape remains effective habitat,
8 although these species are still affected by
9 the loss and fragmentation of habitat through
10 reduced body condition, reduced productive
11 potential, and declining populations.

12 So here it states that species are still affected
13 by habitat loss. And the point of the EIA and
14 subsequent monitoring is to determine if the EIA models
15 and predictions are valid. Do you have any comments
16 about that?

17 Sir, I think you're on mute.

18 A MR. KANSAS: Gosh. I'm never going to
19 figure this out.

20 I don't think we're going to get anywhere near
21 the -- the values of Andrén, which is 70 percent effect
22 and 90 percent effect in this region. We're -- we're
23 at -- with -- with marten -- pine marten in the context
24 of this actual project, we're at about 18 percent,
25 17 percent. Lynx is similar. But -- and that's with
26 the -- a normal amount of timber harvest. I -- so I --

1 the values that Andrin came up with in his study, which
2 was in Europe, is -- we're -- we're just not going
3 near -- going near that. So I don't see the point
4 of -- of trying to figure out, you know, sub --
5 suboptimal kind of effects on that species -- on these
6 species that we have here.

7 Q Thank you.

8 Okay. Moving on to my next set of questions.
9 This is in regards to migratory birds. I don't think
10 there's a need to pull up the reference, but I will
11 just read from it. And it's in CIAR 42, Consultant
12 Report Number 9, Section 5, and it's Section 5.5.3,
13 "Change in Mortality Risk and Health", PDF page 67. So
14 in this exhibit, Benga states: (as read)

15 In addition, changes to the health of
16 waterfowl, shore birds, and other species
17 that nest along the shorelines and feed on
18 aquatic life could occur if such species nest
19 along the edges of the surge ponds. However,
20 it is anticipated that the level of ongoing
21 disturbance and noise at the surge ponds will
22 deter birds from nesting along the pond
23 edges.

24 And then the next reference is Exhibit CIAR 70,
25 Addendum 6, PDF page 69. Again, I don't think it's
26 necessary, unless you would like me to pull it up.

1 A No, it's not necessary.

2 Q Okay. At the top of that page, Benga states:

3 (as read)

4 Due to the level of ongoing disturbance,
5 wildlife exposure is not only of low
6 likelihood, it is anticipated to be transient
7 and would not provide a suitable, long-term
8 watering source for repeated exposure. As
9 such, nominal exposure to impacted waters
10 would be expected to have limited detrimental
11 effects.

12 MS. KAPEL HOLDEN: Now, I would like the Zoom
13 host to please pull up my next reference. This is
14 ECCC's submission, CIAR 542, please, and it's
15 PDF page 26, and it's Section 4.1, "Wildlife and
16 Selenium". And PDF page 26, please. Thank you.
17 Yeah, 26.

18 Q MS. KAPEL HOLDEN: So in this exhibit,
19 Environment Climate and Change Canada's submission --
20 sorry. It's Environment and Climate Change Canada's
21 submission, sorry, at PDF page 26: (as read)

22 ECCC 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 receptors
26 via dietary intake.

1 And that's the third paragraph there.

2 MS. KAPEL HOLDEN: If we can just scroll down a
3 little bit, Ms. Turner. Thank you.

4 Q MS. KAPEL HOLDEN: ECCC also states: (as read)
5 A well-known example of selenium toxicity and
6 migratory birds occurred in the early and
7 mid-1980s at Kesterson Reservoir inside the
8 Kesterson National Wildlife Refuge in central
9 California, where levels of selenium in the
10 aquatic food web resulted in reproductive
11 failure and mortality of adult birds.

12 MS. KAPEL HOLDEN: And, Ms. Turner, if we can
13 just move to page 30 of that exhibit. That is the
14 recommendation by ECCC, And it's
15 Recommendation 4.1(1)(b).

16 Q MS. KAPEL HOLDEN: Here: (as read)
17 ECCC recommends that Benga be required to
18 develop and implement mitigation measures to
19 prevent adverse effects,
20 from potential exposure pathways of selenium, including
21 surface water contamination.

22 Mr. Kansas, can you comment on ECCC's
23 recommendations, specifically on its recommendation
24 that Benga develop and implement mitigation measures.
25 Sir, I think you're still muted.

26 A MR. KANSAS: Firstly, wildlife toxicology

1 isn't in my wheelhouse. It's in the wheelhouse of
2 Ms. Mooney.

3 But I would like to add something before she takes
4 it on, and that is that at baseline for -- for this
5 study in the Grassy Mountain area, waterfowl, which you
6 had mentioned, and waterbirds in general are very rare
7 because there's very little open water habitat and open
8 water wetlands. But I'll leave it at that.

9 Q Thank you.

10 Ms. Mooney, good afternoon. Could I get you to
11 comment on the recommendation made by ECCC?

12 A MS. MOONEY: Hello. This is Lindsey
13 Mooney.

14 With respect to the numbered or the lettered
15 bullet and the number, was that 2(b) that you were
16 referencing, or which of the three?

17 Q It was 4.1(1)(b), I believe.

18 A One -- I don't -- I only see a 1(a).

19 Q Oh, that's right. Sorry. I think it is in
20 Recommendation 4.1(2).

21 A 4.1(1)(a)?

22 Q I think it's -- sorry. I'm just looking at it. So it
23 was ECCC recommended: (as read).

24 ... that Benga be required to develop and
25 implement mitigation measures to prevent
26 adverse effects,

1 from potential exposure pathways of selenium, including
2 surface water contamination.

3 And I'm looking for a discussion in regards to the
4 mitigation measures. So I'm not sure it's really a
5 toxicology question, but it is 1(a) that I'm looking
6 at.

7 A Okay. So I see 1(a) says: (as read)

8 If the revised risk assessment indicates that
9 effects to wildlife receptors are likely --

10 THE COURT REPORTER: Excuse me. Pardon me. Excuse
11 me. Can you start that again and read slower, please.

12 A MS. MOONEY: Sorry. My apologies.

13 I see in 1(a), it lists: (as read)

14 If the revised risk assessment indicates that
15 the effects to wildlife receptors are likely,
16 then ECCC recommends Benga be required to
17 develop and implement mitigation measures to
18 prevent predicted adverse effects.

19 And your question is related to, sorry, what those
20 mitigation measures would be or --

21 Q MS. KAPEL HOLDEN: That's correct. That's
22 correct, yes. And what your thoughts are about the
23 recommendation, and then what you think about the
24 recommendation to actually implement mitigation
25 measures to prevent the predicted adverse effects.

26 A MR. HOUSTON: Can we just have a moment to

1 consult on this, Mr. Chair? One minute.

2 A MS. MOONEY: Hello. Lindsey Mooney back.

3 So during the operation of the mine, the mine
4 facilities would include exposure control for the
5 wildlife, so to prevent the wildlife from contacting
6 the water that would not meet acceptable thresholds
7 within the operating facilities. And outside of that,
8 a key metric would be periphyton monitoring and
9 establishing a safe threshold for selenium in
10 periphyton that would both be safe for -- for the
11 trophic system and -- and ultimately the wildlife but
12 also could be used within an adaptive management
13 context.

14 Q And my question is perhaps to Mr. Houston: Would you
15 agree to this type of recommendation being included as
16 a condition within a potential approval to have
17 mitigation measures in -- in place?

18 A MR. HOUSTON: Yes. The periphyton
19 monitoring outside of the mine footprint is already
20 included in the draft aquatics monitoring program that
21 we've put forward, and we have also agreed to manage
22 access of wildlife to the ponds that do not meet water
23 quality guidelines. So we've already made those
24 commitments in our application.

25 Q Thank you.

26 And so I'm also looking at mitigation in regards

1 to preventing migratory birds from coming into contact
2 with water. Could you speak to that?

3 A So we -- we have -- we -- we would commit to putting in
4 place some -- some of the tactics that are -- are
5 well-used in the -- in the oil sands to prevent
6 migratory birds.

7 The situation here, as Mr. Kansas pointed out, is
8 entirely different from that. First of all, there --
9 we're -- we're not situated on -- on a major flight
10 path of migratory birds, and there are not a lot of
11 open water bodies, so the -- the incidents would be --
12 would be less frequent, but, also, incidental landings
13 would -- would not be immediately harmful, and -- and
14 so the -- the tactics that we would use would be
15 similar to what is used in the oil sands to prevent
16 landings on -- on some of the tailings ponds up there.

17 Q And could you clarify what those tactics would be that
18 are used?

19 A Yeah. So there are -- there are a number of different
20 tactics from -- from passive to active. Passive would
21 be things blowing in the wind or intermittent sound
22 emissions. And more active would be some -- some kind
23 of detection system that would trigger a response. But
24 I would think that we would start with a simple and --
25 and move towards a more active and complex, again,
26 remembering the -- the -- the objectives and the -- the

1 performance level might not have to be as high as it is
2 in the oil sands.

3 Q Okay. Thank you.

4 MS. KAPEL HOLDEN: Okay. Ms. Turner, I think you
5 can take down that exhibit.

6 Q MS. KAPEL HOLDEN: Okay. For my next set of
7 questions, I'll start off with some references to the
8 materials to assist you in answering my question -- to
9 help you answer the questions I will pose to you. I
10 don't think there's a need to pull them up unless,
11 again, you would like me to have them brought up for
12 you.

13 A MR. KANSAS: Is that Mr. Kansas you're
14 speaking to?

15 Q Yes, and to the rest of the panel who might be
16 answering.

17 A Okay. Thank you.

18 Q Thank you.

19 So in Exhibit CIAR 251, Package 5, in response to
20 IR 5.39, and it's on page PDF 1121, Benga states:
21 (as read)

22 Many of the project effects associated with
23 wildlife habitat loss will be minimized
24 through implementation of the project's
25 reclamation plan.

26 Also in that exhibit, on PDF page 1135, Section 6.1.2,

1 Benga also states that: (as read)

2 The primary method for mitigating these
3 direct effects on wildlife habitat and
4 movement will be through progressive
5 reclamation of the project footprint.

6 Throughout your evidence, Benga discusses the use of
7 progressive reclamation as a main mitigation measure
8 for species that require habitats that may take time to
9 become effective habitat. I'd like to go through a few
10 examples of where long-term reclamation is discussed in
11 your materials.

12 In CIAR 42, Consultant Report 9, Part 5, PDF 68,
13 Benga states: (as read)

14 The return of these wildlife populations to
15 the footprint during progressive reclamation
16 and mitigation will depend on each species'
17 preferred habitat types. Species preferring
18 recently disturbed and young habitats are
19 expected to return first, followed by species
20 preferring increasingly older habitat types.

21 The next reference is Exhibit CIAR 542. Here, ECCC's
22 submission, Section 4.2, "Migratory Birds", PDF page 3,
23 ECCC states that: (as read)

24 In Benga's assessment of all wildlife value
25 components, it is expected that the
26 longest-lasting impacts will be experienced

1 by bird species requiring old-growth forests
2 for breeding and foraging habits.

3 On PDF page 33 of the same exhibit, ECCC's
4 "Conclusions" states that: (as read)

5 The project will result in loss of habitat
6 for migratory birds for many years. [Stating
7 that although some disturbances may create
8 suitable habitats for certain species,
9 others] will not return to the project area
10 until mature forests are re-established.

11 Also in the same exhibit, on PDF page 34, ECCC provides
12 recommendations, including the following statement:
13 (as read)

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

19 Benga states that: (as read)

20 The initiation of progressive reclamation
21 will occur on reclamation-ready sites in the
22 project area to minimize delays in reclaiming
23 disturbed sites to affected habitat.

24 And that is in CIAR 251, which I referred to at the
25 beginning of my preamble.

26 So my question to you, Mr. Kansas, is: Does Benga

1 have a timeline in mind that would be specific to the
2 mitigation efforts geared towards mature habitats to be
3 re-established to optimally reduce the impacts to
4 wildlife which rely on these habitats?

5 A Would you repeat the question? No, sorry.

6 Q I was just thinking that I would.

7 A Just kidding.

8 No. I'm going to come at this from a slightly
9 different way. The area around the Grassy Mine is a --
10 is a -- is a suppressed fire system. There's been very
11 few fires that have occurred in that area for a long
12 time. So, really, in many ways, you have an excess
13 amount -- excessive amount of old-growth forests. And
14 that's what happens when you don't have fire; natural
15 succession is a very powerful engine.

16 So the -- the first animals to be attracted to the
17 mine are going to be the ones that like grasslands,
18 open habitats, things like the common nighthawk, the
19 short-eared owl, the bobolink, various species like
20 that. They're going to be attracted immediately to
21 the -- to the early successional habitat. And that's a
22 good thing, you know, but the fact that some old-growth
23 forests are -- mature forests are taken down, that's no
24 different than fire. Fire does the same thing. The
25 only difference is it leaves tall spires and snags for
26 animals to perch on and maybe some additional down --

1 down woody debris on the ground.

2 But my feeling is you're mimicking -- we're
3 mimicking nature. We're in a fire-suppressed system.
4 I know we are, even from the -- some of the footprint
5 studies that have been done for -- for southwestern
6 Alberta are in agreement with that.

7 So I guess my answer is: There's no strategy
8 involved here. We're taking timber away, and we're
9 replacing it with early successional, and the -- and
10 the wildlife will -- will thrive by doing -- doing so.

11 Q Thank you.

12 Does Benga have a suggested time frame in which
13 progressive reclamation would need to begin to ensure
14 both the short- and long-term potential impacts to
15 wildlife and wildlife habitat are effectively
16 mitigated?

17 A Well, the progressive reclamation, by definition, is
18 immediate, starting reclamation immediately in an
19 appropriate area, and then working from that area and
20 continuing to reclaim while you're actually mining. So
21 that southern disposal -- rock disposal area, I guess,
22 is the first -- the first area that'll open up. And
23 what we'll do there is make sure we've got the
24 appropriate -- the appropriate grassland and forb
25 species to attract animals to that site. But they will
26 be attracted because there's not a lot of it available

1 because of fire suppression.

2 Q Okay. And, Mr. Kansas, what is the efficacy and
3 feasibility of relying on a progressive reclamation
4 plan as the main mitigation measure to reduce impacts
5 to wildlife habitat, specifically species at risk?

6 A It's all about the habitat. Habitat's always the --
7 the main measure. That's how animals survive.

8 Q Do you have any examples of where progressive
9 reclamation was indeed successful as the main
10 mitigation measure to reduce impacts of direct habitat
11 loss?

12 A Yes. I think you might recall we -- I found a report
13 that the Mercoal West/Yellowhead mine -- where wildlife
14 biodiversity -- after 35 years at that mine, at the
15 Coal Valley Mine --

16 Let me start over. At the Coal Valley Mine, after
17 35 years, there are more wildlife species available
18 using the habitat there than there are in the Grassy
19 Mountain area and in areas of the Yellowhead area where
20 the Coal Valley Mine is that aren't mined yet. So,
21 yes, the progressive -- and they used progressive
22 reclamation on that -- that site.

23 Q And just to clarify, so you mentioned 35 years. Is
24 that a reasonable amount of time for species at risk?

25 A Yes.

26 Q Can you elaborate on that, on your answer?

1 A Animals occur at all levels. Species at risk are not
2 always old-growth obligates. They're species at risk
3 that are -- that require short grasslands. So, you
4 know ...

5 Q And what about the ones that rely on old growth that
6 Benga will disturb?

7 A Well, Benga will avoid clearing land during the
8 breeding season, so that'll significantly take away the
9 risk of -- of mortality on -- on migratory birds.

10 A MR. HOUSTON: I think we've also talked
11 about the 20 percent --

12 You're not on mute, Mr. Kansas.

13 We've also talked about the 20 percent boundary --
14 or -- or limit for habitat reduction, and -- and so
15 right from the get-go, we're -- we're talking about
16 a -- a fairly minor -- not minor, but a low level of
17 destruction of habitat, and the ability of the species
18 to manage that is -- is the -- the primary indicator
19 of -- of low residual effect. Adding back that habitat
20 through reclamation is undoing, over a long period of
21 time, admittedly, the -- the damage that we do
22 during -- to execute the project.

23 Q Okay. Thank you, Mr. Houston.

24 Okay. And, Mr. Kansas, does Benga consider
25 potential wildlife offsetting programs as part of the
26 wildlife mitigation and monitoring plan to complement

1 progressive reclamation and the time lags associated?

2 A MR. KANSAS: I haven't been involved in an
3 offsetting plan for this project.

4 Maybe Mr. Houston can comment.

5 Q Thank you.

6 Mr. Houston?

7 A MR. HOUSTON: We -- yeah, we haven't -- we
8 haven't included offsetting plans for -- for wildlife
9 in our mitigation measures.

10 Q Can you speak to why that is?

11 A Well, it's because we -- we have looked at the residual
12 impact based -- based on the amount of habitat that
13 would be removed and determined that the -- the impact
14 is not significant, so we didn't feel it necessary to
15 add on top of that offsetting plans.

16 Q Would you consider doing one in the future?

17 A If -- if the impacts were -- were more significant than
18 they -- they seem to be, we -- we could consider that.

19 A MR. KANSAS: We -- the implementation of
20 best beneficial management practices, for example, for
21 all olive-sided flycatcher topping -- knocking the top
22 off a tree to create a better habitat for -- for that
23 bird is something we could do. But I don't know if
24 it -- I don't know how that ties in with offsetting, if
25 that -- the beneficial management practices, which I
26 believe Benga has committed to. I don't believe

1 they're the same thing as -- as offsetting.

2 Q Okay. Thank you for that.

3 A Like ...

4 Q Just ...

5 Mr. Kansas or Mr. Houston, how will you determine
6 if the impacts are significant enough to implement?

7 A MR. HOUSTON: To implement --

8 A MR. KANSAS: I -- I would say through a
9 routine, regular monitor -- through a routine, regular
10 monitoring program.

11 Q Thank you.

12 My next set of questions are in regards to the
13 coal policy change and the cumulative effects
14 assessment done by Benga. As you're aware, the coal
15 development policy for Alberta, more commonly known as
16 the "1976 Coal Policy", was rescinded effective
17 June 1st, 2020. With the rescission of the coal
18 policy, all restrictions on issuing coal leases within
19 the former Coal Categories 2 and 3 have been removed.
20 In Exhibit CIAR 89, Appendix A-1, PDF page 369 -- and I
21 don't believe we need to pull this up -- Benga states
22 that it updated its cumulative effect assessment with
23 the addition of certain or reasonably foreseeable
24 projects as of August 17th, 2018, to inform the updated
25 assessment of significance.

26 Also in that exhibit, on PDF page 591, Benga

1 provides the temporal boundaries that were selected to
2 ensure they captured the project's effects in the
3 wildlife local study area as well as the regional study
4 area to capture the existing disturbances, historical
5 mines, and settlements in the region that may be
6 affected by or contribute to.

7 Throughout Benga's environmental assessment and
8 subsequent evidence provided, Benga repeatedly states
9 that: (as read)

10 Wildlife affected by the project development
11 will likely remain low as species will be
12 displaced to suitable habitat located
13 adjacent to the project footprint.

14 And I just wanted to go over some examples I found in
15 the materials. In Exhibit CIAR 42, Consultant Report
16 Number 9, Part 5, and it's Section 5.3.4.4, "Change in
17 Abundance", PDF page 19, Benga states: (as read)

18 With project development, the relative
19 abundance of great grey owls in the wildlife
20 study area will likely remain low since any
21 owls affected by the project development will
22 be displaced to suitable habitat located
23 adjacent to the project footprint.

24 Also, in Exhibit CIAR 313, Addendum 11, PDF page 148,
25 Benga states: (as read)

26 Badgers will be displaced to other more

1 suitable habitats adjacent to the project
2 footprint.

3 So my question to you, Mr. Kansas and Mr. Houston:
4 Does Benga have a strategy to adapt your mitigation
5 measures to reduce impacts to wildlife habitat given
6 that the surrounding habitat may be comprised with new
7 projects as a result of the changes to the coal policy?

8 A MR. HOUSTON: So I -- I think the key -- key
9 words there are "maybe". There are no projects
10 proposed at this moment. There's a -- a number of
11 exploration and aspirational projects, but until
12 projects are proposed, they're -- they're not
13 considered to be reasonably foreseeable.

14 Once a project is proposed, I would suggest that
15 that project would have to do a cumulative effects
16 assessment and environmental impact assessment and
17 consider that the Grassy Mountain Project is further
18 along and is reasonably foreseeable. So I would expect
19 that that would be the moment that additional
20 mitigative measures would be considered. If -- if
21 there were other projects in the area, I think it would
22 be only natural for Benga and the other project to work
23 together cooperatively to look at regional mitigative
24 measures, and so we -- we would -- we would be willing
25 to do that.

26 Q Okay. Thank you.

1 MS. KAPEL HOLDEN: Zoom Host, can I get you to
2 pull up my next reference? It is Exhibit CIAR 313,
3 Addendum 11, PDF page 317, and it's Figure 6.14-1.

4 A MR. HOUSTON: What was the PDF page, please?

5 Q MS. KAPEL HOLDEN: It's 317. It's showing the --
6 the saturated backfill zone, surge ponds, treatment
7 plants.

8 A M-hm.

9 MS. KAPEL HOLDEN: 317, Ms. Turner. Perfect.
10 Thank you.

11 Q MS. KAPEL HOLDEN: Before I get to this figure, I
12 just wanted to make reference to another exhibit, and
13 I'll just read it out. No need to pull it up. In
14 Exhibit CIAR 89, that is Addendum 8, PDF page 181, in
15 response to Information Request 14, Benga states:
16 (as read)

17 Active management of the surge ponds are
18 expected to be required beyond Year 2100. It
19 is not possible to reliably estimate the time
20 horizon for when the rate of weathering and
21 selenium release will diminish to a point
22 where active management is no longer
23 required.

24 And so in Exhibit 313, at PDF page 317, you have
25 Figure 6.14-1, which provides an illustration of the
26 location and size of all the saturated backfill zones,

1 surge ponds, treatment plants, and likely associated
2 sedimentation ponds that may require active management.

3 My question to you, Mr. Houston, and -- and to
4 you, Mr. Kansas: What is the long-term impact or
5 disturbance as it relates to the wildlife and wildlife
6 habitat associated with these ponds? And I'm referring
7 to the surge ponds.

8 A MR. HOUSTON: So the -- the surge ponds will
9 need to stay on the landscape as long as it's necessary
10 to collect the -- the water from the dumps and to
11 re-direct it to the saturated backfill zones. And so
12 what is the impact? You'll have a pond. You'll have
13 some pumps and probably buried pipe that connect
14 everything.

15 In terms of the saturated backfill zone, we may
16 need to have some -- some chemical like methanol, so
17 some tanks ready to inject and -- and some pumps
18 associated with that, but that would be located
19 adjacent to the inlet structure on the saturated
20 backfill zone.

21 So I'm -- I'm not sure if I'm answering your
22 question. I'm describing what facilities will be left
23 at -- at the -- at the end of the operation and after
24 the majority of the reclamation is completed. Is that
25 more or less what you were going for?

26 Q Yes. And so my follow-up question to you is: How

1 might this impact progressive reclamation success if
2 this goes as far as twenty -- Year 2100?

3 A I wouldn't think it would affect it at all. The -- the
4 remaining facilities, i.e., the pumps on the ponds
5 and -- and the water retention structures, would be a
6 very small part of the footprint. So I wouldn't expect
7 that it would have a significant effect on the
8 remainder of the progressive reclamation or the -- or
9 the willingness of wildlife to return to the footprint.

10 Q Okay. Thank you.

11 My next question to you, Mr. Houston, is: Can you
12 explain how Benga considered the level and duration of
13 the impact that we were discussing in my first
14 question -- the impact and the disturbance as part of
15 its wildlife impact assessment?

16 A Yeah. I -- I wouldn't think that it would have a
17 significant role to play in the -- in the -- in the
18 wildlife impact. Some of the things that we talked
19 about, the -- around access to the surge ponds or the
20 raw water pond, for example , would have to be
21 maintained, so avoiding that migratory birds would land
22 on the ponds and preventing access for -- for wildlife
23 to those ponds. So those -- those aspects would have
24 to remain.

25 But I -- I would think that the vast majority of
26 the site would -- the reclamation would advance and

1 mature and -- and that these -- these remaining
2 features would be fairly small on the footprint and --
3 and of very little -- very low consequence.

4 Q Thank you. Just one moment, please.

5 Mr. Houston or Mr. Kansas, just to clarify,
6 assuming the water quality is not suitable, would --
7 would keeping amphibians out of the ponds that remain
8 on the landscape be required as well?

9 A Yes, I would think so.

10 Q And could you clarify how this would be done?

11 A Pretty much the same as we described earlier. And this
12 is not my area of expertise, so I'm just repeating what
13 we talked about earlier, but pits -- pit traps to -- to
14 capture them. We'd have to relocate them to another
15 place off-site.

16 Q And would those pit traps be monitored daily or on a
17 weekly basis?

18 A I -- I'm not sure what's appropriate there. I would
19 think it would be a seasonal thing and that during
20 certain times of the year, it may be more appropriate
21 to monitor them on -- on a -- a more frequent basis and
22 then at other times of the year not -- not so much. So
23 I -- I think it's something that we would, you know,
24 develop some procedures around or some frequencies that
25 make sense given the number of amphibians that we're
26 finding and the seasonal cycles, et cetera.

1 Q Thank you very much, gentlemen. Those are all of my
2 questions.

3 THE CHAIR: Thank you, Ms. Kapel Holden.

4 It is just about 4:30, so I think that's probably
5 as far as we will go today. That means when we resume
6 on Monday morning, Mr. Lambrecht will be up, followed
7 by the Panel.

8 Before I break, I just want to confer with my
9 colleagues for a minute to see if there's any other
10 business, so just hold on.

11 And if Mr. O'Gorman and Mr. Matthews could join me
12 in the breakout room.

13 (ADJOURNMENT)

14 THE CHAIR: Okay. Apologies for the
15 delay.

16 Is there any other business we need to take care
17 of before we break?

18 Hearing none, we'll see everybody at 9 AM on
19 Monday morning. Thank you.

20

21 PROCEEDINGS ADJOURNED UNTIL 9:00 AM, NOVEMBER 30, 2020

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1 CERTIFICATE OF TRANSCRIPT:

2

3 I, Angela Porco, certify that the foregoing pages
4 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 27th day of November 2020.

10

11 <Original signed by>

12

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14 Angela Porco, CSR(A)

15 Official Court Reporter

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<hr/>	0	168 5639:25 5640:5	2.1 5580:25,26 5581:6 5692:24	22(d) 5729:24
<hr/>	0.5 5567:6 5678:10	17 5684:3 5694:21,25 5734:25	2.5 5563:6	227 5674:13
<hr/>	1	17th 5750:24	20 5586:19,25 5587:1,23 5588:1,5,11,12 5602:16 5603:9 5610:25 5620:25 5727:23 5728:25 5729:6,9,11 5730:11,17,20 5731:5,13,17 5732:17 5733:11, 14 5748:11,13	23 5558:18
<hr/>	1 5570:13 5590:25 5591:19 5650:13 5651:12, 13 5673:11 5675:10 5678:18 5680:20 5684:19 5696:23 5698:14 5700:1,3,16 5701:10	18 5558:18 5734:24	2002 5563:24	235 5627:5
	1(a) 5738:18 5739:5,7,13	18.2 5610:26 5611:4	2003 5568:7	23rd 5554:13,14
	1-S2.0- S0006320719307 797-MAIN 5661:9	181 5753:14	2006 5563:25 5568:5	24 5630:19
	1.1-3 5684:19	19 5558:22 5751:17	2008 5598:21	24-hour 5709:4
	1.78 5593:9	194 5558:5,6	2009 5598:24	241 5593:2
	1.8 5610:26	196 5680:20	2012 5552:19	25 5603:11 5680:18
	10 5581:26 5681:17 5682:6 5683:12,16,18 5705:16 5710:3 5715:8 5727:21 5729:15 5734:6	1976 5750:16	2014 5602:14,25 5603:4 5606:11	251 5582:2 5684:19 5696:23 5698:14 5700:1,3 5727:20 5742:19 5744:24
	10- 5597:23	198 5675:10	2016 5555:13 5602:15 5603:8,9 5606:11	25th 5724:8
	100 5564:26	19th 5554:12,13 5640:3 5645:11	2018 5750:24	26 5598:11 5736:15,16,17,21
	100-metre 5654:22	1:20 5665:23,26	2019 5573:10 5635:23 5636:1 5651:24	26th 5554:5,10 5556:7
	10:30 5597:23 5598:1	1:21 5669:21	2020 5555:13 5575:17 5666:3 5750:17 5757:21 5758:9	27 5666:3
	10:45 5598:2	1A 5558:4	2042 5558:22,23 5612:18	27-year 5732:5
	11 5602:25,26 5685:24 5686:1	1st 5558:24 5559:6,11 5750:17	2090 5612:19	277 5604:12
		<hr/>	21,000 5577:10	27th 5758:9
		2	2100 5753:18 5755:2	28 5587:8
		<hr/>		282 5603:26
		2 5670:21 5708:14,21 5719:4 5722:3 5729:23 5750:19		29 5680:9
		2(b) 5738:15		2nd 5674:9
		2,550 5708:6		<hr/>
		2-1 5575:23 5576:2 5582:10 5683:24 5692:24		3
		2-11 5575:23		3 5607:1 5620:4 5667:2 5700:17 5729:6 5743:22 5750:19
				3-metre 5605:12
				3.0 5729:11
				3.1 5568:2

3.5 5635:18 5636:2,13,14	5673:13,15,20,26 5680:18,25 5682:21 5690:13 5716:21 5729:23	5,000 5582:17 5584:11	<hr/>	9.7 5608:22
3.8 5587:10	5682:21 5690:13 5716:21 5729:23	5-1-2 5581:25	<hr/> 7 <hr/>	90 5564:20 5732:10 5734:22
30 5573:14 5729:15 5734:6 5737:13 5757:21	4.1 5736:15	5.3.4.4 5751:16	7 5567:12 5627:1 5628:3 5638:3 5647:10 5705:10 5710:3 5715:8	907 5724:11
30-metre-or-so 5564:17	4.1(1)(a) 5738:21	5.3.9 5742:20	70 5598:18 5599:6 5734:21 5735:24	916 5560:17
300,000 5569:21	4.1(1)(b) 5737:15 5738:17	5.5.3 5735:12	73.7 5571:10	92 5732:10
308 5674:13	4.1(2) 5738:20	50 5599:1	735 5587:9	920 5575:7,10
31 5700:13,22	4.10 5626:26	5320 5724:12	74 5570:21	921 5620:10,12
313 5579:12 5751:24 5753:2, 24	4.2 5743:22	5321 5724:12,15, 17	75.4 5571:22	922 5661:6,8
317 5753:3,5,9,24	4.2-1 5678:19	54,000 5715:9	771 5674:11	923 5721:2,5
33 5744:3	40 5573:14 5595:4 5602:14	542 5736:14 5743:21	78 5592:21 5593:3	93 5732:11
34 5744:11	400 5658:26 5659:12	545 5696:16	7th 5556:26	95 5599:1
35 5558:1,10 5747:14,17,23	41 5598:19 5599:7	55 5729:22	<hr/>	99 5686:6 5696:24
350 5708:12	42 5571:5 5627:1 5628:3 5638:3 5675:9 5678:2,17 5680:9,20 5708:1,14,20 5729:5,10 5735:11 5743:12 5751:15	56 5572:3	<hr/> 8 <hr/>	9:00 5550:21 5757:21
36 5571:17	44 5571:5 5627:1 5628:3 5638:3 5675:9 5678:2,17 5680:9,20 5708:1,14,20 5729:5,10 5735:11 5743:12 5751:15	57 5572:17 5628:3	8 5603:26 5618:19,23 5627:3,4 5633:9 5753:14	<hr/> A <hr/>
360 5575:14 5593:1 5670:17 5683:24	45 5578:4 5705:15	57.2 5608:25	81 5684:19	A-1 5750:20
365 5590:20	468 5581:26 5582:2	571 5635:14 5647:19,23	83 5575:15	A-2 5638:6
369 5750:20	47 5698:14 5700:3	58 5572:24	84 5678:3,4	A-WEIGHTED 5711:14
38 5646:26 5678:18 5703:11, 17 5706:7,16,21, 25 5707:14,17 5711:7,17 5715:2,8,20,23 5718:9 5721:20, 22 5722:9 5731:13	4:30 5757:4	59 5629:10	85 5670:17,18 5678:4,7 5685:22	A30 5639:9
3:15 5726:12	4D 5564:4	591 5750:26	86 5639:25 5683:25 5694:25	A4-6 5680:21
3:30 5726:13	<hr/> 5 <hr/>	5th 5647:21	876 5640:4	abilities 5659:21
3D 5564:4	5 5558:18 5656:23 5700:4 5711:18 5712:3 5727:21 5732:13 5735:12 5742:19 5743:12 5751:16	<hr/> 6 <hr/>	89 5698:9 5708:2 5713:5 5750:20 5753:14	ability 5565:6 5623:21 5629:23 5657:26 5658:2 5748:17 5758:7
<hr/> 4 <hr/>		6 5603:9 5615:20 5618:19,23 5732:13 5735:25	<hr/> 9 <hr/>	absolute 5594:1
4 5552:15 5553:24 5554:24 5582:2 5627:17		6.1.2 5742:26	9 5554:1 5729:6, 11 5731:12 5735:12 5743:12 5751:16 5757:18	absolutely 5566:2 5655:12 5660:20 5720:1
		6.14-1 5753:3,25		abstract 5650:24 5660:16 5661:4
		63 5729:23		abundance 5751:17,19
		66 5667:14		abundant 5609:11
		67 5735:13		abuts 5604:9
		68 5743:12		acceptable 5552:16 5577:19
		69 5615:20 5735:25		

5591:3 5647:3 5663:22 5678:16 5740:6 access 5643:2 5681:19 5723:15 5740:22 5755:19, 22 accommodate 5551:8 accordance 5580:10 5706:20 account 5645:9 5680:26 5681:1 5682:19 5689:14 5702:25 5703:18 5733:3,5 accounting 5645:8 accounts 5682:13 accurate 5566:7 5758:4 achievable 5567:1 achieve 5564:20 acid 5626:24 5627:9 5637:2 acidic 5628:10 acidification 5627:13,23 5628:22 5630:1,7 5637:10 acidity 5626:5, 11,12,14,16,20,21 acknowledge 5554:10 5565:24 5688:11 acoustic 5602:11, 14,15,17 acquire 5643:21 acquiring 5673:25 Act 5552:20 5580:15 5601:22	5642:12 5665:4 Act's 5579:22 acting 5555:22 action 5668:24 5699:18 active 5558:17,20 5559:12,17,26 5560:2 5616:3 5692:14 5741:20, 22,25 5753:17,22 5754:2 actively 5558:25 5691:21 activities 5690:1 5691:5 5692:12, 18 5695:17,23 activity 5559:22 5560:9 5690:2 5702:10,15,19 5709:12,15 5715:15 5716:10 actual 5561:13 5562:10 5613:1 5614:12 5688:24 5702:19 5721:15 5734:24 adapt 5752:4 adaptive 5661:22,26 5696:22 5733:12 5740:12 5744:16 add 5611:20 5624:21 5671:22 5673:5 5688:3 5690:9 5701:12 5702:2 5705:1 5706:15,22 5712:15 5714:23 5718:17 5723:12 5738:3 5749:15 added 5731:12 Addendum 5575:14,16 5579:11 5581:26 5593:2 5615:20	5727:21 5729:23 5735:25 5751:24 5753:3,14 adding 5611:23 5748:19 addition 5553:19 5563:3 5609:4 5616:13 5671:6 5723:4 5735:15 5750:23 additional 5565:4 5602:16 5664:6,26 5706:18 5745:26 5752:19 address 5598:12 5600:25 5705:18 addressed 5554:19 5693:15 adds 5610:25 adequate 5678:11 5733:12 adequately 5736:23 adjacent 5559:7 5622:17 5624:2, 7,11 5625:1 5629:1,2 5633:2 5718:22 5751:13, 23 5752:1 5754:19 ADJOURNED 5665:26 5757:21 ADJOURNME NT 5598:4 5726:14 5757:13 adjustment 5709:3,7,22 administrative 5569:5 administratively 5658:9 admittedly 5748:21	adopt 5591:10 adopting 5573:21 5648:18 5662:21 adoption 5661:21 adult 5603:11 5737:11 advance 5551:6 5687:7,9 5755:26 advancements 5658:4 advances 5662:5 advantage 5554:17 5573:16 adverse 5588:7, 14 5590:26 5591:20 5594:2 5737:19 5738:26 5739:18,25 AER 5646:26 5650:17 5663:13 5666:9,10,16,17, 18,19,20 5670:13,14 5671:24 5697:9, 22 5703:11 5706:9 5715:2 5718:14 5721:5 5727:13 AER's 5550:26 5553:18 5727:3 affect 5600:13 5627:9 5637:16 5656:2 5755:3 affected 5697:15 5728:15 5729:17 5730:25 5734:8, 12 5744:23 5751:6,10,21 affecting 5570:23 5571:12 affects 5563:16 affinity 5582:7 5585:15	Affirmed 5557:17,19 5670:3,5 afforded 5553:1 afternoon 5666:3 5670:12 5727:12 5738:10 agencies 5581:7 Agency 5650:17 aggregate 5578:19 agree 5560:3 5562:17 5563:4 5565:15,22 5566:15 5569:6, 12,24 5571:10,11 5573:25 5576:13 5634:18 5645:18, 21 5661:23 5723:9 5740:15 agreed 5570:21, 22 5594:1 5740:21 agreement 5632:12 5746:6 agreements 5632:12 Agudelo 5555:25 5668:9 ahead 5552:2 5598:15 5604:19 5610:15 5650:23 5708:22 5726:4 aid 5571:4 5604:5 5606:13 5607:1 5620:4 5650:13, 18 5700:16 5716:21 5733:15 aimed 5636:16 air 5557:20 5559:19 5565:15, 19 5566:15 5567:4,7 5571:19,23 5572:9,12,21
---	--	--	---	--

5574:9 5575:11 5576:14 5585:20, 23 5620:13 5625:12 5627:13 5630:3 5635:20 5636:3,7,10,11, 16,18,21 5645:19 5661:9 5670:6,20 5671:12 5678:10, 11,23 5682:3 5696:18,21,24 5697:2,4,11,12, 18,26 5698:2,6 5714:15 5721:6	alongside 5641:6 alternative 5670:22,26 5671:14 5672:4 amber 5656:26 5657:17 ambient 5678:14 5696:24 ambiguity 5722:4 American 5592:3,4,9,20,21, 25 5593:10,22,23 5594:12,18 5595:23,24 5596:7,8 5597:3, 5 5732:22 ammonia 5670:22 amount 5555:3 5614:4 5624:3 5633:15 5641:16 5649:16 5656:16 5690:3 5701:22 5719:21 5731:5,9 5734:26 5745:13 5747:24 5749:12 amounts 5680:17 5684:16 amphibian 5605:11 5606:10 5607:5 5614:24 5615:5,12,17 5617:22 5618:1 5619:2 amphibians 5590:1 5602:25, 26 5603:5 5605:15 5607:8 5609:7 5613:26 5614:3 5615:10 5616:2,15 5617:11 5618:2, 14,18 5619:3,9, 21 5620:13 5756:7,25	analogue 5587:25 5731:6 analysis 5625:4 5674:20 analyzed 5622:24 and/or 5677:15 Andrin 5735:1 Andrén 5729:13 5734:3,4,21 ANFO 5670:23 5671:1,14,16,26 5672:4 Angela 5758:3,14 animals 5600:18 5606:6 5745:16, 26 5746:25 5747:7 5748:1 annoyed 5703:9 5706:5 answering 5620:16 5702:7 5742:8,16 5754:21 answers 5638:25 5689:15 5699:22 anthropogenic 5600:12 anticipate 5586:11 5719:11 anticipated 5611:16 5672:3 5698:11 5721:17 5735:20 5736:6 anticipating 5626:6 5726:25 apocalypse 5651:10 apologies 5660:24 5739:12 5757:14 apologize 5627:4 5630:16	apparently 5582:22 5631:25 5657:11 appeared 5615:15 appears 5647:22 5676:21 5699:23 appendix 5677:5 5684:19 5750:20 applicable 5681:26 5703:7 applicant's 5552:12 application 5627:8,25 5637:12 5641:25, 26 5642:4,12 5663:7 5684:15 5693:19 5740:24 applications 5566:21 applicator 5684:11 applied 5581:20 5583:5 5584:19 5585:2,8 5591:14,16 5593:20 5594:5 5595:15,20 5596:5 5599:3 5642:12 5680:16 5681:9,24,26 5682:2 5685:11 5709:4 applies 5731:17 apply 5555:21 5599:4 5680:25 5691:14 5695:2 5711:18 appreciable 5647:6 approach 5557:1 5582:11 5583:15 5584:3,14,22 5585:3,12	5587:16,21 5591:8,9,10,11, 12 5593:12 5663:11 5682:1 approval 5663:7 5671:25 5672:8 5674:4 5677:11 5693:7 5694:3,15 5695:1,11 5705:4 5716:24 5722:26 5723:19 5740:16 approximate 5603:13 approximately 5564:23 5569:21 5705:15 5708:6 5710:8 5713:11 April 5555:12 5564:22,25 AQ 5661:8 5716:21 AQ#3 5620:12 AQ#4 5721:5 AQ#7 5575:10 AQ7 5571:4 aquatic 5579:8 5583:22 5584:16 5590:6 5601:5,15 5735:18 5737:10 aquatics 5740:20 area 5558:17,20 5559:7,10,11,16, 18,20,25 5560:7, 9 5564:10,17 5569:9 5573:12, 13 5586:26 5587:2,3,9,12 5589:13 5603:13, 23 5604:8,22 5605:9 5607:4 5609:12 5610:5, 21 5615:8 5622:13,14 5628:23 5629:4,5 5630:22 5632:3,9
--	---	---	--	--

5633:11 5637:3 5646:20 5655:6 5656:13 5662:6 5674:20 5678:26 5680:2,5 5681:10,22 5682:24 5689:19 5691:11,26 5692:15 5698:24 5704:1 5705:25 5706:3 5714:4 5716:13 5726:24 5728:8,10 5730:10 5732:9 5738:5 5744:9,22 5745:9,11 5746:19,21,22 5747:19 5751:3, 4,20 5752:21 5756:12	arrived 5716:15 arrives 5708:6 Arruda 5666:16 article 5651:22 artificial 5650:2 5651:8,15 as-required 5680:7 aspects 5588:4 5755:23 aspirational 5752:11 aspirations 5664:23 asserts 5555:17 assess 5625:8 5727:24 5728:3, 25 assessed 5626:24 5627:14 5711:9, 10 assesses 5703:11 assessing 5703:8 5706:10 5715:21 5718:15 assessment 5552:20,21 5553:7 5557:23 5559:20 5563:14 5566:7 5567:12 5568:11 5569:25 5576:5 5579:26 5582:8 5583:13, 18 5586:1,4,23 5590:11,12,14 5591:5,17,21 5595:6,21 5596:16,18 5601:2 5606:21 5619:16,19 5625:12 5627:11, 25 5637:3,12 5670:9 5678:23 5682:3 5703:19 5706:4,8 5711:8	5715:2,19 5733:2,4,6,12 5739:8,14 5743:24 5750:14, 22,25 5751:7 5752:16 5755:15 assessments 5680:24 5681:6 5722:8 5726:23 assessors 5578:11 assign 5634:11 assigned 5642:20,21 assigning 5731:14 assist 5630:6 5742:8 Association 5648:8 5667:25 5669:1 assume 5559:3 5566:6,8 5567:21 5569:19 5671:11 5710:19 assumed 5559:1 5564:24 5709:22, 26 5710:5,13 5714:25 assumes 5558:25 5565:1 assuming 5590:19 5661:25 5710:9 5756:6 assumption 5559:9,13 5564:19 5591:18 assumptions 5590:15 5591:2, 23 5592:15 5594:3 assure 5647:11 asthma 5569:26 5573:2	atmosphere 5656:15 Attachment 5729:23 attack 5691:15 attempt 5600:18 attention 5592:17 5595:8 5629:26 attract 5643:22 5746:25 attracted 5651:26 5652:2 5745:16,20 5746:26 attraction 5651:20,21 5661:18 attribute 5699:8 attributed 5687:26 audio 5550:24 5617:24 5729:6 August 5636:15 5750:24 author 5660:23 authority 5615:6 5617:13 authors 5572:7 5661:14 autonomous 5677:15 availability 5727:25 5728:4, 24 avians 5593:14 avoid 5597:2 5699:19 5712:22 5713:2 5748:7 avoidable 5597:15 avoiding 5755:21 avoids 5592:18	aware 5569:19 5609:24 5615:23 5652:3 5657:21 5675:3,7 5686:24 5703:5 5724:21, 22 5750:14
B				
				back 5558:14 5559:20 5566:13 5567:2 5584:1 5599:25 5609:19 5617:14 5631:1 5634:9 5635:19 5640:10 5652:6 5656:6,21 5669:22 5675:8,9 5683:13,23,24 5689:3 5690:24 5692:24 5718:18 5726:15 5740:2 5748:19 back-and-forth 5560:18 backfill 5585:19 5586:13 5613:7 5753:6,26 5754:11,15,20 backhoe 5683:4 backhoes 5676:4, 7 5683:5 bad 5727:1 Badgers 5751:26 balance 5555:3 5641:20 Baldy 5574:1 ball 5591:4 ballpark 5569:22 balsam 5655:13 Band 5667:4 5708:17 bar 5573:23 Barata 5620:21, 22,23 5621:1

5626:18 5627:6, 26 5628:2,8,17 5629:13,16,22 5630:18,20 5632:4 5634:17 5635:13,18 5637:25 5639:2, 15 5667:15	5659:9 5662:9,21 5663:2,11 5685:13 5712:16	benches 5675:1	5685:6 5686:10, 15 5688:18,22 5689:16 5690:13, 21 5691:18 5693:7,8 5694:3, 4,15,16,22 5695:1,2,11,12, 24 5696:17,24 5697:1 5698:9,14 5700:1,4 5705:5 5708:4 5710:12 5713:5 5716:15, 23,25 5721:11 5722:14,26 5723:1 5724:7, 21,22 5728:1,12 5729:11,24 5730:2,10,22 5732:25 5733:8 5735:14 5736:2, 22 5737:17,24 5738:24 5739:16 5742:20 5743:1, 6,13 5744:19,26 5746:12 5748:6, 7,24 5749:26 5750:14,21,26 5751:8,17,25 5752:4,22 5753:15 5755:12	Bilawchuk 5557:18 5670:4 5701:11 5702:2,4 5705:18 5706:14, 22,24 5709:6 5710:17 5711:1 5712:14 5714:23 5716:4,22 5717:17,24 5718:1 5721:19 5722:5,7 5723:12
Barbara 5668:14 5726:7 5727:13	basis 5592:9 5618:4 5678:13 5680:7 5703:13 5715:4 5723:22 5756:17,21	beneficial 5749:20,25	bio 5582:18 5583:3	binary 5588:3
bare 5690:17	bat 5652:17 5655:15 5664:15	benefit 5662:6 5700:15 5707:8 5711:5	binder 5658:13	bio 5582:18 5583:3
bark 5655:14	bats 5652:24 5653:2,6,24 5654:26 5655:5, 7,9 5656:4	Benga 5552:3 5553:2,4,6,26 5554:16,23 5556:11,19 5557:24 5559:3, 10 5569:25 5575:20 5576:16 5577:22 5578:2 5579:14,17 5586:19 5587:16 5591:12 5597:1 5598:7 5599:26 5602:8 5605:14, 22 5609:2,25 5610:3,19,25 5615:8 5617:21 5619:16 5620:21 5621:14 5623:6, 15 5624:6 5625:16 5628:13, 26 5629:17 5631:16,21,23 5632:11 5633:23, 25 5635:19 5636:18 5637:21 5639:23 5642:21, 26 5643:12 5644:17 5647:20 5648:18 5649:4 5650:7 5658:21 5661:21 5663:6 5664:6 5666:22 5670:10,20,26 5671:13,26 5672:18 5673:11, 24 5674:3,16 5675:3,23 5677:11,20 5679:2,8 5680:9, 21,22 5681:4 5684:6,21,25	bioaccumulate 5579:8 5583:20 5619:8	bioaccumulation 5578:7,18 5579:23 5580:9 5581:14,24 5582:3,7,14,15 5583:1,7 5584:4, 6,18,23,25 5585:5,9 5594:26
Bartlett 5557:16 5578:7,8,10 5587:5,7 5600:4 5610:12,14 5611:8,21,23 5612:7 5614:18, 21 5615:23 5616:7 5632:4,5, 26 5637:1,25,26 5638:11 5639:8 5670:2	Bauman 5557:17 5610:7,11,12,16 5621:26 5622:2,7 5624:17,20 5625:3,6,15,23 5626:19,22,23 5627:8 5628:8,11 5630:14,24 5631:8 5637:1,4, 18 5639:2,9 5653:9 5655:13 5670:3	Benga's 5553:15, 19,20 5554:7 5577:13 5647:24 5664:26 5665:4 5670:19 5673:12 5679:12 5684:10 5686:8 5696:21 5706:12 5727:23 5743:24 5751:7	bioaccumulative 5580:6,16,18 5581:12 5582:18, 21 5583:13,14, 17,19	biochemical 5586:8
based 5559:12 5563:6 5564:15 5566:10 5568:16 5569:4,23 5574:21 5582:9 5584:15 5585:12 5586:7,11 5591:15 5592:14 5593:21 5595:25 5628:21 5703:11 5710:10 5715:3, 21 5721:17 5728:6,20 5734:1 5749:12	bay 5641:3,6	Berdina 5667:26	bioconcentrate 5580:2	bioconcentrates 5583:21
baseline 5627:10 5636:8 5728:5 5738:4	BCF 5583:17	best-quality 5607:11	bioconcentratio 5579:25 5583:19	bioconcentration 5578:8,20 5579:20 5580:4, 9,26 5581:6,13, 22 5582:9,16,23
basic 5589:12 5630:11	bear 5714:1 5728:9	BEVCO 5638:16	big 5605:3,7	
basically 5563:24 5648:9, 22,26 5649:5,7 5653:12 5657:15	bearings 5635:16	big 5605:3,7	bigger 5605:2 5685:25 5718:24	
	beat 5688:10			
	beetles 5651:19			
	begin 5746:13			
	beginning 5621:9 5625:16 5744:25			
	behalf 5648:20			
	behaviour 5651:17 5657:2			
	believed 5591:15 5646:7 5705:13			
	believes 5730:11			
	belt 5644:7,9			

5583:4,11
 5584:5,13,21
 5585:1,16
biodiversity
 5747:14
bird 5593:18
 5744:1,15
 5749:23
birdhouses
 5664:16
birds 5557:21
 5590:24 5595:3,
 11,15 5596:13
 5597:13 5618:9
 5619:1 5670:7
 5735:9,16,22
 5737:6,11
 5741:1,6,10
 5743:22 5744:6
 5748:9 5755:21
bit 5560:18
 5571:5 5580:22
 5587:5 5594:15
 5600:24 5601:13
 5607:22 5614:26
 5620:18 5628:1,6
 5630:25 5636:24
 5641:12 5650:14
 5674:20 5683:25
 5713:23 5726:17
 5737:3
Black 5629:18
 5630:12,15,26
 5631:1,3,8,23
 5632:3 5633:22
 5637:20 5638:21,
 22,26
Blairmore
 5570:1 5573:5
 5574:19 5595:3
 5616:26 5634:26
 5635:4,10,20
 5647:13 5654:21
 5655:10 5656:9
 5696:25

blast 5671:8
 5714:6,8
 5715:10,13
blast's 5715:9
blasting 5670:24
 5671:7,26
 5672:2,4,6,12,14,
 15,19 5673:1
 5713:10,16,18,20
 5714:2,3,7,14,19
 5715:23 5716:2,
 8,10,13,19,26
 5717:8,10,22
 5718:11 5719:4
blasting-related
 5716:16
blasts 5671:16
 5713:11,13,15,24
 5714:26 5715:12
block 5646:15
blocks 5690:26
blow 5683:25
blowing 5741:21
blue 5604:15
Bobbi 5570:14
bobolink
 5745:19
bodies 5601:14
 5608:8 5741:11
body 5608:10
 5644:23 5655:17
 5729:19 5733:9
 5734:10
Bolton 5666:5
boom 5693:26
bottom 5572:17
 5580:7 5615:20
 5629:16 5676:18
 5708:24
boundaries
 5642:11 5733:1
 5751:1
boundary
 5587:4,8,13

5607:12 5632:11,
 14,16,25 5682:7
 5718:21 5719:3
 5748:13
Boxing 5554:11,
 22 5556:8
Boyce 5668:21
Bradley 5669:7
break 5597:24
 5598:1 5600:2
 5665:22 5709:25
 5720:10,16
 5726:9,10,12
 5757:8,17
breakout
 5757:12
breaks 5586:14
breathe 5571:24
 5574:10
breathed
 5562:10
breathing
 5560:24 5561:24
breeding 5601:6
 5602:2,9,23
 5605:20 5607:13
 5608:7,9,19
 5617:4,5,15,18
 5744:2 5748:8
breeding-site
 5601:16,23,26
 5617:14
briefly 5558:1
 5573:3 5650:22
bright 5649:26
brighter 5648:14
bring 5627:7
 5633:6 5638:3,7
 5696:15 5714:16
bringer 5651:10
bringing 5633:4
 5653:15 5698:23
Brinker 5554:20
 5666:23

broad 5562:14
 5731:18
broadcast
 5551:4 5691:11
brought 5608:6
 5616:13 5714:1
 5742:11
brown 5638:20,
 22 5652:17
 5732:24
Brownlee
 5648:20 5649:2
buffer 5655:10
 5656:3,9
buffers 5654:20,
 22
bug 5651:25
bugs 5652:3
build 5595:12
 5596:12,13
building 5615:16
 5664:16 5678:12
 5679:24,26
 5693:4,10
 5701:24 5703:2
buildings
 5697:15 5724:21,
 23
bulb 5651:26
bulbs 5657:16
 5661:21
bullet 5738:15
bunch 5588:10
buried 5754:13
Burnco 5645:21
bush 5681:17
business 5554:1
 5620:3 5621:12
 5636:25 5643:21
 5644:4 5658:9
 5664:4 5665:16
 5757:10,16
buttons 5589:25

by-product
 5622:25
by-products
 5622:21

C

C-WEIGHTED
 5711:13
cabin 5724:24
 5725:3,6,10,23
cables 5674:26
 5675:1
calculation
 5676:19
calculations
 5595:8 5718:3
calculator
 5598:22
calendar
 5556:12
Calgary 5645:13,
 25 5758:8
California
 5737:9
call 5558:4,16,20
 5571:4 5603:3
 5622:16 5630:5
 5713:18 5725:19
called 5564:2
 5568:25 5570:17
 5664:15 5703:9
calling 5602:20,
 21
CALMET
 5564:3
camera 5551:1
Campbell
 5666:17 5669:1
Canada 5568:15
 5598:21,23,24
 5615:25 5667:8
 5668:26 5669:1
 5700:11 5703:1,

7,8 5705:8 5706:3 5718:5 5732:22	5728:5,6 5730:21 5732:1	5556:20 5557:7 5573:7 5574:11, 26 5575:2,4,6,8, 25 5576:10,19 5577:4,14,24 5585:26 5586:18 5590:8 5592:6 5595:5 5596:15 5597:26 5598:5, 8,14,16 5599:9, 11,22,24 5600:3 5612:23 5613:4 5614:6,7 5620:6, 8,9,11,19 5634:8, 11,16 5639:15,20 5647:24 5659:26 5660:2,9,12,19, 21,25 5661:1,3,5, 7 5665:19,21 5666:5 5669:22 5715:25 5720:7, 14,22,25 5721:1, 3 5725:26 5726:2,4,8,10,15 5727:11 5740:1 5757:3,14	Chapter 5667:22 5668:18 characteristics 5591:16 5701:7 characterize 5663:12 characterized 5700:8 charges 5714:8, 11,12 check 5570:2,7,9 5584:17 5585:25 5605:4 5671:20 5675:20 5683:14 5687:19 checking 5583:7 chemical 5582:6 5583:10 5584:20 5585:13 5754:16 chemicals 5579:15,17 5592:13 5596:21, 24 chemistry 5586:7,11 Cher 5631:5 Chernozem 5630:12 5631:2, 4,5,6,8 5638:20, 26 Chernozemic 5638:15 Chernozems 5629:18 5630:15 5631:23 5632:3 5633:22 5637:21 5638:21 Chief 5667:4 chime 5630:9 choke-fed 5700:2 5701:7,8 5703:21,23 choose 5554:12 5644:6,8	chose 5679:3 5681:4 CHPP 5678:6,24 5679:14 5680:3 5687:1 5708:17 Christmas 5551:21 5556:14 chunk 5664:2 chute 5694:13 5701:14 5708:11 CIA 5647:19 CIAR 5575:7,10, 14 5582:2 5593:1 5598:18 5599:6 5620:10,12 5627:1 5628:3 5635:14 5639:25 5640:4 5647:19, 23 5661:6,8 5670:17 5674:11 5675:9 5678:2,17 5680:9,20 5683:24 5684:19 5696:16 5698:9, 14 5700:1 5708:1,14 5713:5 5721:2,5 5727:20 5729:5,10,22 5735:11,24 5736:14 5742:19 5743:12,21 5744:24 5750:20 5751:15,24 5753:2,14 circles 5607:7 circumstance 5698:23 5699:4, 16 circumstances 5691:8 5698:20 city 5645:13,16, 25 5758:8 clad 5701:24 cladding 5679:26 5694:10
Canada's 5736:19,20 Canadian 5556:22 5579:21 5580:14 5664:8, 20 5667:20 5668:20 5673:16, 22 cancer 5566:9 capabilities 5607:16 capture 5623:5 5751:4 5756:14 captured 5551:2 5619:22 5751:2 capturing 5671:8 car 5684:20 5701:4,15,16,19 carbon 5586:14 carcinogens 5566:6 care 5597:16 5697:17 5757:16 careful 5696:12 carefully 5714:9 carried 5583:12, 18 5673:22 carry 5720:12 cars 5699:5 5700:7 5708:5 Carscallen 5620:23 case 5566:22 5588:16 5590:17 5595:23 5608:6 5623:20 5626:8 5627:8 5672:7 5681:19,26 5682:22 5683:10 5711:16,24 5714:22 5716:6	cases 5588:22 5627:25 5637:12 catch 5616:8,18, 19 5689:11 5724:16 Categories 5750:19 categorize 5663:11 cattail 5605:13 catting 5633:1 cattle 5632:7,24 caucusing 5578:15 caught 5623:7,9 causing 5706:19 5710:25 cautionary 5733:19 CEAA 5552:19 cell 5681:2 cells 5561:12 central 5681:15 5737:8 centre 5603:12, 13 5696:19 5697:4 5732:26 CEPA 5579:23 5580:3,8 5581:3 5582:24 5583:16 CERTIFICATE 5758:1 certify 5758:3 cetera 5562:6 5641:13 5646:15 5658:19 5659:7 5756:26 chain 5578:20,22 5583:22 Chair 5550:23 5551:25 5552:2 5555:7,10	5556:20 5557:7 5573:7 5574:11, 26 5575:2,4,6,8, 25 5576:10,19 5577:4,14,24 5585:26 5586:18 5590:8 5592:6 5595:5 5596:15 5597:26 5598:5, 8,14,16 5599:9, 11,22,24 5600:3 5612:23 5613:4 5614:6,7 5620:6, 8,9,11,19 5634:8, 11,16 5639:15,20 5647:24 5659:26 5660:2,9,12,19, 21,25 5661:1,3,5, 7 5665:19,21 5666:5 5669:22 5715:25 5720:7, 14,22,25 5721:1, 3 5725:26 5726:2,4,8,10,15 5727:11 5740:1 5757:3,14 Chairman 5578:1 5597:14, 22 5620:17 challenge 5685:12 chance 5557:11 5574:23 5650:19 5724:16 change 5586:19 5588:16 5600:15, 17 5626:16,21 5651:6 5658:18 5733:4,11 5735:13 5736:19, 20 5750:13 5751:16 changed 5682:4, 9 changing 5671:9 5720:8		

claims 5553:18	5635:9 5646:7	column 5558:10	5573:17 5574:4,	compartments
clarify 5673:14	5665:13 5669:1	5631:3,7 5670:22	22 5602:8 5641:5	5593:14
5727:23 5731:25	5674:22 5675:3	5673:10 5681:3	5644:17 5648:18,	compatible
5732:21 5741:17	5678:5 5688:1	5684:1 5692:26	24 5662:3	5703:13
5747:23 5756:5,	5693:4,12,23	combining	5672:21 5684:9	compelled
10	5694:2,5,14	5607:4	5717:7 5749:26	5651:3
classified	5700:6 5701:7,	COMMENCED	committed-to	complaint
5576:23	15,18 5708:5	5550:21 5669:21	5721:20	5706:11,13,16,25
clean 5571:24	5747:15,16,20	comment	committee	5707:2,3 5711:26
5641:3	5750:13,14,16,	5560:21 5568:13	5573:18 5672:22	5722:11,12,23
clear 5574:8	17,18,19 5752:7	5570:18 5619:11	5673:5	5723:2
5593:22 5599:20	coal-processing	5621:26 5632:6	committing	complement
5609:17 5648:11	5640:14,21	5649:23 5658:14,	5649:6 5658:20	5748:26
5672:7 5679:20	5641:7 5678:7	15 5677:20	5661:25 5679:12	complete 5555:4
5722:6	5679:4 5693:3,9,	5693:7,16	common 5630:17	5726:19 5758:4
cleared 5653:4	13	5694:3,15	5674:24 5745:18	completed
clearing 5653:13	Coalition	5695:1,8,11	commonly	5552:21 5559:6
5748:7	5667:24	5705:4 5710:17	5750:15	5689:21,22,26
click 5626:23	coarse 5733:6	5716:24 5737:22	communicate	5754:24
client 5624:14	Coast 5685:8	5738:11 5749:4	5557:10	completely
clients 5570:14	5725:8	comments	communicating	5679:8 5693:12
climate 5651:6	cobalt 5613:18	5555:8 5556:21	5707:1	completes
5658:18 5668:23	code 5631:11	5572:21 5734:15	communications	5599:10
5736:19,20	coding 5631:17	commercial	5673:2	complex 5682:14
Clinic 5696:20	Coleman	5665:11	communities	5741:25
close 5556:25	5647:16	commissioned	5627:21 5637:8	complexes
5599:17 5655:17	colleague	5684:20	5651:3 5705:24	5617:1
5656:11 5694:13	5581:25 5600:5	Commissioner	5718:22	compliance
5719:12 5730:23	5726:6	5666:6,7	community	5566:26 5707:15,
closed 5612:2	colleagues	commit 5617:21	5571:9,20	16,23
closer 5635:9	5588:18 5757:9	5673:24 5741:3	5573:11,17	complicated
5656:11 5657:11	collect 5754:10	commitment	5574:5,7,14,22	5657:21,23
closest 5719:3	collection	5644:18 5657:14,	5664:1,3	5658:22
closing 5731:4	5636:20 5681:1	19 5664:17	5672:22,24	complying
closure 5611:10	colonize 5609:8	5673:10 5674:1	5673:3 5696:25	5582:11
5619:20	colour 5648:16,	5684:4 5722:21	5697:22 5723:18	component
co-op 5632:13	17 5649:18	5723:4	company	5689:21 5728:20
coal 5558:15,17	5656:21 5657:17	commitments	5574:15 5644:5,	components
5572:12,22	5658:1	5575:26 5658:16	6,8 5663:26	5580:6 5601:2
5577:9 5621:5	coloured	5659:8 5663:8	5696:5,7 5712:24	5728:22 5729:1
5622:22 5623:1,	5649:19	5670:20 5686:9	compare	5730:8,9 5732:20
16,23 5624:1	Columbia	5693:18 5722:14	5711:20	5743:25
5626:4,10	5601:1,4,9,13,17,	5740:24	compared	compound
5634:19,21,22	25 5603:10,16,20	commits 5721:11	5646:25 5679:11	5580:5 5582:8
	5605:16 5608:7	committed	5707:13 5717:14	5583:19

compounds 5578:21 5583:5, 12 5584:26 5585:12,14,17	5651:1 5659:26 5674:3 5720:22, 24	conducted 5573:9 5684:25 5713:14 5728:7	5557:10 5628:22 5662:22 5732:25	consultants 5553:5
comprehensive 5707:7 5711:19 5721:21 5722:21 5723:2,13,17	concisely 5648:23	conducting 5692:18	considered 5562:19 5579:25 5582:18 5583:13, 14 5585:6 5594:23 5595:26 5625:12 5627:23 5637:10 5675:25 5691:9 5724:2 5728:13 5732:17 5752:13,20 5755:12	consumed 5619:14
Compression-ignition 5673:17	conclude 5553:24 5575:13 5577:1 5609:25 5610:3,19	confer 5757:8	5594:23 5595:26 5625:12 5627:23 5637:10 5675:25 5691:9 5724:2 5728:13 5732:17 5752:13,20 5755:12	contact 5551:5 5561:12 5741:1
comprised 5752:6	concluded 5576:17 5587:16 5601:8 5647:2	confident 5583:12 5679:8 5685:6	5691:9 5724:2 5728:13 5732:17 5752:13,20 5755:12	contacting 5740:5
computers 5612:11	concludes 5577:23	confined 5623:20	considers 5580:15 5697:1	contained 5693:3
concede 5661:15	conclusion 5577:13,15 5611:14	confines 5715:18	consisted 5584:22 5602:11	contaminants 5565:25,26 5578:21 5613:26
concentrate 5578:23 5583:23	conclusions 5561:1,6,18 5575:21 5682:3,8 5744:4	confirm 5554:2 5635:26 5696:8 5697:25 5721:15 5722:20	consistency 5663:15	contamination 5737:21 5739:2
concentrated 5578:22	condition 5574:1 5594:6 5671:25 5672:9,10 5674:4 5677:11,20 5693:8,17 5694:3,16 5695:2,6,7,12 5705:5 5711:11 5716:24 5717:2,3 5719:16,24 5722:26 5729:19 5733:9 5734:10 5740:16	confirmation 5570:9	consistent 5583:4 5584:26 5721:16	content 5567:19 5711:12
concentrates 5583:22	connect 5754:13	connect 5754:13	constructed 5693:8,11 5694:4,16	context 5562:4 5576:6 5632:23 5633:3 5687:13 5710:7 5734:23 5740:13
concentrations 5565:18 5566:24 5578:19 5590:18 5591:16 5592:13 5613:15 5680:16 5681:21	connecting 5699:2	connecting 5699:2	construct 5693:8,11 5694:4,16	contingency 5679:23 5695:23, 24
conceptual 5592:15 5595:7	connection 5655:23	connection 5655:23	constructing 5609:9 5641:6	continue 5557:14 5565:5 5566:19 5598:5 5639:22 5685:18 5689:9 5727:5
concern 5574:16 5579:15,18 5592:13 5596:21, 24 5624:15 5672:24 5699:13 5706:19 5707:5, 12 5718:24 5719:20,21,23 5720:5	connectivity 5653:12	connectivity 5653:12	construction 5603:18 5645:19	continues 5640:11
conceptual 5592:15 5595:7	consequence 5552:18 5756:3	consequence 5552:18 5756:3	construed 5565:16 5566:16	continuing 5673:9 5746:20
concern 5574:16 5579:15,18 5592:13 5596:21, 24 5624:15 5672:24 5699:13 5706:19 5707:5, 12 5718:24 5719:20,21,23 5720:5	conservation 5605:25 5613:10 5668:5	conservation 5605:25 5613:10 5668:5	consult 5614:5 5615:8 5740:1	continuous 5678:13 5698:18 5720:2
concerned 5572:12 5624:13 5653:17,24 5665:5 5723:25	conservatism 5590:14	conservatism 5590:14	consultant 5558:4 5567:11 5603:25 5626:26 5627:1,3 5628:3 5633:9 5638:3 5675:9 5678:18 5680:20 5708:14, 21 5729:5,11 5735:11 5743:12 5751:15	contractor 5664:11 5665:9
concerns 5551:5, 7,8 5575:2 5592:19 5620:6	conservative 5584:14,22 5590:15 5591:2, 8,9,11,15,18,22, 26 5592:9,15 5593:12 5594:3,4 5595:6 5596:16, 17 5612:24 5710:6,15,19 5730:13 5733:19	conservative 5584:14,22 5590:15 5591:2, 8,9,11,15,18,22, 26 5592:9,15 5593:12 5594:3,4 5595:6 5596:16, 17 5612:24 5710:6,15,19 5730:13 5733:19	construction 5603:18 5645:19	contribute 5619:17 5652:23 5751:6
	conditioning 5645:19	conservatism 5590:14	construed 5565:16 5566:16	contributed 5732:10
	conditions 5561:14 5562:22 5563:14 5565:5 5587:26 5594:8 5707:3,4,11 5711:14	conservation 5605:25 5613:10 5668:5	consult 5614:5 5615:8 5740:1	contributing
	conduct 5692:12 5705:5 5716:25 5721:11 5722:14 5723:2	conserve 5644:18	consultant 5558:4 5567:11 5603:25 5626:26 5627:1,3 5628:3 5633:9 5638:3 5675:9 5678:18 5680:20 5708:14, 21 5729:5,11 5735:11 5743:12 5751:15	
		consideration		

5553:15,19	5568:5,8,9,25	counted 5644:22	criteria 5581:19, 20 5587:25	CSR(A) 5669:19 5758:14
contribution	5569:3 5571:14	counts 5596:2	5628:9 5672:5	Cubes 5668:3
5609:26 5610:4, 20 5732:7,8	5575:17 5576:9	couple 5595:12	5686:19 5695:19	cumulative
contributor	5577:13 5581:2	5705:19 5732:5	5703:17 5706:1, 3,5,8 5712:2	5586:22 5730:18, 21 5731:25
5703:3	5584:12 5585:11	court 5616:6	5715:2,22	5732:11 5750:13, 22 5752:15
control 5564:20	5587:11,15,19	5619:6 5640:16	5718:10,11,14	Cured 5668:2
5598:18,20,26	5595:24 5601:3,7	5669:19 5694:9	5719:21	current 5560:9
5599:2,4 5664:20	5607:10 5617:15, 16 5621:6,7,9,12, 16,19,25 5622:7, 14,15,18,22	5729:8 5739:10	critical 5716:26	5568:2,3,4,10,12, 18 5599:8 5629:7
5672:2 5677:16	5623:2,8,17,24	5758:15	5721:23,25	5660:4 5662:4
5691:6 5695:15, 18,19 5740:4	5624:2 5625:20, 22,25 5626:11,16	courts 5556:25, 26	5722:2,4 5723:3, 7	cursor 5693:1
controlled	5628:10,24,25	cover 5672:15	critters 5609:18	cut 5619:7 5729:9
5562:22 5648:14	5629:11 5630:13, 23,24 5633:2	5680:19,24	crop 5690:16,20	cutthroat
5714:7	5634:5,20,26	5682:13 5690:16, 20 5691:3	cross 5557:14	5577:11
controls 5614:10	5635:6,21,22	covered 5693:5	5571:4 5597:25	cycle 5617:11
conversation	5636:5 5638:21	covers 5715:9	5604:5 5606:12, 13 5607:1 5620:4	cycles 5756:26
5642:7	5648:21,22	CP 5685:11,14,19	5634:12,15	Cypress 5569:14
converted	5650:10 5654:12	5704:20 5710:11, 18 5712:22,25	5650:13,18	cytotoxic
5611:18	5655:8,19 5674:6	CPAWS 5556:23	cross-	5560:16
conveyor	5716:4 5724:25	5620:12	examination	
5693:12,24	5725:2 5739:21, 22	CPP 5678:16,25	5575:13 5577:23	
5708:25	correctly 5621:4	CPR 5665:8	5652:16	D
conveyors	cost 5553:17,20	CR 5722:3	cross-	
5693:6 5709:14	5719:22 5720:3	create 5609:17	examinations	daily 5593:4,8,16
Cooke 5668:5	costs 5553:7,16	5694:11 5720:3	5556:1	5594:4,8,10
cooperation	5555:22	5744:7 5749:22	cross-examined	5596:5 5756:16
5672:22	Cote 5667:4	created 5606:2	5645:10	dam 5599:15
cooperatively	Council 5669:16	5609:9	Cross-examines	damage 5748:21
5696:8 5752:23	councillors	creates 5600:18	5578:2 5599:26	Dane 5557:17
copied 5650:18	5621:11	creating 5605:26	5620:21 5639:23	5628:15,18
copy 5554:1,2,20	councillors'	5624:25	Crowsnest	5642:6 5670:3
corporal 5662:25	5621:8	Creek 5616:25, 26 5618:16,22,26	5569:15 5570:1	5686:21
corporate	counsel 5551:5	5619:4,18	5574:19 5605:2	Dark 5638:19,22
5662:10,14,18, 20,25 5663:2,9, 12	5649:1 5666:9, 10,13 5668:14,16	5632:13 5641:22	5617:2 5635:6	dark-sky 5648:8, 9,18 5649:20
corporation	5669:3,5,7,9,11, 14 5670:13	5642:1 5643:8,	5636:5,12	5656:7,20
5662:23	5700:10 5716:18	13,17,23 5645:6	5642:25 5643:15	5657:20 5658:21
corporations	5727:13	5654:21 5655:10	5646:9 5648:21	5662:3
5643:20 5644:3	count 5596:7,8	5656:9 5667:18	5649:1 5658:20	darkness
correct 5556:5	5645:1	creeks 5654:22	5667:11 5668:5	5649:11
5558:11,26		5655:2	5672:23 5696:17, 19 5697:4	Darn 5715:26
5562:11 5564:22			crystal 5591:4	

data 5562:2,9,13
5563:8,23
5564:1,4,6,15
5568:1,4,7,12,14,
16,18,24 5569:2,
4 5570:3,6
5613:1 5702:9

date 5554:10
5556:24 5558:23
5574:22 5577:16
5671:23 5682:8

Dated 5758:8

David 5669:5

day 5554:11,23
5556:8 5558:24
5559:20 5573:19
5583:9 5599:13
5653:9 5709:4,26
5710:1,14,20
5713:10,13
5714:26 5715:7,
12,15,16 5758:9

day-ish 5726:26

days 5554:6
5590:20 5650:7

daytime 5713:16
5715:7

db 5702:1
5711:18 5712:3

dba 5705:15

dbas 5701:10

dbz 5717:6

DCT 5684:7

deadline 5554:15
5556:7

dealing 5566:4

debris 5746:1

decade 5657:22

decades 5573:13
5574:13 5589:15
5595:12

December
5554:1,5,10
5556:7,13,26

decibel 5646:22

decide 5677:2
5707:18

decided 5579:14,
17

decision 5552:26
5553:22 5697:23

decline 5652:8
5655:24

declines 5651:5
5652:24 5659:6
5661:15

declining 5651:1
5729:20 5734:11

dedicate 5664:9

deducted
5644:26

deemed 5691:13

defer 5690:10

define 5579:22
5633:3 5721:24
5723:10 5725:14

defined 5616:20
5623:21 5706:25
5707:14 5715:7

definition
5579:22,24
5580:3,8,14
5583:16 5600:21
5633:8 5662:26
5702:26 5704:2
5746:17

definitions
5703:6

deformed 5596:2

deformities
5596:1

delay 5599:20
5757:15

delayed 5553:9

delays 5553:3
5744:22

delivering
5665:12

demonstrates
5561:11

denominated
5709:17

depend 5596:11
5626:12 5712:19
5719:18 5743:16

dependent
5601:14 5617:26
5653:2

depending
5553:17 5609:5
5612:2 5680:18

depends 5704:2

deposition
5626:25 5630:8
5633:13,15

depressions
5616:1 5687:16

derive 5594:8

derived 5630:2

Des 5669:3,9

describe 5640:25

describes
5700:18

describing
5754:22

description
5673:10,21

descriptive
5725:11

desiccate
5609:16

design 5577:16,
18 5596:19
5597:16 5613:3
5650:8 5659:21
5679:5,21
5698:17

designed
5693:10

designs 5592:15
5613:14

destroy 5577:10

destruction
5748:17

detail 5733:7

detailed 5677:19
5683:13 5712:5

details 5616:20
5629:24 5672:17
5677:24 5679:21

detection
5606:10,15
5741:23

deter 5735:22

determination
5553:18 5587:22
5733:15

determine
5563:15 5580:16,
18 5582:20
5586:20 5614:4
5632:2 5633:25
5663:21 5672:6
5686:15 5696:7
5707:1,14
5711:21 5730:12
5734:14 5750:5

determined
5580:10 5582:16
5584:3 5587:13
5588:6,13
5626:14 5704:12
5716:12 5749:13

determines
5675:23

determining
5582:13 5731:3

deterrent
5615:12

deterrents
5614:24 5617:22

detrimental
5736:10

develop 5592:17
5671:26 5672:21
5677:12 5684:10

5695:12 5737:18,
24 5738:24
5739:17 5756:24

developed
5573:2 5677:23
5687:4

development
5661:16 5672:19
5677:17 5692:15,
20 5713:19
5728:5 5732:1
5750:15 5751:10,
18,21

devil's 5672:16
5677:24

Devon 5642:19
5643:11

dictate 5686:20

diesel 5704:12

dietary 5592:22
5736:26

difference
5662:13 5745:25

difficulties
5712:26

diffuse 5651:16

dig 5616:8

diminish
5753:21

dipper 5592:3,4,
10,20,21,26
5593:10,22,23
5594:11,12,18
5595:24 5596:7,8
5597:3,4,5

dipper's 5595:23

direct 5665:15
5727:16 5743:3
5747:10

directed 5648:12

directing
5554:20

directionally
5671:15

Directive 5646:26 5698:2 5703:11,17 5706:7,16,21,25 5707:14,17 5711:7,17 5715:2,8,20,23 5718:9 5721:20, 22 5722:9	5695:14 5713:25 5724:8,26 5739:3	disturbed 5691:21 5743:18 5744:23	draft 5696:21 5740:20	5598:18,20,26 5622:22,23,24 5623:1,5,7,12,13, 14,16,19,22,23 5624:1,4,7,10,22, 25 5625:7,8,9,18 5626:4,7,10,13 5630:7 5632:18 5633:13,15 5636:20 5641:9, 15 5659:5 5670:6 5678:22 5679:3, 6,9,11,14,15,17, 25 5680:2,5 5681:1,12 5682:6 5684:6,8,21 5685:6 5686:5 5687:21,22,25 5688:8 5691:22 5692:2 5693:10, 23 5694:22 5695:2,13,15,16, 17,18,19,21,23,24
directives 5663:13	discussions 5671:5 5690:24	divided 5593:8 5731:12	dragged 5552:5	drainage 5616:25,26
directly 5673:22 5699:1 5703:13	diseases 5569:26	doable 5609:17	draw 5629:25 5645:4	dramatically 5682:4
disagree 5571:23 5659:17,22	dispersal 5607:16 5618:18	document 5567:19 5570:17 5572:3 5575:1,20 5629:14 5630:19 5638:3 5639:5 5640:1 5647:1,23 5648:7 5656:23 5659:24 5660:3, 13 5673:18 5675:11 5684:18 5685:3,23 5696:14 5700:3, 12,23 5705:10, 11,20,21 5708:1, 20 5713:5 5716:18 5717:1, 13,16,25 5718:3, 8 5720:19 5724:11	draws 5687:16	drives 5623:19 5659:3
disagreeing 5716:1	disperse 5601:18 5607:26	documentation 5648:25	Drew 5556:23	driving 5692:8
disappointing 5727:7	dispersion 5630:4	documented 5681:20	dried 5608:1	drop 5694:1
disbelieve 5601:24 5656:1	displaced 5751:12,22,26	documents 5615:15 5698:7	drifts 5624:4	Drummond 5667:8
discharge 5694:13	displacement 5600:10	dominant 5702:23	drinking 5644:24	dry 5606:25 5607:23,25 5608:2 5684:13
disconnected 5699:5	disposal 5692:15 5746:21	Donkersgoed 5668:1 5724:9,23	driver 5712:18	due 5551:20 5587:14 5625:10 5627:17,20 5637:7 5674:26 5698:17 5710:23 5736:4
disconnecting 5699:2	dispute 5621:15	doors 5701:5	drivers 5651:4	dump 5551:20 5558:2,26 5559:22 5560:4,5 5564:20 5570:22 5571:12 5572:12, 22 5573:1 5574:9
discount 5680:25	distance 5625:10 5647:4 5681:18 5688:5 5719:5	dose 5593:8,16 5594:5,9,10 5596:5	drives 5623:19 5659:3	duration 5566:5 5701:8 5704:25 5709:8 5715:6, 10,17 5755:12
discuss 5565:3 5702:7	distances 5618:18	dot 5607:6	driving 5692:8	dust 5557:20
discussed 5592:11 5597:8 5619:20 5634:23 5642:17 5660:15 5675:6 5743:10	distinction 5663:4	double-check 5604:12	drop 5694:1	dramatically 5682:4
discusses 5680:9 5743:6	distincted 5703:22	double-check 5604:12	draw 5629:25 5645:4	draws 5687:16
discussing 5621:3 5645:12 5755:13	distribute 5660:7	doubt 5657:6	draws 5687:16	Drew 5556:23
discussion 5550:22 5551:12 5564:18 5567:2 5572:19 5615:16 5659:15,16	distributed 5602:6 5603:6,7	dozens 5553:4	Dried 5608:1	drifts 5624:4

E

e.g. 5728:19
earlier 5554:12,
16,17 5592:12
5688:2 5690:24
5756:11,13
early 5613:4
5646:4 5737:6
5745:21 5746:9
easier 5649:26
east 5718:18,21
5719:2
Easter 5658:25
Eastern 5577:12
easy 5562:12
5654:14
eat 5589:22
5594:18,20
5652:24
eating 5590:6
5594:11

eats 5589:21 5593:11 5619:4,7	effects 5561:12 5562:18 5565:8 5566:2,3,5 5575:22 5576:5, 10,14,17,18,22 5577:1,13,17,19 5586:23 5587:24 5622:24,25 5624:6,10 5628:26 5680:15 5681:5 5697:4 5727:24 5728:26 5730:21 5731:19 5732:8 5733:9,11 5735:5 5736:11 5737:19 5738:26 5739:9,15,18,25 5742:22 5743:3 5750:13 5751:2 5752:15	electric 5674:18 5675:4 5676:6 5677:15	5741:22	5593:11,15 5594:7,11,23,24 5595:2,7 5596:13,19,21 5597:17,19 5607:25 5609:4 5611:1 5612:18, 25 5613:3,6,7,12, 16,24 5614:2
EC 5598:19	efficacy 5695:21 5744:17 5747:2	electric-powered 5674:23 5675:24	emitted 5586:10 5623:19	energy 5670:10 5703:12 5706:7 5707:24 5715:3 5718:9
ECCC 5598:19 5599:6 5736:22 5737:4,14,17 5738:11,23 5739:16 5743:23 5744:11	efficiencies 5598:18,20 5599:1,3,4	electrical 5658:10	emitting 5656:14 5664:10	engage 5573:17 5574:5,7 5672:18
ECCC's 5736:14 5737:22 5743:21 5744:3	efficiency 5564:21	electrician 5658:8	employ 5659:1	engaged 5552:26 5646:9
Eco-elders 5668:23	efficiently 5675:2	electrification 5675:26 5683:11	employed 5706:6	engagement 5572:11
ecological 5578:25 5579:1,3 5587:26 5600:2, 7,9,14 5607:23 5608:4 5651:2	effigies 5618:12	electrified 5683:7	employees 5553:4 5664:2	engine 5673:17 5745:15
ecologically 5733:19	effort 5696:9 5719:22	elements 5684:26	employing 5553:4	engineers 5559:19 5659:20 5684:10
edges 5605:13 5616:16 5735:19, 23	efforts 5551:8 5745:2	elevated 5612:18 5613:18 5715:14	employment 5659:3	engines 5673:13, 15,16
educated 5657:9	egg 5593:23 5595:22,23	elevation 5701:20	empty 5704:6,7 5708:5	enlighten 5662:16
effect 5562:10 5590:26 5591:20 5594:2 5625:1 5656:17 5657:3,7 5688:8 5714:10 5730:12,18 5731:25 5732:3, 12,13 5734:21,22 5748:19 5750:22 5755:7	eggs 5595:26 5596:6	elevations 5622:9,10	en 5685:15	encourage 5591:5
effective 5603:15 5682:15 5685:7 5729:16 5730:24 5734:7 5743:9 5750:16	EIA 5555:12 5585:10 5610:10 5734:13,14	eliminate 5679:6	enclosed 5693:4, 9,12 5694:17 5702:18 5703:2	encouraged 5693:4, 9,12 5694:17 5702:18 5703:2
effectively 5746:15	elaborate 5747:26	elk 5675:3 5728:20	encountered 5712:25	encountering 5618:2
effectiveness 5672:3 5695:15 5727:25 5728:26	Elan 5661:15	Elmeli 5668:18	encourage 5695:5	encouragement 5665:16
		email 5551:19 5554:3 5650:19	encouraging 5664:10	encouraging 5664:10
		Emard 5668:3	end 5553:26 5574:20 5583:9 5589:13 5593:12, 15,20 5595:15, 20,25 5596:4 5610:24 5611:5 5634:12,15 5657:11 5686:26 5754:23	end-pit 5588:24 5589:5,9,10,14, 17,24 5590:1,6,7, 18,20 5591:14 5592:4,10,14,17
		emission 5598:22 5664:7 5665:1 5671:13 5673:17 5676:8,11,12 5677:16 5678:22 5683:11	entails 5662:19	entered 5659:25 5720:18
		emissions 5557:20 5558:2 5559:12,17,21 5566:19,23 5586:3 5599:5,7 5664:24 5670:6, 24 5671:18 5672:2,5 5677:13 5679:4,14 5683:16,17 5686:5 5714:16	ensuring 5656:19	entire 5576:12 5592:11 5603:4 5617:11 5676:21 5685:18 5698:23 5701:23 5704:19 5709:19,25 5710:1

entitled 5598:19	23 5692:5,7,21	5646:14 5688:12	5744:3,11	expert's 5697:1
entomologist 5652:11,15 5654:1 5655:26	escaping 5649:16	5743:6 5751:8	5750:20,26	expertise 5614:26 5631:14 5659:10 5714:4 5756:12
entrainment 5688:1	essence 5692:16	evident 5672:25	5751:15,24	
entrance 5694:18	essentially 5556:14 5566:8 5573:26 5701:17 5704:15 5707:9 5710:14 5711:15	evidentiary 5599:18,21	5753:2,12,14,24	
Envirobind 5684:7	establish 5630:11 5688:18	exact 5573:14 5697:11 5712:19	exist 5565:24 5596:14 5687:2, 14 5730:14	experts 5630:4
Environment 5563:24 5565:7 5598:21,23,24 5721:6 5736:19, 20	established 5574:21 5621:4	examination 5724:7	existing 5704:20 5718:25 5728:23 5751:4	explain 5551:7 5579:16 5595:17 5606:24 5615:22 5642:3 5681:4 5755:12
environmental 5552:21,23 5579:21 5580:15 5586:4 5600:15 5707:4 5751:7 5752:16	establishes 5688:17	examples 5743:10 5747:8 5751:14	exists 5711:16	explains 5579:14
EPA 5673:20,21	establishing 5690:20 5740:9	excavation 5675:24,25	exit 5694:18	explanation 5575:20 5679:2
epidemiological 5562:17,21,23 5563:3,5,8,9	establishment 5589:16	excavators 5674:21,23 5675:4 5676:6	expand 5628:1 5654:18	exploration 5752:11
EPL 5594:19	estimate 5676:9 5679:3 5753:19	exceed 5705:14	expansion 5574:1	explosives 5701:1
equal 5582:17	estimated 5593:7	exceedance 5712:20 5719:14	expect 5573:5 5586:9 5589:12, 14 5595:3 5611:26 5612:26 5658:26 5676:3 5752:18 5755:6	exposed 5686:5 5690:18,19
equipment 5641:4 5645:20 5673:12,26 5674:5,18,25 5675:19,24,25 5676:1,5,23 5677:12,16,19 5683:3 5692:4 5708:17 5712:21	estimator 5727:1	exceedances 5682:6	expectation 5553:5 5701:25 5726:18	exposure 5561:13 5566:10 5590:13,16,23,25 5591:6,19 5593:4,6,7,8,15, 16,17 5594:5,6,7, 9,10,22 5596:5 5686:13,17 5695:16 5736:5, 8,9,25 5737:20 5739:1 5740:4
equipped 5673:13	ethics 5662:21	excess 5745:12	expected 5644:13 5681:16 5698:19 5713:25 5736:10 5743:19, 25 5753:18	express 5552:19
equivalent 5616:24 5703:12 5715:3	Europe 5735:2	excessive 5745:13	expecting 5594:21 5680:2 5705:2	expressed 5644:17 5707:12
erosion 5686:10 5688:19,24 5689:12 5690:18, 21 5691:5,19,22,	evaluate 5672:3 5677:14 5695:20 5699:17 5705:6	exclusively 5590:20	expensive 5658:22	expressing 5663:16
	evaluated 5592:25	excuse 5553:12 5588:18 5619:6 5640:16 5653:23 5729:8 5739:10	experience 5615:11	extent 5552:17 5599:17 5627:18, 20 5633:14 5637:7 5711:9
	evaluating 5583:4 5585:13 5670:26	execute 5748:22	experienced 5743:26	extinctions 5659:6
	evaluation 5583:18 5584:21, 26 5585:1,11 5591:14 5592:8 5684:20 5716:20	exercising 5662:10	expert 5600:1 5620:16 5628:11 5631:15,19 5649:22,23 5671:3 5701:6 5713:17 5733:26	extirpation 5729:15 5734:6

extra 5555:14
extremely
 5552:10,25
eye 5649:26
 5659:1
eyeball 5676:20

F

face 5683:5
 5731:11
facilities 5614:9
 5740:4,7 5754:22
 5755:4
facility 5696:26
 5697:3
fact 5552:10
 5563:6 5570:7
 5572:20 5599:3
 5609:10 5626:20
 5631:22 5643:4
 5644:20 5680:4
 5681:13 5700:10
 5703:1 5745:22
factor 5552:8
 5580:9,26
 5582:16,17,24
 5583:17 5584:13
 5585:16 5590:22
 5626:15 5680:18,
 25 5681:9,24
 5682:13,19,21
 5689:25 5731:19
factors 5579:20
 5581:7,22,24
 5582:9 5583:1,5,
 11 5584:18,21,
 24,25 5585:1,4,6,
 9 5588:10,16
 5731:2
failure 5737:11
failures 5599:15
fair 5556:9
 5622:11 5626:2,3
 5635:8 5639:1

fairly 5558:1
 5559:25 5560:8
 5651:24 5706:25
 5748:16 5756:2
fall 5712:11
falling 5701:19
familiar 5579:1,
 5,6 5604:10
 5716:22 5717:13,
 24 5721:20
familiarity
 5717:26
Farms 5667:26
farther 5571:17
 5572:3
faster 5690:4,5
fatal 5651:19,21
 5661:17
fatally 5652:1
favour 5655:9
favoured 5655:6
favouring 5656:3
feasibility
 5677:14 5747:3
feasible 5664:19
feature 5589:10
 5608:4
features 5608:5
 5609:20 5612:1
 5614:11 5655:2
 5756:2
federal 5556:25,
 26
feed 5617:24
 5653:25 5729:7
 5735:17
feedback 5673:6
Feeder 5668:1
feeding 5593:14
feel 5609:22
 5724:6 5749:14
feeling 5746:2

fellow 5683:14
 5687:19 5697:25
felt 5573:11
 5636:7
fen 5604:3,8,22
 5605:19,22
 5606:9,19
 5607:4,11,20
 5608:4,11
 5609:12
fence-line
 5642:4,12
fencing 5616:15
fens 5602:7
 5607:22
fescue 5621:24
 5622:6,9 5624:18
fidelity 5601:16,
 23,26 5617:5,14,
 17
field 5646:5,17
 5669:14 5681:13
figure 5558:10
 5651:12,13
 5659:11 5734:19
 5735:4 5753:3,
 11,25
figuring 5658:25
file 5553:26
 5554:5,12,15,16,
 23 5555:24
 5556:11,17
 5564:3
filed 5555:12
 5575:16 5647:21
 5648:20 5649:3,4
filing 5556:7
filings 5554:17
 5576:1
fill 5658:12
fills 5701:17
filter 5680:7
filters 5679:5,12

final 5551:12,16
 5557:2,6 5601:8
 5611:9 5613:3,5
finally 5694:21
find 5585:10
 5602:8 5603:8
 5631:26 5649:25
 5677:6 5720:19
finding 5756:26
findings 5684:20
fine 5552:4
 5560:13 5562:26
 5571:6 5578:14
 5597:26 5642:5
 5660:17 5694:20
 5713:8 5720:14
finely 5658:3
finish 5727:2
finished 5559:10
 5589:11 5611:13
 5689:21,22
finishing 5557:1
finite 5618:18
 5690:3
fire 5691:15
 5745:10,14,24
 5747:1
fire-suppressed
 5746:3
fires 5745:11
firm 5555:21
firstly 5555:12
 5564:22 5737:26
fish 5576:15
 5583:25 5594:11,
 19,20,21,22,24
 5595:1
fishless 5601:5
Fitch 5555:10
 5556:20 5557:13,
 15,24 5558:3,8
 5559:14 5567:10,
 15 5571:3,7,16,
 19 5572:2,5,16,

18 5574:26
 5575:9,12
 5577:5,24
 5597:20 5598:17
 5668:8
fitness 5651:17
five-year
 5563:23 5721:14
flag 5730:22
 5733:20
flagging 5618:11
fleet 5673:12,25,
 26 5683:2,18
flight 5741:9
flight-to-light
 5657:2
flow 5701:15
flows 5613:12
 5701:16
flycatcher
 5732:23 5749:21
focus 5558:16
 5658:3 5671:17
 5675:21
focused 5619:19
 5656:13,19
focusing 5624:16
 5633:21
folks 5559:19
follow 5657:19
 5662:2,5 5682:18
follow-up
 5551:11 5614:15
 5721:11,21
 5723:4 5754:26
food 5578:19,22
 5583:22 5584:16
 5651:2 5737:10
footnote 5598:20
footprint
 5617:19 5619:21
 5632:9,10
 5654:15 5740:19
 5743:5,15 5746:4

5751:13,23 5752:2 5755:6,9 5756:2 foraging 5590:20 5744:2 forb 5746:24 foregoing 5758:3 foreseeable 5750:23 5752:13, 18 forest 5604:9,11 5652:19,22 5653:8,11,18,21 5654:10,16 5655:16 5731:11 forested 5655:1,3 5681:22 forestry 5731:11 forests 5744:1,10 5745:13,23 forgotten 5683:3 form 5644:25 5723:21 formations 5671:1 formed 5589:10 forming 5573:18 forms 5619:14 5646:10 formulation 5671:14 formulations 5670:23 5671:6 5672:4 forward 5596:20 5597:11,12 5618:5 5633:4 5740:21 found 5598:18 5603:4 5605:14 5607:17 5615:15 5747:12 5751:14 foundation 5725:16	four-and-a-half 5555:14 fourth 5553:15 5708:8 fragmentation 5729:18 5734:9 frame 5746:12 Frank 5669:16 frankly 5719:7 Fred 5669:7 frequencies 5756:24 frequency 5705:3 5711:12 5713:23 5719:19 5720:3 frequent 5741:12 5756:21 friend 5555:17 5713:26 friend's 5555:11 fro-ing 5699:3 frog 5601:1,9,12, 13,17,25 5602:2, 17 5603:16,20 5605:20 5607:12 5608:18 frogs 5601:4 5603:10,11 5605:17 5606:22 5608:8 5609:7, 19,23 5614:17 5616:9 5617:3,18 5618:19,20 front 5574:23 fuel 5670:23 fuel-efficient 5664:12 fugitive 5686:4 full 5552:8 5562:6 5694:10 full-time 5556:2 fullest 5711:9	fully 5566:6 5703:18 5704:9, 18 5710:3 function 5611:12 5715:4 future 5596:19 5699:19 5720:9 5749:16 <hr/> G <hr/> Gail 5669:9 gain 5554:17 5688:14 gained 5662:7 GARY 5557:16 5670:2 gas 5557:20 5585:20 5586:9 5664:6,24 5665:1 5670:6 gases 5585:19,22 5586:12 5676:13 gather 5636:7 geared 5745:2 general 5625:7 5682:17 5699:22 5730:9 5738:6 generalist 5728:16 generally 5591:11 5654:22 5663:21 5725:2 generate 5564:1, 3 generated 5690:5 generating 5558:26 generation 5680:6 5687:24 5691:22 5693:23 5695:16	genesis 5665:7 gentlemen 5713:4 5724:5 5757:1 geographical 5732:2 germinate 5688:14 germination 5688:21,26 get-go 5573:18 5748:15 Gilmar 5724:9, 24 give 5561:19 5638:10 5646:8 5671:18 5677:6 5680:21 5696:2 5697:24 5698:5 5702:1 5703:20 5706:1 5724:16 5725:12 5726:16 glow 5651:16 gnarled-up 5655:14 goal 5565:18 5566:18,22 gold 5562:19 5616:25 5618:15, 22,26 5619:4,18 5632:13 5654:21 good 5550:23 5557:24 5562:12 5563:5 5571:5,18 5572:4 5573:1 5574:23 5578:3 5600:19 5608:5 5620:22 5621:1,2 5639:20 5642:6 5663:24 5664:2,3 5670:12 5680:8 5683:21,26 5684:3 5689:11 5697:18 5698:4 5705:13 5708:21	5713:25 5716:17 5726:8 5727:12 5738:10 5745:22 goodness 5639:26 Gosh 5734:18 Gourlay- vallance 5668:23 governed 5662:21 governing 5647:1 government 5663:20 5667:8 grading 5623:10 grass 5689:11 grasses 5622:8 grassland 5746:24 grasslands 5621:24 5622:7 5629:19 5630:17 5745:17 5748:3 Grassy 5573:16, 23 5621:4 5634:19 5642:10 5646:7 5667:25 5686:26 5732:14 5738:5 5745:9 5747:18 5752:17 gravel 5624:26 grazing 5621:19, 21,23 5622:5,12, 13,17 5624:2,7, 13,17 5625:8,18, 25 5629:1,2 5632:8,13,16,24 5633:1,2,10 great 5587:20 5685:26 5751:19 greater 5582:17 5590:25 5591:19 5607:24 5692:21 green 5604:16,22
---	--	---	--	---

5607:6
greenhouse
 5557:20 5664:6,
 24 5665:1 5670:6
 5676:12
grey 5751:19
grid 5564:10
 5567:3,4,5,6,7,8
grizzly 5728:9
ground 5746:1
groundborne
 5719:6
groundwater
 5576:14
Group 5555:9
 5667:26 5668:9
groups 5657:3
growing 5651:3
 5689:10,13
 5690:11
growth 5748:5
guarantee
 5623:6
guess 5556:10
 5558:16 5561:14
 5575:21 5584:8
 5597:20 5616:19
 5625:14 5636:24
 5638:7,15
 5649:11 5658:14,
 24 5665:1 5677:2
 5678:3 5695:4
 5697:9 5702:6
 5703:5 5704:2
 5715:1 5718:6,
 17,18 5720:20
 5722:7 5746:7,21
guidance 5565:7
 5566:26 5582:15
 5598:24 5673:18
 5684:12 5700:12
guide 5638:11
 5705:8
guideline
 5565:25 5588:2

5703:7
guidelines
 5581:3 5582:12
 5583:6 5657:20
 5662:4 5663:18
 5673:22 5740:23
guideposts
 5663:20
guiding 5730:22
Gulamhusein
 5667:11
guy 5614:19
 5671:20
guys 5612:11

H

habitat 5586:19,
 20 5587:13,14,17
 5588:6,11,13
 5590:22 5600:10,
 17,19 5601:18
 5602:2 5603:7,16
 5605:25 5606:18,
 20 5607:11,19
 5608:5,7,25
 5609:14,15,17
 5616:24 5651:5
 5655:16 5727:24
 5728:4,6,21,24,
 26 5729:16,18
 5730:17,19,24,25
 5731:9,26
 5732:17 5733:8
 5734:7,9,13
 5738:7 5742:23
 5743:3,9,17,20
 5744:5,15,23
 5745:21 5746:15
 5747:5,6,10,18
 5748:14,17,19
 5749:12,22
 5751:12,22
 5752:5,6 5754:6
Habitat's 5747:6

habitats 5600:11,
 17 5601:5
 5619:14,19
 5652:19 5653:11
 5743:8,18 5744:8
 5745:2,4,18
 5752:1
habits 5744:2
half 5564:11,12
 5597:25 5658:8
 5726:26
hand 5578:11
handle 5677:3
handling 5678:5
 5688:6 5693:5
happen 5593:13
 5603:19 5626:17
 5653:4 5679:17
 5698:22 5710:20
happened
 5561:17 5573:21
 5584:6
happening
 5619:17 5633:2
 5732:12
happy 5633:6
 5680:8
hard 5617:7
hardline 5663:11
harmful 5741:13
harvest 5734:26
Hat 5569:14
hatch 5595:22,24
 5596:1
hatchability
 5593:21 5595:26
 5596:6
hatched 5596:8
hatching 5596:1
haul 5558:16,18
 5564:25 5598:17
 5599:3,5,7
 5623:3 5624:23,
 24 5626:7

5633:16 5641:13
haulage 5687:26
 5688:1
hailed 5689:19
hazards 5659:5
he'll 5598:11
health 5557:22
 5562:18 5565:21,
 24 5566:2,3
 5567:12 5568:2,
 3,4,5,11,26
 5569:11,19,24
 5572:19,23
 5576:16 5624:10
 5659:5 5670:8
 5696:19 5697:4
 5700:11 5703:1,
 7,8 5705:8,21
 5706:3 5718:4
 5726:22,23
 5730:6 5735:13,
 15
healthy 5571:25
 5625:25 5730:13
hear 5551:18
 5600:4 5646:17
 5647:5,9,10,12
 5702:5
heard 5551:13,
 15,23 5556:19
 5558:22 5562:4
 5572:7 5621:8,11
 5641:12 5646:8
 5653:14 5688:11
 5721:26
hearing 5551:1
 5555:19 5556:3
 5557:9,13
 5615:14 5648:19
 5649:3 5663:17
 5666:6,7 5757:18
heavy 5613:26
 5619:8
heavy-duty
 5673:12

hectares 5558:1,
 10,18,19,25
 5559:5,16,17,25
 5560:1,8 5608:22
 5610:25,26
 5611:4
height 5694:1
helped 5691:15
helpful 5657:25
 5658:4 5676:2
hesitant 5696:5
Hey 5580:21
hide 5606:17
high 5570:4
 5601:16,17,23
 5603:2 5609:13
 5613:20,22
 5615:1,25
 5619:26 5626:14
 5677:25 5679:25
 5680:5 5700:26
 5720:3 5742:1
high-energy
 5700:19,25
high-quality
 5600:11 5730:24
high-velocity
 5684:22
higher 5593:15
 5601:26 5622:10
 5646:2
highlight
 5591:24 5595:8,
 14
highlights
 5591:6
highly 5627:21
 5637:8 5701:1
 5703:9 5706:5
highway 5647:14
 5697:6,8 5719:1
 5732:7
hikers 5646:9
Hills 5569:14

hire 5658:23
5659:12,17,20
hiring 5659:8,10
historic 5603:12
5604:16
historical
5607:13,14
5751:4
history 5602:22
hold 5688:14
5757:10
Holden 5666:10
5669:25 5726:7,
11,16,20
5727:10,11,12,
13,19,22 5729:8,
10,21 5730:2
5733:24 5734:1
5736:12,18
5737:2,4,12,16
5739:21 5742:4,6
5753:1,5,9,11
5757:3
hole 5615:12
holes 5616:1,8
5617:22
holiday 5554:19
5725:18,19
holidays 5551:22
5552:9 5554:16,
22 5556:15
home 5724:23
5725:2,18,22
honest 5679:24
hop 5642:3
hope 5644:3
5656:17 5674:12
hoping 5727:8
horizon 5753:20
horizons 5639:10
hospital 5697:18
5721:26
host 5558:3
5567:10 5571:3

5627:7 5628:2,7
5629:14 5630:18
5635:14 5638:1,
2,7 5639:4,16,24
5640:4 5647:18
5650:12 5656:22
5727:19 5729:22
5733:24 5736:13
5753:1
hot 5605:16
hotter 5678:14
hour 5678:11
5708:12
hours 5704:8,19,
25 5708:13
5709:3 5727:1
house 5649:24
houses 5664:15
Houston 5557:16
5559:24 5570:12,
15 5571:7,15
5572:1,15,25
5573:7 5575:16,
18 5577:22
5578:3 5585:26
5589:1 5592:6
5595:5 5596:15
5610:12 5611:20
5612:22,23
5617:25 5620:1
5621:1,2
5622:16,19
5625:26 5626:1
5631:18 5634:2,
5,14,18,23
5635:22 5636:6
5640:7,24
5641:2,14,17
5642:5 5643:16,
20 5644:8
5646:19 5648:2
5649:10 5650:7,
20,21 5651:25
5652:5 5654:17,
19 5656:5
5657:5,8 5659:4

5661:13,24
5663:5 5665:18
5670:2 5671:2
5675:5,12,20
5676:22 5677:7,
21 5679:1,7
5683:6 5685:3,21
5686:18,23
5688:3,10
5693:15,18
5697:5 5701:11
5704:5 5705:1
5706:14 5710:16
5712:13 5713:22
5716:2 5717:7
5719:17 5721:9,
24 5722:20
5723:6 5724:7,
12,20,25 5725:5
5727:17 5739:26
5740:14,18
5748:10,23
5749:4,6,7
5750:5,7 5752:3,
8 5753:4 5754:3,
8 5755:11 5756:5
Howard 5666:26
human 5557:22
5567:11 5569:24
5670:8 5726:23
hundreds
5723:14
hunt 5655:18
Hurly 5669:17
hydraulic
5708:26
hydro 5609:16
hydroseeding
5691:14
hypothetical
5595:1 5596:10,
12,26

I

i.e. 5728:18
i.e. 5643:10
5657:10 5755:4
IAAC 5666:15
IAN 5557:18
5670:4
iced 5564:21,26
idea 5555:14
5556:3,6 5631:13
5649:21 5653:26
5685:16
ideal 5562:20
5655:15
identified 5581:7
5592:16 5606:19
5616:23 5647:4
5722:1
identifies 5580:8
identify 5574:15
5585:14 5706:18
5723:7
identifying
5579:20 5580:5
idle 5704:15
Ignasiak
5551:25,26
5552:2,4 5555:7
5557:3 5575:2,3
5598:8,9,15
5599:10,23,24
5620:6,7 5650:18
5659:26 5660:1
5666:22 5720:20,
23,24
illuminated
5649:17
illuminating
5649:16
illustration
5753:25
images 5551:2

imagine 5634:9
5717:21
immediately
5741:13 5745:20
5746:18
impact 5552:20
5572:22 5577:10
5586:5 5587:14
5606:21 5611:16
5624:15 5625:14,
18 5626:5,10
5627:11 5632:18
5651:16 5657:12
5703:26 5705:6
5715:16,23
5716:26 5722:8
5730:26 5731:22
5749:12,13
5752:16 5754:4,
12 5755:1,13,14,
15,18
impacted 5682:3
5718:20 5736:9
impacting
5611:11
impacts 5587:17
5588:7,13 5601:8
5627:22 5637:9
5701:2 5706:10
5718:19,24
5719:8 5731:11
5743:26 5745:3
5746:14 5747:4,
10 5749:17
5750:6 5752:5
impingement
5632:19 5633:17
implement
5577:18 5671:26
5677:12,15
5695:12 5737:18,
24 5738:25
5739:17,24
5750:6,7
implementation
5677:17 5695:22

5742:24 5749:19	5737:20 5739:1	induce 5657:1	5650:26 5651:17,	5721:14
implemented	5744:12	industrial	18 5652:8,24	intent 5577:16,20
5636:17	inclusion	5618:10 5642:22,	5653:2,6,16,25	5591:2 5687:7
important	5577:15	23 5700:26	5655:4,17,24	intention
5552:25 5578:5	inconsistency	industry 5624:16	5656:3 5657:7,12	5672:11
5591:17 5596:18	5663:6	5645:21	inside 5678:9,12	interested
5606:6,16 5651:9	incorporate	inflammatory	5679:25 5701:24	5688:20
5660:14 5711:4	5679:3 5681:5	5560:16	5737:7	intermittent
5714:26 5723:10,	incorporated	inform 5597:11,	inside-the-body	5703:26 5704:3,
15 5731:3,5	5678:23 5709:13	12 5613:2	5561:15	24 5705:6
importantly	incorporates	5750:24	insight 5726:17	5741:21
5554:7	5702:10 5707:10	informally	insignificant	International
impose 5718:14	incorrect	5731:9	5641:11,16	5648:8
imposed 5719:22	5552:18	information	5731:15	interval 5721:14
improve 5744:17	increase 5692:4	5569:25 5596:4	insist 5665:14	intervener
impulsive	5706:5	5599:6 5600:24	install 5636:10,	5554:5 5555:22
5698:19 5700:8,	increases	5630:2 5636:7,8	18 5696:17	interveners
19,20,25 5701:1,	5687:21	5637:23 5638:4,	installation	5555:23 5556:9,
3 5702:26	increasingly	17 5671:19	5680:6	16
5703:6,23	5743:20	5683:2 5707:6	installations	introduce
inability 5680:26	incumbent	5716:12 5718:4	5618:1	5594:26
incidental	5707:21	5728:23 5732:3	installed	introduced
5741:12	incurs 5553:6	5753:15	5636:11,21	5655:22
incidents	Indian 5667:4	informed	5678:9	invasive 5651:6
5569:26 5741:11	indicating	5612:26	installing	inventory 5599:8
include 5569:2	5594:1	initial 5590:11	5658:18	5677:19 5695:16
5594:10 5596:6	indications	initiation	instance 5588:12	invertebrates
5619:16 5672:1	5613:4	5744:20	5592:9 5596:11	5583:25 5589:24
5677:13 5695:14	indicative 5716:5	inject 5754:17	5641:3 5647:9	5619:13
5721:21 5740:4	indicator	inlet 5754:19	5664:5	invest 5644:4,5
included 5577:6	5748:18	input 5626:24	instances	investigate
5581:21 5584:14	Indigenous	5627:9 5637:2	5690:11	5670:22 5706:17
5585:12,20,23,24	5576:21,22	5710:12	insulation	investigated
5649:3 5677:22	5577:3,6	inputs 5612:24	5725:15	5711:25
5698:13 5700:7	indirect 5627:22	5628:10	insulting 5556:7	investigation
5740:15,20	5637:9	insect 5618:25	intact 5685:13,17	5706:26 5722:12
5749:8	INDISCERNIB	5651:10 5652:23	intake 5592:22	investors
includes 5597:12	LE 5619:5	5657:2 5661:15	5736:26	5643:22 5644:1,4
5603:17 5717:3	individual	insectivore	intend 5595:9	involuntarily
including	5714:8 5722:17	5594:12	5645:3 5659:12	5609:10
5552:12 5557:21	individuals	insectivorous	5733:8	involved 5588:4
5569:26 5583:10	5644:16	5590:24	intended	5615:5 5658:8
5584:20 5590:15	indoor 5705:13	insects 5618:14	5563:13 5591:23	5665:4 5746:8
5616:14 5651:18		5619:3,9,12	5672:14 5717:15	5749:2
5670:7 5673:1				

involvement 5723:18	5643:16 5644:11 5647:13,18,26 5648:4,22 5650:12,16 5651:11,13 5654:19 5656:6, 22,25 5659:17,24 5660:2,8,11,17, 20,22,26 5661:1, 2,8,11,13 5662:2, 17 5663:23 5665:19,21 5668:14	5601:3 5604:4 5607:10 5611:2, 22 5612:4,9,10 5614:20 5615:2, 3,19 5616:12 5617:3,7 5618:8 5619:10 5652:7, 9,10 5655:5,8,12 5670:4 5727:17 5730:15,20 5734:18 5737:22, 26 5741:7 5742:13 5744:26 5747:2 5748:12, 24 5749:2,19 5750:5,8 5752:3 5754:4 5756:5	kilometres 5567:6 5587:8,9 5618:19,23 5647:10 5681:17 5719:4 kind 5574:14 5585:19 5594:20 5600:23 5618:25 5620:5 5627:18 5655:16 5664:17 5677:25 5679:6 5682:23 5687:17 5693:14 5695:6 5696:9 5699:18 5706:2 5720:19 5725:16 5726:26 5727:9 5733:7 5735:5 5741:22 kinds 5645:20 5658:23 5659:5, 22 5712:25 knew 5653:14 knocking 5749:21 knowledge 5706:9 Kow 5580:24 5585:14 Ktunaxa 5666:25	5686:1,21 5689:9 5696:13,15 5699:21 5700:14, 18,21,24 5705:9, 12 5707:26 5708:4,19,23 5713:7,9 5715:25,26 5716:1 5720:7, 11,15 5721:4,8 5724:14,15,18,20 5725:26 5726:3,5 lags 5749:1 lake 5588:24 5589:5,9,10,14, 17,21,24 5590:1, 6,7,18,21 5591:14 5592:4, 10,14,17 5593:11,15 5594:7,11,21,23, 24 5595:2,7 5596:13,19,22 5597:17,19 5607:25 5609:4 5611:1 5612:18, 25 5613:3,6,8,13, 16,24 5614:2 lakes 5603:12 5604:16,21 5607:13,14,25 LAMAX 5705:16 Lambrecht 5666:12 5726:21 5757:6 Lambright 5570:14 land 5632:12 5643:10 5686:5 5748:7 5755:21 landings 5741:12,16 Landowners 5555:9 5668:8
isolation 5562:25	Jim 5668:16	Kapel 5666:10 5669:25 5726:7, 11,16,20 5727:10,11,12, 13,19,22 5729:8, 10,21 5730:2 5733:24 5734:1 5736:12,18 5737:2,4,12,16 5739:21 5742:4,6 5753:1,5,9,11 5757:3	kinds 5645:20 5658:23 5659:5, 22 5712:25 knew 5653:14 knocking 5749:21 knowledge 5706:9 Kow 5580:24 5585:14 Ktunaxa 5666:25	lags 5749:1 lake 5588:24 5589:5,9,10,14, 17,21,24 5590:1, 6,7,18,21 5591:14 5592:4, 10,14,17 5593:11,15 5594:7,11,21,23, 24 5595:2,7 5596:13,19,22 5597:17,19 5607:25 5609:4 5611:1 5612:18, 25 5613:3,6,8,13, 16,24 5614:2 lakes 5603:12 5604:16,21 5607:13,14,25 LAMAX 5705:16 Lambrecht 5666:12 5726:21 5757:6 Lambright 5570:14 land 5632:12 5643:10 5686:5 5748:7 5755:21 landings 5741:12,16 Landowners 5555:9 5668:8
isopleths 5646:21	John 5557:18 5586:24 5589:3 5614:20,22 5652:9 5670:4	keeping 5555:4 5614:17 5756:7	kinds 5645:20 5658:23 5659:5, 22 5712:25 knew 5653:14 knocking 5749:21 knowledge 5706:9 Kow 5580:24 5585:14 Ktunaxa 5666:25	lags 5749:1 lake 5588:24 5589:5,9,10,14, 17,21,24 5590:1, 6,7,18,21 5591:14 5592:4, 10,14,17 5593:11,15 5594:7,11,21,23, 24 5595:2,7 5596:13,19,22 5597:17,19 5607:25 5609:4 5611:1 5612:18, 25 5613:3,6,8,13, 16,24 5614:2 lakes 5603:12 5604:16,21 5607:13,14,25 LAMAX 5705:16 Lambrecht 5666:12 5726:21 5757:6 Lambright 5570:14 land 5632:12 5643:10 5686:5 5748:7 5755:21 landings 5741:12,16 Landowners 5555:9 5668:8
issue 5551:24 5554:23 5558:1 5572:9 5598:9 5679:15,18 5696:3 5699:13 5711:15 5712:24 5720:1,4	join 5757:11	Ken 5669:11	kinds 5645:20 5658:23 5659:5, 22 5712:25 knew 5653:14 knocking 5749:21 knowledge 5706:9 Kow 5580:24 5585:14 Ktunaxa 5666:25	lags 5749:1 lake 5588:24 5589:5,9,10,14, 17,21,24 5590:1, 6,7,18,21 5591:14 5592:4, 10,14,17 5593:11,15 5594:7,11,21,23, 24 5595:2,7 5596:13,19,22 5597:17,19 5607:25 5609:4 5611:1 5612:18, 25 5613:3,6,8,13, 16,24 5614:2 lakes 5603:12 5604:16,21 5607:13,14,25 LAMAX 5705:16 Lambrecht 5666:12 5726:21 5757:6 Lambright 5570:14 land 5632:12 5643:10 5686:5 5748:7 5755:21 landings 5741:12,16 Landowners 5555:9 5668:8
issues 5551:21 5573:18 5574:24 5611:11 5672:24 5695:25	Joint 5557:3,4 5666:12 5670:13 5727:13	key 5621:18 5651:4 5730:26 5732:19 5740:8 5752:8	kinds 5645:20 5658:23 5659:5, 22 5712:25 knew 5653:14 knocking 5749:21 knowledge 5706:9 Kow 5580:24 5585:14 Ktunaxa 5666:25	lags 5749:1 lake 5588:24 5589:5,9,10,14, 17,21,24 5590:1, 6,7,18,21 5591:14 5592:4, 10,14,17 5593:11,15 5594:7,11,21,23, 24 5595:2,7 5596:13,19,22 5597:17,19 5607:25 5609:4 5611:1 5612:18, 25 5613:3,6,8,13, 16,24 5614:2 lakes 5603:12 5604:16,21 5607:13,14,25 LAMAX 5705:16 Lambrecht 5666:12 5726:21 5757:6 Lambright 5570:14 land 5632:12 5643:10 5686:5 5748:7 5755:21 landings 5741:12,16 Landowners 5555:9 5668:8
issuing 5750:18	JRP 5554:18,20, 21,24	kick 5722:12	kinds 5645:20 5658:23 5659:5, 22 5712:25 knew 5653:14 knocking 5749:21 knowledge 5706:9 Kow 5580:24 5585:14 Ktunaxa 5666:25	lags 5749:1 lake 5588:24 5589:5,9,10,14, 17,21,24 5590:1, 6,7,18,21 5591:14 5592:4, 10,14,17 5593:11,15 5594:7,11,21,23, 24 5595:2,7 5596:13,19,22 5597:17,19 5607:25 5609:4 5611:1 5612:18, 25 5613:3,6,8,13, 16,24 5614:2 lakes 5603:12 5604:16,21 5607:13,14,25 LAMAX 5705:16 Lambrecht 5666:12 5726:21 5757:6 Lambright 5570:14 land 5632:12 5643:10 5686:5 5748:7 5755:21 landings 5741:12,16 Landowners 5555:9 5668:8
item 5670:21 5684:3 5692:26 5693:21	Judd 5668:12	kidding 5745:7	kinds 5645:20 5658:23 5659:5, 22 5712:25 knew 5653:14 knocking 5749:21 knowledge 5706:9 Kow 5580:24 5585:14 Ktunaxa 5666:25	lags 5749:1 lake 5588:24 5589:5,9,10,14, 17,21,24 5590:1, 6,7,18,21 5591:14 5592:4, 10,14,17 5593:11,15 5594:7,11,21,23, 24 5595:2,7 5596:13,19,22 5597:17,19 5607:25 5609:4 5611:1 5612:18, 25 5613:3,6,8,13, 16,24 5614:2 lakes 5603:12 5604:16,21 5607:13,14,25 LAMAX 5705:16 Lambrecht 5666:12 5726:21 5757:6 Lambright 5570:14 land 5632:12 5643:10 5686:5 5748:7 5755:21 landings 5741:12,16 Landowners 5555:9 5668:8
<hr/> J <hr/>	jump 5624:20 5625:3 5704:5	kill 5652:3	kinds 5645:20 5658:23 5659:5, 22 5712:25 knew 5653:14 knocking 5749:21 knowledge 5706:9 Kow 5580:24 5585:14 Ktunaxa 5666:25	lags 5749:1 lake 5588:24 5589:5,9,10,14, 17,21,24 5590:1, 6,7,18,21 5591:14 5592:4, 10,14,17 5593:11,15 5594:7,11,21,23, 24 5595:2,7 5596:13,19,22 5597:17,19 5607:25 5609:4 5611:1 5612:18, 25 5613:3,6,8,13, 16,24 5614:2 lakes 5603:12 5604:16,21 5607:13,14,25 LAMAX 5705:16 Lambrecht 5666:12 5726:21 5757:6 Lambright 5570:14 land 5632:12 5643:10 5686:5 5748:7 5755:21 landings 5741:12,16 Landowners 5555:9 5668:8
<hr/> Janet 5557:17 5610:7,15 5622:2 5639:2 5670:3	jurisdiction 5718:15	killed 5603:24	kinds 5645:20 5658:23 5659:5, 22 5712:25 knew 5653:14 knocking 5749:21 knowledge 5706:9 Kow 5580:24 5585:14 Ktunaxa 5666:25	lags 5749:1 lake 5588:24 5589:5,9,10,14, 17,21,24 5590:1, 6,7,18,21 5591:14 5592:4, 10,14,17 5593:11,15 5594:7,11,21,23, 24 5595:2,7 5596:13,19,22 5597:17,19 5607:25 5609:4 5611:1 5612:18, 25 5613:3,6,8,13, 16,24 5614:2 lakes 5603:12 5604:16,21 5607:13,14,25 LAMAX 5705:16 Lambrecht 5666:12 5726:21 5757:6 Lambright 5570:14 land 5632:12 5643:10 5686:5 5748:7 5755:21 landings 5741:12,16 Landowners 5555:9 5668:8
January 5551:20 5552:6,15 5553:24 5554:24 5556:17,24,26	juvenile 5618:19	kilometre 5564:11,12 5604:20 5681:23	kinds 5645:20 5658:23 5659:5, 22 5712:25 knew 5653:14 knocking 5749:21 knowledge 5706:9 Kow 5580:24 5585:14 Ktunaxa 5666:25	lags 5749:1 lake 5588:24 5589:5,9,10,14, 17,21,24 5590:1, 6,7,18,21 5591:14 5592:4, 10,14,17 5593:11,15 5594:7,11,21,23, 24 5595:2,7 5596:13,19,22 5597:17,19 5607:25 5609:4 5611:1 5612:18, 25 5613:3,6,8,13, 16,24 5614:2 lakes 5603:12 5604:16,21 5607:13,14,25 LAMAX 5705:16 Lambrecht 5666:12 5726:21 5757:6 Lambright 5570:14 land 5632:12 5643:10 5686:5 5748:7 5755:21 landings 5741:12,16 Landowners 5555:9 5668:8
Janusz 5639:17, 20,23,24 5640:6, 18,19 5642:6	<hr/> K <hr/>		kinds 5645:20 5658:23 5659:5, 22 5712:25 knew 5653:14 knocking 5749:21 knowledge 5706:9 Kow 5580:24 5585:14 Ktunaxa 5666:25	lags 5749:1 lake 5588:24 5589:5,9,10,14, 17,21,24 5590:1, 6,7,18,21 5591:14 5592:4, 10,14,17 5593:11,15 5594:7,11,21,23, 24 5595:2,7 5596:13,19,22 5597:17,19 5607:25 5609:4 5611:1 5612:18, 25 5613:3,6,8,13, 16,24 5614:2 lakes 5603:12 5604:16,21 5607:13,14,25 LAMAX 5705:16 Lambrecht 5666:12 5726:21 5757:6 Lambright 5570:14 land 5632:12 5643:10 5686:5 5748:7 5755:21 landings 5741:12,16 Landowners 5555:9 5668:8
	Kansas 5557:18 5586:22,24 5588:23,25		kinds 5645:20 5658:23 5659:5, 22 5712:25 knew 5653:14 knocking 5749:21 knowledge 5706:9 Kow 5580:24 5585:14 Ktunaxa 5666:25	lags 5749:1 lake 5588:24 5589:5,9,10,14, 17,21,24 5590:1, 6,7,18,21 5591:14 5592:4, 10,14,17 5593:11,15 5594:7,11,21,23, 24 5595:2,7 5596:13,19,22 5597:17,19 5607:25 5609:4 5611:1 5612:18, 25 5613:3,6,8,13, 16,24 5614:2 lakes 5603:12 5604:16,21 5607:13,14,25 LAMAX 5705:16 Lambrecht 5666:12 5726:21 5757:6 Lambright 5570:14 land 5632:12 5643:10 5686:5 5748:7 5755:21 landings 5741:12,16 Landowners 5555:9 5668:8

lands 5621:19,21,
23 5622:5,12,13,
17 5624:2,8,14,
17 5625:8,18,25
5629:1,2 5633:2
landscape
5654:25 5690:19
5729:16 5734:7
5754:9 5756:8
landscapes
5690:15
large 5559:25
5560:9 5563:7
5569:7 5604:2,8,
22 5605:19,22
5606:9 5664:11
5674:26 5683:5
largely 5630:2
5642:11 5702:17
larger 5587:12
5612:3 5617:1
5674:22 5676:4
5682:6
largest 5604:24,
26 5607:8
5683:17
larva 5607:26
5609:16
lasts 5715:10
late 5552:6
5727:2
laughable
5555:15
law 5555:20
5580:24 5585:14
5662:19
laws 5663:3
lawyers 5555:23
lay 5583:24
layered 5590:14
layering 5594:4
layout 5709:19
lays 5593:22

leach 5596:24
leachate 5736:25
lead 5712:7
leads 5600:16
learn 5596:23
learned 5657:13
learning 5573:20
leases 5632:14
5750:18
leave 5591:26
5623:14,23
5624:1 5654:20
5655:3 5677:2
5704:9 5738:8
leaves 5704:19
5745:25
leaving 5623:16
LED 5650:1
5657:25
left 5619:13
5653:12 5654:25
5720:12,13
5754:22
legacy 5605:9
legs 5607:26
length 5552:26
5690:17 5708:6
lenient 5620:18
lentic 5613:24
LEQ 5703:12
5715:4,16
let alone 5719:8
lettered 5738:14
level 5566:1,9,10,
11 5570:4
5609:13 5615:1,
26 5630:11
5645:23 5647:6
5677:25 5678:16
5679:10,25
5699:20 5701:10,
25 5702:20
5703:13,18
5707:7 5709:2,21

5711:13,14,19,20
5714:17 5715:4,
21 5716:13
5717:6 5721:22
5722:15,21
5723:13,17
5728:15 5735:20
5736:4 5742:1
5748:16 5755:12
levels 5565:25
5577:19 5583:24
5617:23 5626:5,
11,20,21 5629:1
5646:2,3,20,22,
24 5647:3
5648:13 5657:1
5672:25 5681:17
5703:4 5704:11,
25 5705:14
5706:6 5707:13,
15,16,19,20,22
5708:15,18,25
5709:5,7 5711:21
5712:3,4 5714:20
5715:5,13
5716:7,8,16
5719:12 5721:15
5737:9 5748:1
leverage 5665:14
liability 5663:13
licence 5641:22
5642:1,4,19
5643:5,7,18,23,
24 5645:2 5660:6
licenced 5643:2,6
licences 5643:10,
22 5644:7,9,12
5645:8
licencing 5642:8,
15,18,24
life 5570:23
5571:13 5588:24
5589:5,6,7,8
5590:6 5592:11,
18 5602:22
5605:11 5610:25

5611:5 5614:18
5617:11 5618:25
5619:18 5643:1
5735:18
light 5557:21
5648:4,5,13
5649:12,16,22,
23,26 5650:9
5651:8,15,23,26
5652:2 5655:23,
25 5656:2,10,14,
17,26 5657:6,16
5661:21 5670:7
lighting 5648:9,
19 5649:13,20,24
5650:5,8 5656:8
5657:21,24,26
5658:1 5659:21
5661:16
lights 5648:11,17
5649:19 5650:2
5655:20 5656:7,
13,18 5657:9,10
5658:19 5659:2
likelihood
5736:6
lime 5604:15,22
5607:6
limit 5562:15
5614:10 5683:19
5717:3,5 5748:14
limited 5552:3
5578:2 5598:7
5599:26 5620:21
5627:18,20
5637:7 5639:23
5666:22 5668:2
5670:11 5672:1
5677:14 5695:14
5736:10
limits 5565:17
5566:16 5717:12
Lindsey 5557:18
5578:17 5590:9
5619:10 5670:4
5738:12 5740:2

linear 5566:9
lines 5561:22
5562:14,23
5563:1 5705:19
5724:16
link 5598:23
lion's 5624:24
5626:6
list 5675:21,26
listed 5580:7,23
5675:19 5676:5
5728:13,18
listening 5570:13
lists 5596:6
5708:15,24
5709:1 5739:13
literal 5589:4
literature 5581:8
5584:15 5618:17
5681:19
littoral 5605:12
5611:1
livability
5570:17,20,24
5573:4,8,26
5575:11
live 5550:24
5589:21 5590:5
5592:10 5606:6
5645:12 5647:9,
13,16 5659:7
lived 5574:12
lives 5593:10
living 5572:7
5589:24
Livingstone
5555:9 5668:8
LLG 5575:10,13
LLP 5620:23
load 5671:8
loaded 5695:3
5701:20 5704:9,
18

loading 5559:26
5698:22,25
5700:2,6 5701:7,
9,13,14,17,26
5702:11,17,20
5703:21,23
5704:8,10,23
5705:3 5708:10,
12 5710:13

loadout 5634:24
5635:2 5676:20
5684:11 5693:13
5694:10,11,17
5696:26 5697:2,
20 5698:17,24
5703:25 5704:1,
3,14,22 5708:11,
16,25 5709:2,4,8,
12,14 5710:2,23
5712:18

loadouts 5710:8

lobbying 5665:2,
8

local 5555:22
5610:5,21
5622:13,14
5627:24 5628:23
5629:4 5630:21,
22 5632:3
5633:10 5637:11
5651:15 5732:9
5751:3

locate 5602:2,25
5687:15

located 5603:1
5687:8 5694:13
5751:12,22
5754:18

location 5560:2
5563:16 5619:23
5633:18 5686:25
5687:1,25
5697:11,14,17,18
5707:8 5719:5
5723:16 5724:3
5753:26

locations
5686:12,16
5687:11,21
5696:20 5712:26
5723:3,7,9,22

locomotive
5698:24 5709:2
5712:17,21

locomotives
5702:12,21,22
5704:13,15
5709:17,23
5710:25

logging 5732:3,
10

long 5552:9
5570:12 5589:7
5596:25 5615:24
5617:22 5634:10
5651:23 5656:26
5683:26 5688:22,
23 5689:16
5704:21 5719:6
5745:11 5748:20
5754:9

long-term
5707:9 5736:7
5743:10 5746:14
5754:4

long-toed
5605:17

longer 5552:14
5600:19 5753:22

longest-lasting
5743:26

looked 5568:24
5570:24 5573:3
5606:13 5624:9
5625:7 5632:22
5650:21 5731:8
5749:11

loop 5698:18,26

loss 5586:20
5587:14,17
5588:11 5608:25
5610:24 5651:1,5

5729:18 5730:11,
23 5731:26
5732:17 5734:9,
13 5742:23
5744:5 5747:11

losses 5603:15

lost 5587:13
5588:5,12 5609:2
5617:24 5729:7

lot 5570:6
5574:23 5596:23
5609:23 5617:16
5637:19 5646:14
5657:24,26
5658:3 5680:2
5726:24 5741:10
5746:26

loud 5556:11

low 5565:19
5566:23,25
5590:23 5646:24
5648:13 5657:1
5701:20,26
5736:5 5748:16,
19 5751:11,20
5756:3

low-frequency
5710:22,24,25
5711:3,6,15
5712:2,16 5713:3

low-lying
5615:26

lower 5578:22
5583:21 5622:8
5693:26 5732:26

lower-quality
5600:11

lowers 5701:14

lowest 5664:9

LSA 5610:1
5627:10 5632:10
5633:1,3,5,7,26
5634:3,4,6
5637:17

luffing 5693:25
5694:5

lunch 5639:18,
19,21 5665:22

lungs 5573:2

luxury 5623:20

lynx 5732:22
5734:25

M

M-HM 5753:8

macro-moths
5651:19

made 5559:19
5575:26 5607:3
5621:22,24
5622:6 5636:12,
14 5646:11
5657:19 5670:26
5674:1 5693:19
5722:14 5738:11
5740:23

magnitude
5566:4 5590:23
5671:12,15

main 5621:11
5624:15 5743:7
5747:4,7,9

maintain 5565:5

maintained
5755:21

maintaining
5612:3 5617:21

maintains
5641:20

maintenance
5640:23,26
5677:17,22
5730:5

major 5630:21
5699:12 5741:9

majority
5551:13 5672:16
5709:11 5754:24

5755:25

make 5551:7,15,
26 5556:17
5575:25 5580:13
5591:3 5593:22
5595:24 5611:4
5632:6 5649:23
5663:8 5685:25
5695:6 5697:22
5703:2 5724:1
5746:23 5753:12
5756:25

make-down
5684:12

making 5553:21
5664:18

malfunction
5699:5

manage 5618:4
5659:18 5740:21
5748:18

managed 5714:9

management
5601:21,22
5611:15,24
5616:4 5648:4,6
5661:22 5662:1
5672:1,12,14,15,
20 5673:1
5677:13,23
5695:13 5696:22
5740:12 5744:17
5749:20,25
5753:17,22
5754:2

managing
5622:26

manifest 5707:3

manmade
5608:5

manner 5552:22

manufacturer
5684:9 5685:5

map 5604:2,7
5607:3 5608:14

5633:6	mature 5744:10 5745:2,23 5756:1	5722:15	5617:23 5701:2	migratory 5557:21 5670:7 5735:9 5737:6 5741:1,6,10 5743:22 5744:6, 15 5748:9 5755:21
mapping 5606:19	maximum 5632:19 5633:15, 17 5701:9 5713:15 5715:21	measures 5613:11 5616:14 5618:13 5623:7 5695:18,20 5733:13 5737:18, 24 5738:25 5739:4,17,20,25 5740:17 5749:9 5752:5,20,24	metals 5579:15, 17 5581:1 5582:21 5583:2 5584:17,21 5585:1 5619:8, 18,26	Mike 5557:16 5611:7 5616:6 5632:4 5637:25 5639:6 5668:12 5670:2
maps 5646:21	Mccooy 5557:17 5628:15,17,18 5629:22 5642:2, 5,6 5670:3 5686:18,21 5688:12,13,22,25	measuring 5636:16 5711:8 5717:8,11	meteorological 5563:14 5564:4 5672:5	miles 5646:17,18
marginally 5559:4	Mcgillivray 5667:18	mechanism 5701:13	meteorology 5567:4,6,8	Millennium 5581:13 5588:26 5591:12 5601:8 5602:2,17 5603:15 5615:22 5625:17
marine 5664:8, 11 5665:9	Mchugh 5667:9	Medical 5696:20	metering 5645:12	Millennium's 5602:11
mark 5574:26	Mcintyre 5669:5	Medicine 5569:14	methanol 5586:13 5754:16	Milligan 5668:20
marked 5560:17 5620:4	MD 5551:18 5620:20 5621:6, 8,12,22,23 5622:5 5623:18 5624:26 5632:8 5634:20 5635:5,9 5636:19 5667:14	medium-sized 5690:26	method 5580:10 5691:5 5743:2	millimetres 5717:4
market 5665:13	MD's 5624:14	meet 5580:3 5583:16 5698:1 5740:6,22	methodologies 5618:9	mimicking 5746:2,3
marten 5731:8, 10 5732:22 5734:23	meaningful 5654:15	meeting 5719:20	methodology 5703:8 5711:17 5715:19,21	mind 5567:20 5596:20 5691:10 5712:12 5745:1
Martin 5551:25 5598:8	means 5573:10 5617:14 5631:13 5651:2 5652:11 5713:2 5757:5	meets 5673:26	methods 5583:10 5584:19	mine 5560:1 5573:23 5574:2 5577:9 5587:4,5, 8,12 5589:11 5596:13 5603:12 5605:9 5607:12 5609:20 5610:24 5611:5 5612:2 5614:7,18 5617:10 5619:21, 24 5621:5 5622:22 5623:1, 16,24 5624:1 5632:11,14,16,25 5633:16 5634:19, 21,22 5635:9,11 5643:19 5647:5,
Master 5581:16 5583:26 5604:18	meant 5563:20 5565:20 5595:18 5705:22 5706:1	Meighan 5670:13	metre 5701:10	
match 5591:3 5594:7 5644:12	measurable 5719:8	melatonin 5657:4	metres 5708:6,12	
material 5555:15 5585:10,15 5685:12 5686:11 5688:16 5689:19 5690:23 5693:5	measure 5566:21 5743:7 5747:4,7, 10	members 5554:18,24 5577:23 5620:22 5639:13 5665:20	metric 5740:8	
materially 5553:2,15,19	measured 5710:23 5711:18 5716:9	mention 5653:11 5661:14	mic 5612:9	
materials 5586:5 5619:16 5742:8 5743:11 5751:15	measurement 5719:3	mentioned 5624:22 5645:11 5646:6 5738:6 5747:23	microphone 5551:2 5610:18 5611:22	
maternal 5617:17 5655:14	measurements 5702:8,15	Mercoal 5747:13	mid 5552:6	
math 5587:23 5683:13		met 5581:20 5674:5 5711:15 5712:2	mid-1980s 5737:7	
matter 5551:11 5552:10 5554:11 5555:12 5560:17 5616:13 5644:20 5675:17		metal 5613:26	Mid-january 5552:7	
matters 5557:12			middle 5605:8 5608:10 5609:11 5627:18 5654:16 5729:26	
Matthews 5666:7 5757:11			midst 5692:17	
			migration 5590:22	

10,11 5654:11,17 5655:25 5656:2 5659:13 5664:16 5673:12,25,26 5674:5,18 5677:12,15,19,22 5682:7,14 5683:2,5,18 5687:4 5691:1 5713:20 5715:15 5716:9,15 5718:21 5719:3 5721:18 5732:9, 14 5740:3,19 5745:9,17 5747:13,14,15, 16,20	5578:2 5589:8,13 5598:7 5599:26 5603:22 5620:21 5632:17 5639:23 5643:21 5644:5,6 5666:22 5670:10 5671:3 5674:26 5692:14 5746:20	23 5622:23,26 5623:5,7 5653:13 5673:10 5682:13, 15,19 5684:4 5685:24 5686:1 5688:15,24 5690:13 5691:9 5692:9 5695:13, 20 5699:14,16 5710:24 5711:22, 25 5712:6,9,10, 19 5733:12 5737:18,24 5738:25 5739:4, 17,20,24 5740:17,26 5743:7,16 5745:2 5747:4,10 5748:26 5749:9 5752:4	5646:20 5678:26 5709:9,18,20 5714:21 5721:16 5732:2	5723:20,26 5733:8 5750:9 5756:21
mine-related 5570:22 5571:12	MINISTRY 5721:6	mitigations 5575:26 5576:3, 4,6,11 5577:18 5613:15 5670:20 5686:8	modelling 5558:2,11 5563:21 5564:16, 24 5565:1,3 5585:8,21,23 5590:17 5612:26 5630:3,4 5678:23 5680:11 5681:6, 14 5682:8 5700:7 5710:5 5711:2,10 5713:14,21 5714:24 5716:2, 14 5728:7,22	monitored 5591:7 5619:26 5756:16
mined 5558:25 5686:3 5691:21 5747:20	minor 5640:23, 26 5687:23 5748:16	mitigative 5680:15 5752:20, 23	models 5585:6 5680:26 5681:11 5734:14	monitoring 5563:12 5589:14 5591:24 5597:16 5616:21,24 5617:21 5635:20 5636:3,10,11,18, 21 5684:15 5695:23 5696:18, 21,25 5697:2,12, 18,26 5698:2 5706:18 5707:10 5711:11 5712:1 5717:14,15,18,21 5719:22 5720:3 5721:12,21 5722:10,22 5723:16 5734:14 5740:8,19,20 5744:16 5748:26 5750:10
mineral 5628:9	minus 5711:13	mitigation 5680:15 5752:20, 23	moderate- 5730:24	monoxide 5586:14
mines 5574:12 5674:22 5675:3 5681:15 5704:14 5732:5 5751:5	minute 5576:25 5590:8 5614:5 5677:2 5724:5 5740:1 5757:9	mix 5602:15 5688:17	modern 5573:21	month 5690:7
minimal 5632:15 5715:18,24	minutes 5578:4 5620:25 5677:6 5704:26 5726:1	mixed 5622:9	modest 5725:8	Mooney 5557:19 5578:13,17 5579:19 5581:19 5584:12 5585:5 5590:9 5592:7, 20,24 5593:6 5594:22 5595:10, 13 5619:12 5670:5 5738:2, 10,12,13 5739:12 5740:2
minimize 5622:23 5623:12, 13 5649:15 5656:17 5684:8 5686:13,16 5690:17,21 5693:10 5694:1 5714:15 5744:22	mispronunciatio n 5630:16	mixes 5684:13,14	modifications 5577:18	modules 5640:15,22
minimized 5693:25 5742:23	missed 5614:15	mixture 5622:8	moment 5567:2 5580:19 5581:5 5582:1,4 5593:19 5612:4,13 5679:7 5682:11 5697:24 5698:5 5703:20 5707:25 5710:21 5713:4 5725:12 5729:9 5733:22 5739:26 5752:10, 19 5756:4	Monday 5556:13 5727:6,9 5757:6, 19
minimizing 5650:8 5671:7	mistake 5634:5	mobile 5673:25 5674:5,18 5677:12,16,19 5724:23 5725:2, 18,22,23	Monday 5556:13 5727:6,9 5757:6, 19	moose 5728:19
mining 5552:3 5558:17,20 5559:5,10,18,22 5564:10 5573:11, 12 5574:15	misunderstandi ng 5580:23	model 5558:24 5564:9 5565:6 5680:24 5702:9, 25 5712:21 5716:7 5722:18 5733:17,18,21	Monica 5646:5, 16 5669:14	Morehouse 5668:19
	Mitchell 5557:18 5560:14,20 5565:14,22 5567:13,16,21 5578:13 5585:4 5670:4	modelled 5623:25 5624:5	monitor 5589:15 5592:17 5596:21	morning 5550:23 5551:17 5557:24 5612:6 5620:22

5621:1,2
5639:14,20
5642:6 5715:8
5727:6 5757:6,19

mortality

5735:13 5737:11
5748:9

Moulins 5669:3,
9

Mountain

5573:16,23
5621:5 5634:19
5646:7 5667:26
5738:5 5747:19
5752:17

**mountaintop-
removal** 5577:9

movable 5694:12

move 5564:18
5596:20 5603:22
5606:7 5677:8
5694:8 5704:16
5706:2 5728:11
5729:3 5737:13
5741:25

moved 5559:3,6
5607:17 5609:10
5619:22 5675:2

movement
5743:4

moves 5698:26

moving 5555:5
5634:18 5709:18
5735:8

multilayered
5585:12

multimedia
5585:6

multiple 5561:22
5563:1,10
5583:10 5584:19

Municipal
5635:5

municipality
5569:10 5636:5,

12 5642:25
5644:23 5648:21
5649:1 5658:20
5667:11 5672:23
5696:16 5697:10

mute 5655:11
5694:19 5715:25
5716:17 5734:17
5748:12

muted 5589:3
5737:25

myotis 5652:17
5732:24

Métis 5667:1

N

nailed 5725:24

Nakoda 5667:6

names 5631:17

Nation 5666:25
5667:1

National 5599:8
5737:8

Nations 5667:6

natural 5608:4
5649:25 5650:3
5654:25 5745:14
5752:22

nature 5551:17
5573:24 5687:12
5690:25 5699:22
5707:2,5 5712:19
5746:3

navigate 5659:11

NCP 5716:20
5721:6

nearby 5595:11
5699:13 5703:26

necessarily
5560:7 5561:5,13
5562:21 5590:26
5591:19 5638:25
5729:14 5733:21
5734:5

needed 5621:18
5643:1 5648:13

negative 5606:21

negligible
5566:11 5627:24
5637:11

neighbour
5663:24

neighbourhood
5689:1

nest 5575:1
5590:5 5735:17,
18

nesting 5735:22

net 5676:8

night 5651:8
5705:17 5709:26
5710:1,20 5715:9

nighthawk
5745:18

nighttime 5710:3
5713:16

Nijjer 5667:16

nitrate 5670:23

nitrogen 5586:2,
9 5626:24

5670:24 5671:13
Niven 5620:24
5621:4 5667:14

noise 5557:20
5570:6 5576:14
5645:23 5646:15,
20,22,24 5647:1
5663:14 5670:6
5672:25 5698:13
5699:12,13
5700:6,7,9,11
5701:22 5702:9,
10,15,20,21,23,25
5703:4,8,11,17,
23,26 5704:10,
22,25 5705:5,6,8
5706:6,10,11,19
5707:5,9,12,15,
19,22 5708:15

5709:5,11,23
5710:4,22,24,25
5711:1,3,6,10,11,
15,18,20,24
5712:3,6,16
5713:3,14,20
5714:15 5715:2,
5,13,14,21
5716:7,8,11,16,
19,25 5718:2,6,
10,12,15
5721:11,15,17,21
5722:8,10,15,17
5723:2,4,19,26
5735:21

noises 5647:5
5698:19

nominal 5736:9

nonhatch 5596:9

nonhatched
5596:3

noninvasive
5688:16 5690:16

nontoxic 5684:6
5694:22

nonviable
5595:26 5596:6

normal 5557:1
5698:22 5717:9
5734:26

north 5697:7

northeast
5569:14

northwest
5611:4 5613:17,
23 5614:3

not-too-distant
5720:9

noted 5595:19

notes 5594:16
5758:6

notice 5675:14

noticed 5606:12

notices 5658:10

notion 5562:4

notorious 5727:1
notwithstanding
5606:14

November

5555:13 5564:22,
25 5640:3
5645:11 5666:3
5674:9 5724:8
5757:21 5758:9

NOX 5676:11,14
5683:11

nozzle 5701:18

NPC 5716:20
5717:1 5719:10
5720:18

number 5567:11
5569:8,22
5570:13 5573:14
5574:12,13
5575:4 5579:12
5580:8 5589:15
5593:1 5598:11
5603:26 5620:4,8
5634:12 5636:26
5639:25 5640:4
5647:19,23
5650:13 5651:3
5656:18 5661:3
5670:21 5674:26
5675:10 5680:20
5684:3 5688:13
5690:13 5692:26
5693:21 5694:9,
21,25 5699:8
5700:16,17
5705:22 5708:14,
21 5709:3
5716:21 5720:21,
25 5721:2 5722:1
5735:12 5738:15
5741:19 5751:16
5752:10 5756:25

numbered

5738:14

numbering 5674:12	5633:16 5689:12 5692:15,20	one's 5697:7 5704:2	5656:12 5678:5 5687:7,10 5701:3 5719:25 5721:13 5723:5	21,22,26 Osler 5555:21
numbers 5559:15 5582:22 5659:3 5675:21 5676:23 5677:4	occurs 5565:11 5715:14	ongoing 5735:20 5736:4	5719:25 5721:13 5723:5	outdoor 5646:10 5650:9
numerical 5590:17	ocean 5725:8	online 5658:11	opinion 5649:10 5733:16 5736:22	outdoors 5702:17
numerous 5572:11	Octave 5708:17	onstream 5661:20	opinions 5663:26	output 5590:17 5591:3 5730:6
nutshell 5662:18	October 5640:3 5647:21	Ontario 5718:8 5719:10 5721:5	opportunities 5655:15 5687:2, 5,14 5691:1	outset 5679:19,22
<hr/> O <hr/>	Off-road 5673:17	open 5551:9 5599:5 5604:3,8, 22 5605:19,22 5606:9 5607:4,11 5655:17 5738:7 5741:11 5745:18 5746:22	opportunity 5551:14 5573:22	outstanding 5598:13 5599:14
O'GORMAN 5666:6 5757:11	offer 5683:1	open-cut 5674:22	opposed 5566:11 5569:10 5634:4 5695:7 5702:17 5704:25	overcommitting 5696:12
objectives 5565:16 5566:15 5741:26	offhand 5610:11	open-pit 5577:8	optimally 5745:3	overestimate 5682:25 5683:20
obligates 5748:2	Official 5669:19 5758:15	open-water 5607:21	optimization 5684:16	overlap 5620:13 5731:26
obligation 5662:14,18 5663:2	offset 5603:17	opening 5650:7 5664:5	optimized 5714:13,14	overlapping 5730:19
obligations 5663:12	offsetting 5664:14 5748:25 5749:3,8,15,24 5750:1	openings 5653:18	optimum 5685:16	overlay 5607:3
observation 5704:13	oil 5670:23 5741:5,15 5742:2	operate 5693:9, 12 5694:4,16 5704:4	Option 5580:13 5581:3,9,11,17	overlooked 5651:10
obtain 5723:15	Okoye 5652:17 5653:8 5667:25	operating 5559:26 5560:8 5710:5 5740:7	options 5712:6	overlooking 5725:8
obtained 5707:6	Okoye's 5724:7	operation 5614:7,8 5641:20 5646:7 5664:22 5674:21 5699:14 5709:4 5710:2,23 5711:11 5713:20 5740:3 5754:23	oral 5551:16 5553:13	overview 5678:5
obvious 5597:20 5625:24	old-growth 5604:9,10 5655:16 5744:1 5745:13,22 5748:2	operational 5614:9 5704:14 5716:9	orange 5604:16	owl 5745:19
occasions 5691:16	older 5640:8 5743:20	operations 5589:11 5616:5 5619:22,24 5632:17,25	order 5620:3 5692:18 5710:14	owls 5751:19,21
occur 5642:16 5698:21 5713:10, 13 5715:6 5719:4 5735:18 5744:21 5748:1	Oldman 5669:16		organic 5585:15	oxide 5670:24 5671:13
occurred 5737:6 5745:11	olive-sided 5732:23 5749:21		organisms 5600:16	Oyen 5569:13
occurrence 5699:7,9 5711:4	omitted 5678:25		Organization 5705:21	<hr/> P <hr/>
occurring 5560:10 5632:24	omnivoracious 5590:24		original 5568:13 5644:26 5645:2	pace 5704:17
	on-site 5563:12, 14 5655:21 5684:13,17 5709:24 5717:12		originally 5621:3	Pacific 5664:9,20
			Orthic 5629:18 5630:12,15,26 5631:1,3,8,22 5632:3 5633:22 5637:20 5638:19,	Package 5582:2 5684:19 5696:23 5698:14 5700:1,3 5727:21 5742:19
				pages 5647:19 5758:3
				PAI 5637:2,13,16

paid 5595:8
paint 5725:15
pandemic
 5551:21
panel 5553:20
 5557:3,4,9,25
 5575:12 5577:22
 5578:9 5579:6
 5600:1 5615:11
 5620:16,22
 5621:15 5628:13
 5631:16,19,20,
 21,24 5633:23
 5637:22 5639:13
 5644:16 5665:20,
 24 5666:12
 5669:26 5670:12,
 13,15 5671:3,25
 5695:6 5701:23
 5707:9 5711:5
 5726:5,17,19
 5727:2,6,7,12,14,
 18 5742:15
 5757:7
paper 5560:15
 5658:13
papers 5616:11
 5650:18
paragraph
 5568:14 5627:17,
 19 5629:21
 5640:10,11
 5680:13 5698:10
 5700:4 5708:8
 5727:26 5737:1
parameter
 5679:5
parameters
 5686:19 5697:13
 5714:12
Pardon 5578:26
 5640:18 5647:26
 5700:17 5739:10
park 5725:22
Parks 5556:22
 5615:24 5667:20

part 5561:7,15,
 18,26 5563:7
 5567:16 5571:8
 5578:22 5580:8
 5582:24 5583:21
 5605:13 5615:24
 5632:12 5657:15
 5665:15 5689:13,
 15 5706:26
 5717:22 5723:17,
 22 5724:3
 5729:6,11
 5743:12 5748:25
 5751:16 5755:6,
 14
participant
 5551:20
participants
 5551:13 5646:5
participate
 5551:7
participating
 5553:16
particle 5717:4,
 12
particles 5560:24
 5561:11,25
 5562:11
particulate
 5560:16 5680:11
parties 5553:11
 5554:2,4,8,12,14,
 20
partly 5710:2
partner 5713:1
partners
 5665:11,15
parts 5660:13
 5717:10
party's 5553:16
pass 5569:15
 5570:1 5574:19
 5635:6 5636:5,12
 5642:25 5643:15
 5646:9 5648:21

5649:1 5658:20
 5667:12 5672:23
 5688:11 5696:17,
 19 5697:4
passed 5700:13
passes 5708:10
passing 5680:1
passive 5741:20
past 5573:20
 5657:22 5658:7
 5665:23
patch 5604:2
patches 5652:22
 5653:5,7,8,11,16,
 18,21,26 5654:9,
 10,16,25 5655:3
path 5597:11,12
 5659:16 5741:10
pathway 5594:22
pathways 5591:6
 5737:20 5739:1
pay 5592:17
paying 5553:17
PDC 5730:21
PDF 5558:5,6
 5567:12 5571:5,
 17 5572:3,17
 5575:15 5579:12
 5581:26 5593:2
 5598:19 5599:7
 5603:26 5604:12
 5615:20 5627:2,5
 5628:3,6
 5629:10,14
 5630:19 5635:15,
 16 5638:4
 5639:4,25 5640:5
 5647:19 5670:18
 5674:13 5675:10
 5678:3,18
 5680:9,20
 5683:25 5684:19
 5686:6 5694:25
 5696:16,24
 5698:9,14

5700:3,13
 5705:10 5708:2,
 17,21 5713:5
 5724:12 5727:21
 5728:12 5729:6,
 9,11,23 5735:13,
 25 5736:15,16,21
 5742:20,26
 5743:12,22
 5744:3,11
 5750:20,26
 5751:17,24
 5753:3,4,14,24
PDFS 5700:1
peak 5717:4,5,11
penalty 5711:18
 5712:3
people 5553:10
 5560:23 5561:24
 5562:10 5563:24
 5569:21 5570:2
 5572:7 5573:2
 5595:3,10 5646:9
 5647:8 5658:23,
 26 5659:4,8,10,
 12,14,18,22
 5664:1,2,25
 5679:24 5691:24
 5731:20
perceivable
 5703:25
percent 5564:20,
 26 5570:21
 5571:10,22
 5586:19,25
 5587:1,10,23
 5588:1,5,11,12
 5592:21 5593:4
 5599:1 5608:25
 5680:18 5683:12,
 16,18 5703:9
 5706:5 5727:23
 5728:25 5729:15
 5730:11,17,20
 5731:5,13,17
 5732:11,13,17

5733:11,14
 5734:6,21,22,24,
 25 5748:11,13
percentage
 5587:3 5592:25
perch 5745:26
perfect 5556:17
 5577:26 5581:18
 5603:14 5610:23
 5614:15 5628:7
 5640:4 5650:15
 5651:12 5753:9
performance
 5742:1
performance-
based 5695:7
period 5556:15
 5560:3 5565:4
 5572:11 5599:18
 5609:16 5704:8
 5732:4,5 5748:20
periods 5704:21,
 26
periphyton
 5583:23 5740:8,
 10,18
permanent
 5608:8,10
 5696:18
permissible
 5707:13,20
 5711:21 5712:4
permit 5587:4,8,
 12 5607:12
 5609:20 5632:11,
 14,16,25 5718:21
 5719:3
persistence
 5614:10
person 5608:16
 5628:19 5632:1
personally
 5610:8 5615:5
 5702:14 5716:9

personnel 5678:12	pine 5577:10 5731:8,10 5734:23	20 5654:22 5691:12 5728:5 5732:1	policy 5662:10 5663:6,15 5750:13,15,16,18 5752:7	populations 5569:3 5730:14 5734:11 5743:14
perspective 5552:7 5590:10	pipe 5640:14,21 5754:13	planning 5641:14 5654:20	Pollutant 5599:8	Porco 5669:19 5758:3,14
pertain 5718:11	piscivorous 5590:24	plans 5554:19 5605:22 5609:2 5615:12 5622:23 5623:5 5721:18 5749:8,15	pollute 5566:17	portion 5690:1
pertaining 5718:7	pit 5604:16 5607:25 5632:19 5633:16,18 5635:11 5682:7 5756:13,16	plant 5605:11 5627:15,20 5637:7 5640:15, 22 5641:7,21 5678:6,7,24 5679:4 5693:3,9, 13	polluting 5565:17	portions 5635:8
pertains 5718:10 5723:13	pitfall 5615:16,18	plants 5594:18 5627:22 5637:9 5753:7 5754:1	pollution 5650:9	pose 5742:9
pertinent 5706:4	pits 5598:24 5756:13	played 5651:7	pond 5605:19,23 5611:3,4 5612:5, 7,8,15 5613:17, 18,20,23,24 5614:2,3 5616:16,17 5618:7,15,21,26 5619:4,13,25 5641:18 5642:14 5735:22 5754:12 5755:20	posit 5651:7
pesticide 5651:5	place 5565:20 5566:20 5600:19 5606:8 5614:9 5616:5 5623:9 5672:7 5696:11 5699:9 5710:2 5712:11 5733:13 5740:17 5741:4 5756:15	PM 5563:6 5665:26 5669:21 5682:6 5710:3	ponds 5605:8,11, 14 5606:1,3 5607:17,19 5609:4 5611:13, 16,25 5612:14 5614:17,18 5617:4,23,24 5618:7 5641:19 5654:24 5735:19, 21 5740:22 5741:16 5753:6, 17 5754:1,2,6,7,8 5755:4,19,22,23 5756:7	position 5560:13 5574:4
Peterson 5668:26	placement 5686:16	point 5561:1,8,10 5567:13 5576:26 5577:21 5592:12 5593:20 5595:15, 20,25 5596:4 5606:15,21 5627:17 5632:9, 19,20 5633:17 5642:10 5643:4 5673:11 5688:19 5689:24 5693:15 5697:13 5709:10 5712:8 5720:9 5734:13 5735:3 5753:21	post 5619:20 5660:5,15	positive 5609:25 5610:3,19 5688:8
ph 5629:1 5631:22 5632:2 5633:24 5637:20 5638:5	plan 5587:5 5594:25 5595:7 5601:21,22 5605:25 5611:15, 24 5613:10 5615:4,5,9 5616:21,24 5643:5 5672:1, 12,15,20 5673:2 5677:13,18,23,26 5679:23 5689:14 5695:13,20,24 5696:22 5698:16 5699:14,16 5706:12 5710:24 5712:10 5713:18 5742:25 5747:4 5748:26 5749:3	pointed 5741:7	post-commissioning 5722:9	Positively 5651:18
phases 5675:1	planned 5595:1 5609:26 5610:4,	poisoning 5592:5	posting 5554:3	possibility 5676:8
phonetic 5589:25		Poitras 5667:1	potential 5560:16 5579:15, 18 5590:26 5591:20 5592:13, 19 5594:2 5596:21,24 5626:24 5627:9, 13,23 5632:18 5633:13 5637:2, 10 5681:12 5683:11,20 5690:18 5692:5, 21,22 5693:7,16 5694:15 5695:11 5697:3 5705:4 5712:5 5716:24 5719:16 5727:24 5728:25 5729:20 5733:10 5734:11 5737:20 5739:1 5740:16 5746:14 5748:25	post-
photostatic 5651:18			commissioning	
phs 5629:6,7 5639:10				
physical 5582:5 5585:13				
physiology 5651:16				
pick 5558:23 5733:6				
picked 5733:20				
picture 5561:7, 18,19,26				
piece 5623:15 5712:20				
piecemeal 5648:25				
pieces 5676:5				
pile 5558:15,17 5683:6 5686:20				
piles 5686:11				
pilot 5562:5				
Pincher 5667:18				

potentially 5609:4 5616:4 5683:7 5718:20 5723:21 5730:23	prediction 5613:19	pressure 5701:10 5705:14 5717:5	proactively 5636:9	produce 5593:23 5623:1 5650:17 5714:10
power 5708:15, 18,25 5709:1,5, 21 5716:12	predictions 5566:21 5680:12 5681:16 5734:15	presume 5589:26 5590:2	probability 5566:3,4	produced 5593:9
powerful 5745:15	predictive 5590:12	pretty 5556:24 5557:1 5609:17, 20 5618:13 5634:1 5756:11	problem 5597:3	produces 5645:18
PPEAA 5631:12 5639:10	prefer 5553:10 5554:16 5600:16 5639:18,21	prevent 5614:25 5618:9 5623:15 5680:1 5689:12 5737:19 5738:25 5739:18,25 5740:5 5741:5,15	problems 5596:1	producing 5709:24
PPEACO 5631:12	preference 5551:19 5590:21 5649:24	prevented 5623:9	procedure 5717:10	product 5684:7, 13 5685:2,5,7,17 5694:23 5695:3, 8,21
PPP 5678:10	preferred 5600:10 5743:17	preventing 5741:1 5755:22	proceed 5567:20, 24	production 5657:4
practical 5694:13	preferring 5743:17,20	previously 5557:17,19 5670:3,5	proceeding 5550:25 5552:11 5621:9	productive 5729:19 5734:10
practically 5697:5	prejudiced 5553:2	primary 5602:7,11,14 5609:3 5621:22, 24 5622:6 5623:3 5624:22 5649:13 5676:14 5680:1	proceedings 5550:21 5641:26 5646:5 5655:22 5665:26 5666:1 5669:21 5757:21 5758:5	products 5658:25
practices 5662:21 5663:9 5672:2 5695:15 5749:20,25	preliminary 5551:11 5557:12 5592:14	previously 5557:17,19 5670:3,5	process 5551:10 5552:25 5553:7, 16,24 5555:4 5577:20 5579:20 5580:5 5582:24 5583:4 5585:7 5606:20 5613:2 5642:20 5692:19 5698:26 5701:24, 26 5702:22 5704:14 5706:26 5714:14 5717:8 5724:4 5728:21	professional 5733:16
pre-disturbance 5602:8	prepare 5552:10 5556:1,2	primarily 5602:7,11,14 5609:3 5621:22, 24 5622:6 5623:3 5624:22 5649:13 5676:14 5680:1	processes 5552:12 5561:16 5578:21 5680:3,4 5700:26	program 5574:6 5622:26 5623:22 5672:3 5677:17 5740:20 5750:10
preamble 5744:25	prepared 5569:24 5598:10 5670:14 5690:19	primary 5581:8 5686:24 5687:22, 25 5743:2 5748:18	processing 5640:22 5678:6	programs 5748:25
precautionary 5588:2	preparing 5553:11 5554:9 5557:5 5677:25	principle 5712:18	procurement 5673:25	progress 5670:26 5671:22
precautions 5717:9	prescribed 5719:9	principles 5648:9,19,23 5649:9,14,20 5656:7 5658:21		progresses 5611:24
precedent 5718:13	Present 5669:12	printed 5658:12		progressive 5612:1 5690:25 5743:4,7,15 5744:14,20 5746:13,17 5747:3,8,21 5749:1 5755:1,8
precipitation 5565:8	presentation 5646:6	prior 5690:20 5691:19 5692:7 5695:3		progressively 5618:5 5686:3
precise 5676:10	presented 5582:10 5646:21	proactive 5699:18		project 5553:6 5574:20 5576:1 5577:16 5587:17 5592:18 5593:11 5595:12 5601:2,8 5602:3 5604:24
precisely 5586:18	presenting 5581:6,11			
predict 5591:18 5612:25	presents 5579:19 5581:21			
predicted 5590:16,23 5593:6 5595:2 5682:5 5739:18, 25	preserve 5649:11			
	preserving 5652:19 5653:10			

5606:4 5607:9
 5608:22 5609:25
 5610:3,19
 5611:12 5613:1,
 13 5617:4,19
 5618:4 5632:8
 5636:9,17
 5642:8,10,17
 5643:1,24,25,26
 5644:13 5645:9
 5646:21,24
 5647:1 5650:8
 5659:1,23
 5663:8,21
 5664:10 5670:20
 5672:12 5675:25
 5678:22 5680:11
 5681:5 5683:16
 5686:26 5687:22
 5697:3 5713:19
 5717:20 5718:16
 5719:23 5727:24
 5728:26 5730:10
 5732:9 5734:24
 5742:22 5743:5
 5744:5,9,22
 5748:22 5749:3
 5751:10,13,18,
 21,23 5752:1,14,
 15,17,22
project's
 5674:26 5742:24
 5751:2
projects 5573:11,
 12,24 5723:25
 5750:24 5752:7,
 9,11,12,21
prolonged
 5553:8
prominent
 5647:15
proper 5555:3
properties
 5582:6 5583:11
 5584:20 5585:13
 5724:9,22

property 5606:8
 5643:12 5723:20
 5724:1,23,24
proponent
 5555:20 5707:17,
 21
propose 5553:26
 5555:1
proposed 5552:1
 5673:7 5685:1
 5695:14 5697:2
 5699:14 5710:24
 5752:10,12,14
proposing
 5576:7
protection
 5552:24 5579:22
 5580:15
protective
 5565:20
provide 5551:14
 5582:21 5600:6
 5608:5 5677:1,7
 5678:4,10,15
 5679:2 5684:12
 5700:12 5736:7
provided
 5600:24 5709:20
 5716:18 5751:8
providing 5555:3
 5575:20 5599:15
 5655:14 5697:19
province 5569:9
 5758:8
proximate
 5696:20 5697:7,
 17
proximity
 5655:17
public 5550:26
 5551:9 5554:3
publication
 5660:4 5720:18
publications
 5658:11

publicly 5551:4
pull 5592:2
 5675:11 5684:18
 5686:7 5696:23
 5699:1,26
 5700:14 5704:7
 5708:2,19,20
 5713:8 5727:20
 5729:22 5735:10,
 26 5736:13
 5742:10 5750:21
 5753:2,13
pulled 5670:16
 5674:9 5680:22
 5692:25 5698:8
pulling 5702:12
pulse 5701:9
pump 5640:13,20
pumps 5754:13,
 17 5755:4
purpose 5648:12
 5649:9,11
purposes
 5552:19,23
 5566:7 5567:1
 5649:14
pursue 5664:6
pursuing 5663:7,
 16 5664:26
put 5552:7
 5558:15 5560:15
 5563:1 5573:14
 5580:25 5586:13
 5614:9 5616:5,18
 5632:23 5643:20
 5649:12 5656:7
 5658:16 5659:4
 5663:5 5687:5
 5714:1,19
 5740:21
putting 5623:11
 5741:3

Q

QC 5666:12
 5667:14 5668:8
qualified 5594:5
qualify 5579:24
quality 5557:20
 5559:19 5565:15
 5566:15 5567:5,7
 5570:23 5571:13,
 20 5572:9,13,21
 5574:9 5609:23
 5611:11,17
 5612:25 5627:14
 5636:8,16
 5670:6,20
 5671:12 5678:11
 5696:18,21,24
 5697:11 5698:6
 5740:23 5756:6
quantify 5692:2
quantitative
 5671:19 5672:5
 5695:18
quantities
 5586:10,12,15,17
Quarries
 5598:24
question 5565:13
 5573:3 5580:23
 5588:8 5600:25
 5610:2,6,17
 5612:12 5614:12
 5617:7,12 5622:4
 5624:12 5625:16,
 24 5626:9
 5637:18 5638:25
 5640:6 5654:4
 5660:3,9 5670:25
 5673:14,24
 5675:13 5677:8
 5684:24 5686:14
 5689:16 5697:1
 5700:5 5702:8
 5716:23 5721:19

5730:15 5733:26
 5739:5,19
 5740:14 5742:8
 5744:26 5745:5
 5752:3 5754:3,
 22,26 5755:11,14
questioning
 5644:15 5653:9
 5674:17 5677:7
 5700:16 5716:21
questions
 5558:15 5620:16,
 24,25 5632:7
 5636:24 5639:13,
 17 5652:7
 5665:24 5669:24,
 26 5670:10,14
 5699:24 5718:4
 5726:6,7,20,21,
 22,24,25
 5727:14,16,22
 5735:8 5742:7,9
 5750:12 5757:2
quick 5609:20
 5676:19
quick-
establishing
 5690:16
quickly 5609:14
 5620:26 5625:9
 5687:9 5688:17,
 18 5694:8
quiet 5646:10
 5705:22,24
quote 5734:2
quoted 5700:4
quotes 5572:24

R

radius 5646:23
rail 5634:24
 5635:2 5664:7
 5685:7,11
 5693:13 5694:10,

17 5695:22 5696:4,6 5698:12 5701:2 5703:25 5704:18,20 5708:16 5709:4, 8,19 5710:2,8,23 5713:1 5718:26	ranging 5680:17 rapid 5600:15 rapidly 5650:26 5671:9 rare 5552:11 5699:6,9,15 5738:6 rarely 5562:24 Rasouli 5599:14 rate 5753:20 rates 5590:25 rating 5587:24 5628:9 5731:15, 21 ratings 5731:20 ratio 5591:19 5593:7 raw 5611:3,15 5612:7,15 5613:17,23 5614:2 5616:17 5617:23 5618:7 5641:18 5642:14 5755:20 re-applicator 5685:14 re-direct 5754:11 re-established 5744:10 5745:3 re-evaluate 5591:22 re-evaluation 5591:1 reach 5681:12,16 react 5706:20 reactions 5586:8 read 5571:9,15, 20,21 5572:8,20, 26 5594:17 5598:11 5599:2 5627:19 5629:17 5637:5,6,15 5640:7,12,16,19,	24 5641:2 5648:10 5650:19, 23,25 5651:14 5656:25 5660:13 5664:5 5673:11 5674:19 5678:8 5680:10,14,23 5684:5 5686:2,10 5690:14 5693:2, 22 5694:9,21,24, 26 5698:10,15 5700:5,24 5705:12 5708:4,9 5713:9 5721:10 5728:2,12 5729:4,12 5730:3 5734:2,3 5735:11,14 5736:3,21 5737:4,16 5738:23 5739:7, 11,13 5742:21 5743:1,13,23 5744:4,13,19 5751:9,17,25 5753:13,16 readily 5609:8 reading 5571:1 5593:5 readings 5638:5 ready 5692:1 5754:17 real 5673:24 realize 5577:5 5612:6 5653:26 5660:22 5727:8 realized 5612:16 reapplication 5685:20 reason 5553:10 5555:17 5576:4 5596:17 5601:24 5621:15 5655:26 5656:6 5657:5 reasonable 5555:2,3 5556:24	5559:21 5560:2 5574:17 5681:18 5729:2 5747:24 reasons 5636:3 5656:11 5699:17 reassess 5591:10 recall 5560:24 5570:16,18,23,25 5642:7 5646:4, 10,12 5655:13 5658:7,10 5725:17 5747:12 receive 5554:6 received 5572:21 5658:7,9 5722:11,23 recent 5560:9 5568:14 5651:24 5660:4 5681:10 5685:4 recently 5573:10 5743:18 receptor 5591:15 5723:3 receptors 5646:15 5717:1 5721:23,25 5722:2 5736:25 5739:9,15 reclaim 5618:5 5746:20 reclaimed 5686:3 5690:15, 22 5692:1 reclaiming 5744:22 reclamation 5603:17 5605:25 5609:26 5610:4, 21 5611:26 5613:10 5631:20 5659:19 5663:13 5686:11 5688:16 5690:20 5692:11 5742:25 5743:5,	7,10,15 5744:14, 18,20 5746:13, 17,18 5747:3,9, 22 5748:20 5749:1 5754:24 5755:1,8,26 reclamation- ready 5744:21 recognize 5697:26 recollection 5725:22 recommend 5583:6 recommendatio n 5636:13,14 5654:2 5737:14, 15,23 5738:11,20 5739:23,24 5740:15 recommendatio ns 5656:20,24 5737:23 5744:12 recommended 5584:23 5598:20 5636:4 5696:17 5738:23 recommending 5648:8 5661:17 recommends 5737:17 5739:16 reconnected 5699:6 recontoured 5689:23 record 5598:11 5599:21 recorded 5599:19 recordings 5550:25 5551:3 recreation 5646:10 recycle 5644:18,
---	---	---	--	--

21 5645:3	5673:16 5716:19	related 5686:9	5652:19 5654:9	report 5557:2,5
recycling	5744:24	5712:20 5718:12	5696:1 5715:1	5558:4 5560:22
5644:21 5645:1	referring	5726:22 5736:24	remembering	5567:11 5568:5,
red 5656:26	5570:16 5600:9	5739:19	5741:26	6,7,19,20 5572:6
5657:11 5730:22	5673:15 5700:11	relates 5754:5	remind 5701:23	5574:24 5603:25
5733:20	5754:6	relating 5674:17	reminder	5626:26 5627:1,
reduce 5566:19	refers 5578:18,20	relation 5652:7	5550:24 5573:13	3,11 5628:3
5577:19 5613:11,	5580:12,24	5686:14	remnant 5652:19	5633:9 5638:3
15 5649:15	refine 5613:14	relationship	5653:10 5654:9,	5671:23 5675:9
5670:23 5671:17	reflect 5561:13	5566:9	10	5678:18 5680:20
5672:4 5681:21	5569:9	relative 5704:24	remnants	5708:14,21
5686:4 5688:5,6	Refuge 5737:8	5715:14 5732:7	5653:20,21	5729:6,11
5714:5 5745:3	regard 5625:5	5751:18	remodel 5721:17	5735:12 5743:12
5747:4,10 5752:5	5675:26 5684:24	release 5585:19,	Remote 5666:1	5747:12 5751:15
reduced 5680:17	5719:14	24 5586:14	Remotely	reported
5729:19 5734:10	regarded	5599:8 5753:21	5718:19	5584:13
reducing	5552:26	released 5585:20	remove 5611:25	Reporter 5616:6
5656:18	region 5568:3	reliability 5570:5	5679:15	5619:6 5640:16
reduction 5599:4	5663:25 5667:2	reliably 5753:19	removed 5606:3	5669:19 5729:8
5681:12,24	5730:10,25	relies 5674:25	5749:13 5750:19	5739:10 5758:15
5683:20 5748:14	5732:4,6 5734:22	relocate 5756:14	removing	reporter's
reductions	5751:5	relocating	5608:22	5694:9
5664:7 5665:1	regional 5586:25	5687:21	Rennie 5668:16	reporting 5599:7
5671:13 5676:9	5587:2,3,9	rely 5745:4	repeat 5578:26	represent
refer 5567:16	5627:24 5629:5	5748:5	5588:8 5610:2,17	5713:21
5673:15 5674:8	5630:22 5637:11	relying 5747:3	5612:12 5622:4	representative
5690:24 5698:8	5728:8,9 5729:14	remain 5619:20	5695:25 5734:3	5570:26 5697:3,
5734:2	5734:5 5751:3	5685:7 5751:11,	5745:5	19 5722:2 5723:8
reference	5752:23	20 5755:24	repeated 5736:8	represents
5599:15 5727:20	registry 5554:4,	5756:7	repeatedly	5713:18 5716:3
5729:5,22	22 5638:3 5660:6	remainder	5751:8	reproductive
5733:25 5735:10,	regular 5698:11	5642:23 5755:8	repeating	5730:6 5733:9
24 5736:13	5701:3 5750:9	remaining	5756:12	5737:10
5743:21 5753:2,	regulation	5577:11 5755:4	replace 5605:22	request 5553:23
12	5663:20	5756:1	5609:2 5610:24	5718:4 5753:15
referenced	Regulations	remains 5599:8	replaced 5605:26	requested 5649:2
5595:19 5598:26	5673:18	5685:17 5729:16	5686:12 5687:9	5650:16
5685:3	Regulator	5734:7	5691:4	requesting
references	5670:10 5706:7	remarkable	replacement	5664:8
5598:21 5684:25	5707:24 5718:9	5607:15	5677:18	require 5601:5
5705:20 5742:7	regulatory	remember	replacing 5746:9	5641:1 5643:24
referencing	5552:11 5581:7	5560:19 5571:1	reply 5552:13	5645:8 5671:26
5738:16	5644:11 5646:25	5576:21 5591:17	5554:24 5647:25	5674:5 5677:11
referred 5569:1	5681:11	5592:25 5609:6		5693:8 5694:4
5580:11 5599:16				5705:5 5743:8

5748:3 5754:2	5722:23	responsibilities	5584:20 5666:12	rock 5687:26
required	residential	5597:2	5670:13 5712:5	5692:15 5736:25
5568:23 5573:26	5707:8	responsibility	5727:13	5746:21
5591:6,25	residents	5662:11,15,20,26	reviewing	role 5651:7
5643:25 5645:2	5699:13 5706:10	5663:10 5696:4	5618:17	5665:12 5755:17
5649:13 5656:10	5718:18,20,22	rest 5709:16	reviews 5728:23	room 5551:1
5691:8 5695:22	5719:2 5723:25	5715:15 5742:15	revised 5739:8,	5757:12
5699:5,18	residual 5575:21	restore 5589:12	14	roosting 5652:18
5707:7,21	5576:5,10,14,17,	5744:15	revisit 5557:26	5653:10 5655:7,
5711:22 5715:19	18,22 5577:1,12,	restrictions	5591:21	15 5656:4
5722:10 5731:10	17 5611:11	5750:18	revisiting	roosts 5655:18
5737:17 5738:24	5730:12 5732:8	result 5712:2	5560:14	rope 5618:12
5739:16 5753:18,	5748:19 5749:11	5720:4 5744:5	Ridge 5574:1	roughly 5558:17
23 5756:8	residue 5671:8	5752:7	right-hand	route 5685:15
requirement	resolve 5707:22	resultant	5558:10	routine 5750:9
5644:11	respect 5554:18	5707:12	rise 5646:8	routinely 5681:9
requirements	5571:19 5627:22	resulted 5737:10	risk 5557:22	row 5631:9
5640:23,26	5637:9 5638:25	resulting	5566:7,9,11,12	5708:24 5709:1
5646:26 5672:13	5658:5,17	5600:12 5676:8	5567:12 5568:11	RSA 5627:10
5698:1 5730:19	5738:14	results 5566:24	5569:25 5578:11	5632:11 5637:17
requires 5616:3	respects 5663:26	5612:26 5625:11	5579:26 5584:4	Rudolph
5674:20 5694:16	respiratory	5697:19 5707:19	5590:11,12,22	5557:16,26
5695:2 5723:1	5569:26 5572:19,	5710:15 5711:2,	5591:3,4 5601:22	5558:8,12
requiring 5674:4	22	23 5712:1,3	5619:16,19	5563:11,18
5695:12 5716:24	respond 5555:11	5721:16 5722:18	5670:8 5687:21	5566:13,18
5726:26 5744:1	5598:10 5674:17	resume 5665:23	5726:23 5728:18	5585:18,22
rescinded	5695:24 5706:12	5726:12 5757:5	5729:14 5734:5	5598:15,16
5750:16	responded	retention 5755:5	5735:13 5739:8,	5599:9 5630:5,9
rescission	5599:19,21	retrofit 5677:18	14 5747:5,24	5633:12 5635:26
5750:17	respondent's	return 5600:18	5748:1,2,9	5636:1 5670:2
research 5563:1	5552:13	5743:14,19	risks 5565:24	5675:13 5676:15,
researchers	respondents	5744:9 5755:9	5591:10 5736:23	16 5677:4,10
5651:4	5570:21 5571:11,	returning	river 5605:1,2	5681:7,8 5682:2,
reseeded	22 5572:26	5554:25 5617:4	5617:2 5644:25	12
5690:15	response	returns 5644:24	road 5558:16,18	Rudolph's
reservoir	5556:18 5579:7	revegetated	5598:18 5599:7	5565:23 5598:10
5640:14,21	5581:15 5598:7,	5686:4 5689:24	5623:19	rule 5588:1,11
5737:7	11 5600:6,20	5690:6	roads 5564:21,25	5731:17 5733:14
residence	5615:13 5636:25	revegetation	5599:3,6 5623:3,	run 5554:21
5705:23	5647:20 5648:19	5688:14 5691:12	10,12,18,21	5556:25 5643:10
residences	5649:4 5729:24,	reversibility	5624:23,24,26	5664:22 5665:15
5647:2 5703:26	25 5734:1	5587:25	5626:7 5633:16	running 5692:3
5704:1 5705:7	5741:23 5742:19	review 5553:20	5641:9,13	runs 5718:26
resident 5643:15	5753:15	5554:26 5557:3,4	robust 5561:2,6,	
5707:1,11			25 5574:6	

rural 5646:2
5705:22,25
rustic 5725:11,
14,16
Ryan 5620:23

S

sacrifice 5554:22
safe 5590:5
5601:19 5606:8
5609:22 5740:9,
10
safety 5649:13
5656:11 5689:25
sake 5558:14
5694:9
salamanders
5605:18
salvage 5603:21,
23 5606:6
5615:4,5 5687:5
salvaging
5687:24 5689:18
sampled 5638:16
samples 5632:22
sampling
5606:15 5632:10,
21
sands 5741:5,15
5742:2
SARA 5728:19
satisfaction
5707:23
satisfied 5689:6
satisfy 5718:3
saturated
5585:19 5586:13
5613:7 5753:6,26
5754:11,15,19
Saturday
5554:11 5556:8
Sawyer 5668:11

SBZ 5585:20
5586:1,8
scale 5562:6
5570:4,6 5627:24
5637:11
scan 5650:19
scarecrows
5618:12
scattered 5602:6
scenario 5600:15
5702:18 5713:19,
21,25 5716:3
schedule 5552:14
5553:3 5555:1
5677:18 5710:11
scheduled
5551:6
scheduling
5710:18
science 5663:19
5714:19
scientific 5581:8
5616:11 5697:13
scientist 5593:5
scientists
5697:10
scope 5723:10
screen 5581:17
5582:23 5596:18
5637:5 5703:22
screened 5582:8
5583:9
screening
5584:19 5585:7
5597:10
scroll 5571:6,17
5572:3 5581:17
5594:14 5605:4
5628:6 5630:25
5656:23 5676:17
5684:1,2 5727:25
5729:25 5737:2
sealants 5623:11

search 5556:12
5569:12 5602:11,
25 5603:4 5607:8
5620:13 5651:4
searched 5607:7
searches 5605:15
season 5602:23
5608:19 5689:11,
13 5690:11
5748:8
seasonal
5756:19,26
**second-from-
the-bottom**
5681:2
**second-to-the-
last** 5708:24
seconds 5715:9,
11
Secord 5667:24
secretariat
5660:5 5665:24
5666:12 5669:23
section 5568:2,6,
20 5570:3 5572:6
5577:3,6
5580:17,23
5626:25,26
5668:20 5678:2
5680:9 5681:20
5708:1 5727:15
5735:12 5736:15
5742:26 5743:22
5751:16
sections 5576:22
secure 5643:1
security 5651:2
sediment 5609:3
sedimentation
5611:13 5612:5,
14 5754:2
seed 5688:17
5689:16 5691:11,
14

seeded 5688:16,
19
seeding 5690:2,
10 5691:4,6,19
5692:7
select 5593:14
5657:26
selected 5728:22
5729:1 5751:1
selection 5724:3
5728:21
selectively
5687:15
selenium 5579:8,
24,25 5580:1
5583:14,16,20,21
5584:4,8,9,11,13,
15,16 5590:23
5592:4,21
5593:17,20
5611:15,17
5612:18 5613:11,
15,18,21,22
5617:23 5619:18,
26 5736:16,24
5737:5,9,20
5739:1 5740:9
5753:21
semipermanent
5608:8
send 5554:2
5640:13,20
sense 5556:17
5675:12 5756:25
sensitive 5613:26
5627:21 5637:8
5716:26 5723:3
5728:14
sensitivities
5630:1
sensitivity
5628:9
sentence 5650:24
5680:13 5728:1
5730:1

sentiment
5646:13
separate 5706:8
September
5636:15 5649:4
series 5568:23
5575:22 5639:11
Session 5570:13
5666:3
set 5563:23
5564:2,4,6
5566:10 5569:4
5573:23 5576:12
5606:3 5614:23,
24 5635:19,23
5679:18 5727:22
5735:8 5742:6
5750:12
sets 5659:14
setting 5581:24
5664:14
settle 5600:16
settlement
5606:1
settlements
5751:5
settles 5625:9
settling 5560:4
5625:10
sewage 5644:25
share 5624:24
5626:7
shared 5696:4
shareholders
5662:24
sharing 5730:19
shelter 5694:12
shielded
5656:12,19
shift 5698:6
5713:10
shore 5735:16
shorelines
5735:17

short 5560:3
5571:6 5715:10,
17 5732:15
5748:3
short- 5746:14
short-eared
5745:19
shorter 5625:10
shorthand
5758:5,6
shovels 5560:8
show 5607:7
5646:21
showing 5582:5
5604:2 5753:5
shown 5632:18
shows 5553:3
5558:9 5580:4,26
5581:13
shrubby 5602:7
5604:2,8,22
5605:19,22
5606:9,19
5607:4,11,22
5608:4 5609:12
Shukalkina
5666:20
shunting
5698:12,16,18,21
5699:12,17
5701:3
Shuswap 5667:4
sic 5578:5
5650:17 5683:6
5705:24
side 5558:15
5590:6 5592:3
5593:10 5697:7,8
sides 5694:11
significance
5587:22 5730:12,
25 5731:3,15,21
5733:15 5750:25

significant
5553:6,21
5576:18 5577:2,
12 5586:2,12,15,
16,20 5587:14,17
5588:3,7,14
5601:10 5604:25
5625:13 5662:6
5679:10 5685:13
5690:1 5704:22
5731:16 5749:14,
17 5750:6
5755:7,17
significantly
5702:20 5748:8
silt 5616:14
similar 5568:14
5573:24 5587:26
5685:10 5698:18
5734:25 5741:15
simple 5741:24
simpler 5637:19
5657:23
simplest 5618:11
simply 5599:21
5730:22
single 5577:1
5623:6
sir 5552:14
5555:2,6 5557:15
5559:9 5560:19
5561:1 5562:17
5564:6 5572:14
5573:25 5575:3
5576:13,25
5619:6 5620:7
5626:9 5629:20
5635:13 5660:1
5734:17 5737:25
sit 5727:3
site 5564:7
5602:3 5603:11
5604:24 5605:15
5607:9 5617:5,6,
15 5623:20
5647:5 5654:11,

17 5696:25
5697:20 5698:16
5704:7,20
5722:16 5746:25
5747:22 5755:26
sites 5602:9,14,16
5603:9,10
5617:18 5618:5,
10 5652:18
5653:10 5702:14,
16 5744:21,23
sits 5691:26
sitting 5727:2
situated 5741:9
situation
5574:18 5596:26
5597:18 5600:18
5607:21 5706:2,
11 5707:22
5710:22,26
5711:26 5741:7
situation's
5597:14
situations
5723:24
sixth 5631:3,7,9
size 5606:14
5654:16 5675:1
5714:12 5730:7
5733:10 5753:26
sizes 5682:6
skill 5659:14
5758:7
skipping 5584:22
sky 5651:16
slamming 5701:4
slated 5611:9
sleep 5705:7,13
5706:12
slew 5650:13
slightly 5745:8
Slopes 5577:12
sloping 5682:16

slow 5708:11
slower 5640:17
5739:11
slowly 5676:18
5698:26 5709:18
small 5569:8
5586:10 5605:8,
11,14,19 5606:3
5607:19 5608:13
5620:12 5656:16
5683:12 5692:17
5755:6 5756:2
smaller 5569:3
5570:5 5690:4
5725:21
smallish 5654:15
snags 5745:25
Snow 5667:6
snow-covered
5564:21,25
snowfall 5565:4
so-called 5706:4
social 5662:10,
13,14,18,20,26
5663:1,2,9,12
Society 5556:22
5656:20 5667:21
5668:6,12,19,21
socioeconomics
5576:16
soil 5576:15
5585:15 5625:25
5626:16,20
5627:10,13,23
5628:23 5629:1,4
5630:1,6,12
5631:17 5632:21
5633:23 5634:7
5637:10 5638:5,
17,24 5686:9,20,
25 5687:5,24
5689:18 5690:17,
23 5691:4
soils 5626:5,11
5627:15,21

5628:9,11,18
5629:4,11
5630:21 5631:15,
18 5632:9 5634:3
5637:8 5638:15,
16
sold 5643:11
solutions
5685:20
sort 5561:16
5624:16 5630:1,6
5681:2 5687:1
5688:10 5689:23,
25 5690:23,26
5691:23,26
5702:7 5709:14
5710:9 5711:7
5712:7,11
sound 5569:16,17
5646:2 5647:3,
14,15 5672:25
5698:7 5700:19,
20,25 5701:1,4,6,
9,25 5703:12
5705:14 5707:7,
13,20 5708:15,
17,25 5709:1,5,7,
20 5711:13,14,
19,21 5712:4,18
5713:17 5714:5,
17,20 5715:4
5716:12 5717:18,
19,22 5721:22
5722:14,21
5723:2,13,17
5725:4 5741:21
sounds 5569:22
5608:24 5611:2
5633:22
source 5603:23
5623:12 5625:10,
14 5657:16
5678:26 5687:22,
25 5700:9
5702:9,23
5703:24 5709:10

5716:11 5736:8
sources 5568:16
 5645:5 5651:15
 5678:22 5679:11
 5700:20,25
 5701:1,4 5708:15
 5709:5 5722:15,
 17
south 5568:25
 5569:1,6,12,20
 5605:1 5697:8
 5704:1
southeast
 5569:15 5605:23
 5611:3 5613:17,
 20,23 5614:2
 5618:15,21,25
 5619:3,13
southern
 5667:21 5686:26
 5746:21
southwest
 5569:15
southwestern
 5746:5
spacing 5564:9,
 10,17 5714:11
spanned 5704:24
spare 5556:4
sparse 5725:15
Sparwood
 5570:17,19,21,
 22,24 5571:12,24
 5572:7,13
 5573:4,6,8,9,25
 5574:8,12,18
 5575:10
spatially 5732:2
speak 5551:24
 5600:22 5615:2,6
 5626:18,19
 5628:13 5629:23
 5631:17,21
 5632:1 5633:13,
 23 5637:2

5652:16 5657:17
 5671:4,10 5741:2
 5749:10
speaking 5616:7
 5622:3 5626:23
 5632:5 5636:6
 5643:12 5652:18
 5654:9 5742:14
speaks 5648:7
special 5691:16
specialist 5610:9
 5650:5 5671:12
specialists
 5615:7,8 5616:12
 5697:11
species 5557:22
 5579:8,9 5586:21
 5587:18,21
 5588:5,12
 5590:19 5592:26
 5595:9 5600:10
 5601:12,15,21
 5603:21 5617:16
 5651:6 5670:8
 5728:8,9,13,16,
 18,19 5729:13,17
 5730:4,18,26
 5731:7,18,22,26
 5732:18,19,25
 5733:1 5734:4,8,
 12 5735:5,6,16,
 18 5743:8,17,19
 5744:1,8 5745:19
 5746:25 5747:5,
 17,24 5748:1,2,
 17 5751:11
species' 5743:16
species-specific
 5728:6
specific 5564:6
 5569:2,3,10
 5570:25 5596:11
 5600:22 5625:4
 5632:13 5633:17
 5678:3 5695:8,17
 5712:20,21

5714:10,17
 5722:16 5745:1
specifically
 5570:18 5581:21
 5590:16 5592:24
 5609:7 5622:12
 5624:13,14,16
 5625:8,17,18
 5627:12 5628:14
 5633:21 5642:13
 5678:6 5698:13
 5705:20 5711:2,6
 5718:10 5730:10
 5737:23 5747:5
specifics 5672:13
speck 5623:6,16
spectrum
 5657:11
speed 5708:11
speeds 5557:2
spend 5590:19
spending
 5658:24
spine 5596:7
spines 5595:4,11
 5597:13
spires 5745:25
spoke 5567:23
 5688:21,26
spoken 5687:3
spot 5605:16
 5607:6
spots 5604:15
spotted 5601:1,4,
 9,13,17,25
 5603:10,16,20
 5605:17 5608:7
 5609:7 5618:19
spray 5684:11
spraying
 5658:17
spreading
 5641:8

sprout 5607:26
square 5587:8,9
stab 5686:23
stabilization
 5691:7 5692:19
stabilize 5691:15
stable 5728:16
stackers 5693:25
 5694:5
staff 5554:18,21,
 25 5620:8
 5650:17 5660:5
 5666:15,16,17,
 18,19,20
 5670:10,15,25
 5673:23 5688:18
 5712:9 5726:25
 5727:14
stage 5574:11
 5676:26 5690:7
 5711:10
stages 5590:11
 5713:19
stakeholders
 5572:11 5662:23
 5672:19
stand 5574:15,23
stand-in 5597:5
standard
 5562:19 5618:8,
 13 5717:3,5
standards
 5565:16,20
 5566:16,20,22,25
 5663:18 5673:26
 5674:5
start 5554:9,25
 5557:4 5562:7
 5589:8 5624:20
 5690:10 5692:3,
 19 5721:13
 5726:11 5728:1
 5739:11 5741:24
 5742:7 5747:16

start-up 5723:5
started 5554:8
 5583:7 5674:17
starting 5562:5
 5674:16 5678:4
 5746:18
starts 5575:22
 5636:9 5726:16
state 5568:3
 5610:15 5650:6
 5674:25 5678:7
 5691:26 5692:22
 5704:11 5708:8
stated 5570:20
 5584:19 5595:16
 5599:2 5689:2
statement 5610:8
 5621:15 5640:12
 5646:11,12
 5647:17 5650:7
 5664:5 5744:12
states 5670:21
 5673:11 5674:18
 5680:14 5684:5
 5686:1,10
 5693:1,21
 5698:9,14 5700:4
 5705:12,21
 5708:4 5713:6
 5728:1,12
 5729:7,12 5730:2
 5734:12 5735:14
 5736:2 5737:4
 5742:20 5743:1,
 13,23 5744:4,19
 5750:21 5751:8,
 17,25 5753:15
Stating 5744:6
station 5635:20
 5636:4,10,11,22
 5640:13,20
 5696:18 5697:2,
 12
stations 5563:12,
 13 5636:18,20
 5685:15 5698:1

statistic 5570:26
Statistics
 5568:15
status 5568:3,4
stay 5754:9
steady 5704:11
 5708:11
step 5582:13,25,
 26 5584:23
 5604:19 5636:9
 5712:13 5725:13
steps 5597:2
STEVE 5557:18
 5670:4
stock 5574:14
stockpile
 5686:16,25
 5687:24 5689:19,
 20 5690:4
 5693:24
stockpiles 5599:5
 5687:6,15
 5688:15,23
 5689:17 5694:6
stockpiling
 5686:11 5688:5
Stoney 5667:6
stop 5717:17
storage 5684:14
story 5649:7
strategic
 5686:12,15
strategy 5711:25
 5746:7 5752:4
streams 5550:24
 5577:12
stretches
 5569:13
stretching
 5629:23
strictly 5636:6
 5662:23 5733:14,
 18

strikes 5555:2
stringent
 5728:17
strongly 5570:22
 5571:11,23
structure
 5694:11 5725:9,
 17 5754:19
structures
 5612:3 5724:8
 5725:1 5755:5
studied 5712:9
studies 5561:4,23
 5562:2,21,23
 5563:3,4,5,10
 5568:16 5587:26
 5681:13 5684:26
 5721:12 5731:6,
 9,16 5746:5
study 5560:23
 5561:2,7,11,24,
 26 5562:5,9,13,
 17,20 5563:9,21
 5568:26 5570:17,
 20,25 5572:6
 5573:4,8,26
 5574:14 5575:11
 5586:26 5587:2,
 3,9 5597:10
 5603:13 5609:12
 5610:5,21
 5622:13,14
 5628:23 5629:4,5
 5630:22 5632:3
 5633:11 5651:24
 5652:4 5655:21
 5657:6 5661:14
 5672:3 5677:14
 5695:20 5698:13
 5705:6 5723:4
 5728:8,10 5732:9
 5735:1 5738:5
 5751:3,20
stuff 5630:1
 5692:20

subgroup
 5638:19
subject 5559:16
 5560:4,5 5683:13
 5714:17 5720:20
subjects 5720:8
submission
 5551:16 5647:25
 5649:3 5736:14,
 19,21 5743:22
submissions
 5551:20,26
 5552:3 5555:9,11
 5556:22 5557:11
 5648:20
submit 5555:16
 5556:10
submitted
 5553:18
suboptimal
 5735:5
subscribe
 5658:11
subsequent
 5606:18 5640:11
 5691:23 5734:14
 5751:8
subsequently
 5583:23
substance
 5579:25 5580:16
substances
 5582:6
success 5609:13
 5755:1
successful
 5747:9
succession
 5745:15
successional
 5745:21 5746:9
sufficient
 5660:12,15

suggest 5584:2
 5585:26 5587:7
 5597:1 5600:14
 5664:22 5752:14
suggested
 5746:12
suggesting
 5682:22 5687:18
suggestion
 5556:16,18
suggests 5681:21
 5696:24
suitability
 5728:7,21
suitable 5614:19
 5696:20 5736:7
 5744:8 5751:12,
 22 5752:1 5756:6
summarize
 5576:4
summarizes
 5686:8
summarizing
 5572:6
summary
 5575:25 5670:19
 5678:22
summer 5565:12
summers
 5602:13
Sun 5668:2
superseded
 5567:14,17
 5675:15
supervision
 5670:15
support 5616:12
supported
 5663:19
suppressants
 5695:17
suppressed
 5745:10

suppression
 5641:15 5684:7,
 21 5685:2,6
 5694:23 5695:3,
 21 5747:1
suppressive
 5657:3
surface 5576:15
 5590:18 5692:9
 5737:21 5739:2
surge 5605:23
 5611:3,4,15,25
 5612:7,15
 5613:17,18,20,
 23,24 5614:2,3,
 18 5616:16
 5617:23 5618:7,
 15,21,26 5619:4,
 13,25 5641:19
 5735:19,21
 5753:6,17
 5754:1,7,8
 5755:19
surprised 5658:6
surrogate
 5592:26 5597:8,9
surrounding
 5682:14 5697:15
 5752:6
surroundings
 5551:3
survey 5571:10,
 22 5572:25
 5602:13 5607:5
 5627:11 5707:7
 5716:25 5717:19
 5721:22 5722:22
 5723:3,17
survey-
measured
 5711:20
surveys 5602:8,
 12,17 5606:10
 5723:14
survive 5747:7

suspended

5680:11

sustainability

5552:24

swirl 5651:26

5652:1

system 5578:23

5678:9,13

5679:6,15,16

5708:26 5732:3

5740:11 5741:23

5745:10 5746:3

systems 5613:24

5659:21 5727:4

T

table 5558:9

5573:19 5575:23

5576:2 5577:6

5579:14,16,19

5580:1,4,11,13,

25,26 5581:6,11,
13,21,24,25

5582:5,10 5584:6

5585:9 5598:19,

21 5599:6

5628:14 5629:8,9

5630:21 5638:6

5639:9 5673:9

5675:14 5676:18,

21,22,24

5678:19,21

5680:21 5683:24

5685:23 5686:6,8

5692:24 5708:17,

23 5709:1,21

tables 5575:22

5576:3,13,26

5686:15

tactics 5741:4,14,

17,20

tailings 5741:16**tailor** 5671:16**takes** 5641:18

5644:23 5688:13

5738:3

taking 5643:8,17,

18 5659:15,16

5662:22 5692:16,

17 5746:8

talk 5561:16

5568:1 5576:3

5588:18 5622:12

5625:3 5633:6,7

5634:2 5681:7

5686:19 5688:15

5701:21 5713:22

talked 5558:9

5560:15 5589:2,4

5595:6 5596:16

5613:11 5623:10

5648:23 5692:13

5714:2,7

5748:10,13

5755:18 5756:13

talking 5558:19

5562:18 5563:12

5572:26 5596:26

5598:17 5604:17

5607:2 5612:6

5634:3,6 5654:26

5655:1,5,6,13

5659:8 5676:12

5695:7 5701:14

5713:26 5721:9

5722:5 5748:15

talks 5561:14

5572:19 5627:11

5700:1

tall 5745:25**tame** 5622:8

5624:18

Tammy 5680:22

5685:25 5696:14

5700:15,21

5705:10 5707:26

5708:3,20 5713:8

5724:14

Tammy's

5692:25

tanks 5754:17**tape** 5618:11**Targeted**

5648:12

targets 5563:6

5566:10

team 5611:7**technical**

5629:24 5631:14

technique

5616:10

technology

5573:22 5657:24

5661:19,20

5662:2 5671:6

5677:16 5685:10

5714:1

Teck 5574:2,4,6

5675:3 5685:11

telling 5561:8

5581:25

tells 5591:9

5597:15

temperature

5678:16

temperatures

5678:15

temporal 5751:1**temporary**

5642:24,26

5687:6,12,20

5688:4

ten 5658:7**tend** 5565:5

5601:17

tendency

5596:23 5607:24

tension 5698:25**term** 5579:2,5

5615:19 5625:14

5662:11 5704:24

terminology

5722:6

terms 5619:18

5625:1 5636:8

5671:7,22

5672:25 5703:3,8

5704:5 5706:10

5707:4 5710:4

5713:23 5714:2

5717:18 5718:2,

6,15,19 5719:5

5754:15

terrain 5563:16

5564:15 5576:15

5682:16,18,24

5686:9

terrestrial

5579:9

test 5560:23

5561:3,9 5562:8

5733:17

testament

5607:16

tested 5594:8

5684:21

testified 5570:14**testimony**

5598:26

testing 5609:23

5624:6 5628:26

5629:3,10

5631:22 5632:2

5633:23,24,25

5637:20 5684:23

5719:19

that'll 5746:22

5748:8

thing 5574:17

5578:8 5588:3

5603:19 5606:12,

16 5609:6

5615:17 5703:5

5705:1 5723:12

5745:22,24

5750:1 5756:19

things 5560:22

5561:5 5563:15

5570:20 5573:5

5577:10 5618:11

5621:18 5626:23

5648:24 5649:17

5663:14 5672:17,

26 5691:15

5712:11 5732:12

5741:21 5745:18

5755:18

thinking 5556:10

5654:2 5662:4

5671:24 5675:13

5720:8 5745:6

thinks 5557:3**thought** 5553:13

5562:7 5594:13,

20 5646:17

5654:3 5655:9

5660:14 5696:2

5726:16

thoughts

5663:26 5739:22

threshold 5566:1

5584:11 5586:16,

19 5591:3

5592:23 5593:4,

8,16 5594:4,9,10

5596:5 5727:23

5728:3,17,25

5730:5,13,17,20

5733:2,8,11

5740:9

thresholds

5672:6 5695:19

5728:24 5730:7

5732:26 5740:6

thrive 5653:23,26

5655:18 5746:10

thriving 5607:18

5655:4

through-seam

5714:3

TIER 5673:13,

15,20,26

ties 5721:8

5749:24

tight 5654:15
till 5658:24
5689:20,26
timber 5734:26
5746:8
Timberwolf
5668:11
time 5551:6
5552:9 5553:10
5555:4,25 5556:4
5560:3 5564:26
5570:12 5578:5
5590:19 5596:22
5612:16 5614:4
5615:24 5619:25
5620:18 5632:16
5639:14 5647:11
5651:23 5658:17
5663:23 5683:24
5688:21,26
5689:24 5690:3,
17 5694:1
5697:21 5704:5,
10,16,21 5709:8,
25 5710:1,6,14,
20 5711:1,23
5712:12 5715:13
5722:21 5726:9
5727:1 5743:8
5745:12 5746:12
5747:24 5748:21
5749:1 5753:19
timeline 5557:10
5745:1
timelines
5556:25
timely 5552:21
times 5587:12
5663:10 5705:17
5710:10 5756:20,
22
timing 5551:16
5552:1 5687:12
5704:6 5713:24
5714:8

titled 5571:9
to-ing 5699:3
toad 5601:1,4,9,
12,16,22,25
5602:2,18
5603:16,20
5605:20 5607:12
5608:18
toads 5601:14
5605:17 5607:15
5609:8,19,23
5616:9 5617:3,19
today 5578:4
5612:15 5620:24
5628:16 5653:15
5659:4 5726:19
5727:3 5757:5
told 5564:1
5567:3,5,19
5612:13 5658:6
5673:23
tolerant 5659:5
tomorrow
5727:3,5
tones 5649:25
5650:2
tool 5591:4,23
top 5572:25
5578:19 5580:7
5581:9 5583:24
5695:3 5732:12
5736:2 5749:15,
21
topic 5570:12
5572:10 5646:15
5661:10 5671:10
topics 5574:16
5575:11 5620:14
5721:7
topography
5682:14,20
topper 5684:20,
22 5695:21
topping 5749:21

topsoil 5688:7
total 5680:11
5732:11
town 5595:11
5634:25 5635:4,
20 5667:18
5718:26
towns 5569:3
toxic 5614:3
toxicity 5561:15
5737:5
toxicologist
5612:20
toxicology
5593:20 5594:3
5595:15,20,25
5596:4 5737:26
5739:5
traffic 5645:19
5718:25,26
trailer 5725:18,
19
train 5676:20
5685:14 5697:20
5698:23,25
5700:6 5704:6,
17,19 5708:5,10,
13,25 5709:2,18
trains 5704:23
5705:2
transcribed
5758:6
transcript
5640:2 5674:8
5724:10 5758:1,4
transfer 5584:16
5642:1,25,26
transferable
5703:10
transferred
5643:11 5716:13
transferring
5693:23 5694:5

transient 5736:6
transmit 5719:7
transparent
5551:9
transport 5664:8
5684:9 5695:4
5696:3 5736:24
trap 5578:25
5579:1,3 5600:2,
8,9,15,21,23
5607:23 5615:12
5616:8 5617:22
traps 5614:25
5615:16,18
5618:1 5756:13,
16
travel 5618:15
5688:5
travelling
5624:23 5691:24,
25 5709:10
treated 5613:6
5644:25
treating 5597:10
treatment
5613:2 5614:8
5644:24 5684:16
5753:6 5754:1
tree 5749:22
treed 5602:7
5606:1 5610:26
5611:5,13,18
trees 5655:14
5697:16
trenches 5616:1
trial 5562:5
tricky 5720:19
trigger 5695:19
5712:5 5741:23
trophic 5583:24
5740:11
trouble 5618:10
Trout 5668:26

trout-bearing
5577:11
truck 5623:19
trucks 5688:6
true 5555:20
5576:19,20
5610:9 5645:6,7
5732:11
TSP 5682:6
Tuesday 5599:18
tunnel 5684:22
turn 5567:10
5571:16 5611:22
5669:23 5722:5
turned 5551:2
5573:6
Turner 5666:18
5737:3,12 5742:4
5753:9
twenty 5755:2
twinning 5732:6
twisted 5595:4,
11 5596:7
5597:13
two-thirds
5629:21
two-week
5556:15
type 5561:7
5562:13,15,20
5630:12 5632:22
5636:21 5657:16
5661:16 5663:6
5683:3 5711:7
5740:15
types 5561:4,22
5562:2 5590:22
5628:23 5629:11
5638:24 5661:21
5676:23 5691:8
5692:4 5700:19
5743:17,20
typical 5629:18
5682:1 5701:9

5715:7
typically 5578:18
 5680:25 5682:21
 5691:10 5722:8

U

ultimate 5575:21
ultimately
 5740:11
unable 5616:3
unacceptable
 5552:6
unavailable
 5727:4
uncomfortable
 5725:10
underestimate
 5590:13
understand
 5559:9 5575:19
 5595:17 5621:21
 5622:5,21
 5624:11 5632:26
 5635:19 5640:17
 5643:7 5644:15
 5651:22 5654:5
 5662:11,25
 5663:4 5665:6
 5711:6 5715:1
 5730:23
understanding
 5567:15 5573:10
 5574:3 5584:15
 5585:16 5591:5
 5605:24 5614:22
 5616:10 5618:17
 5629:6,12
 5632:21 5633:14
 5653:20 5654:13
 5722:13
understands
 5597:1
understood
 5560:11 5566:14

5598:22
undertake
 5634:8 5676:26
 5690:2 5744:14,
 16
undertaken
 5576:6
undertaking
 5598:10,13
 5599:11,14
 5631:26 5633:25
 5636:26 5637:23
undertakings
 5598:7,9 5599:13
 5676:25
undertook
 5598:17
undoing 5748:20
unfair 5554:17
unfortunate
 5652:14
unhappiness
 5574:8
unique 5730:4
unit 5684:11,12
 5705:16 5708:5
units 5645:19
 5664:10
unlike 5624:26
Unlimited
 5668:26
unloading
 5559:26
unmute 5690:12
 5722:24
unnecessary
 5553:3,7
unplanned
 5698:20 5699:12
unreasonable
 5569:18
untouched
 5654:23

unwilling
 5723:26
update 5568:23
 5598:17
updated 5567:18
 5568:11,18,21
 5598:23 5684:26
 5721:17 5750:22,
 24
updating
 5722:17
upgrading
 5662:7
upper 5590:15,17
 5592:22 5683:19
uptake 5613:11
urban 5646:2
 5706:2
utilize 5694:12
Utting 5575:6
 5620:9 5661:5
 5666:15 5721:1

V

valid 5561:17
 5722:22 5734:15
validate 5719:26
 5733:10
Valley 5675:4
 5747:15,16,20
valuable 5720:4
valuate 5716:26
valued 5586:20
 5601:2 5728:19,
 20,22 5729:1
 5730:8,9
values 5719:8
 5728:17 5734:21
 5735:1
Vancouver
 5685:15
variants 5639:11

vast 5672:15
 5709:11 5755:25
vector 5619:2
vegetation
 5576:16 5589:16,
 17 5624:11,19
 5625:7,11,14
 5626:25,26
 5627:9,15 5633:8
 5634:4 5637:3,16
 5680:15,19,24
 5681:1,13,21,22
 5682:13,24
 5688:19,21
 5691:6
vegetative
 5589:6 5681:5
vehicles 5624:23
 5664:12 5691:24
 5692:8
velocity 5717:4,
 12
vented 5679:3
ventilation
 5678:9,13
 5693:10
venting 5679:16
vents 5679:13
VERBAL 5579:7
 5581:15 5600:20
 5615:13
Vern 5668:3
version 5567:14
 5675:14
versus 5638:22
 5709:26 5733:1
viable 5675:24
vibration
 5684:22 5685:13
 5714:5,15
 5716:25 5717:4,
 14,15 5718:7,11,
 16,19,23,25
 5719:12

vibrations
 5672:26 5717:8
 5719:6,7
video 5550:24,25
 5551:4 5666:1
view 5552:15
 5599:16 5606:21
 5650:8 5672:10
 5697:13
views 5553:20
virtual 5551:1
visual 5602:15
visuals 5603:3

W

wait 5554:3,15
 5634:12,14
 5638:7 5688:22
 5689:16,20,26
waiting 5733:25
walking 5704:17
wanted 5551:15
 5557:26 5562:9
 5599:12 5661:14
 5697:25 5734:2
 5751:14 5753:12
Warden 5666:25
warm 5601:19
 5657:9,10
warmer 5648:16
 5649:19 5650:2
 5657:10,18
wash 5641:3,6
waste 5687:26
 5736:25
watched 5617:11
water 5576:15
 5590:18 5596:24
 5601:14 5608:8,
 10 5609:20,23
 5611:3,11,15,16,
 24 5612:7,15,25
 5613:2,6,12,17,

23 5614:2,8 5616:17 5617:24 5618:7 5640:13, 20 5641:1,8,11, 15,18,19,20,22,26 5642:3,4,9,12,13, 14,18,19,21,24 5643:2,5,8,9,13, 17,18,19,21,24 5644:7,9,12,18, 21,22,23,24,25 5645:2,3,8,12 5655:17 5665:4 5684:13,26 5686:13 5690:18 5737:21 5738:7,8 5739:2 5740:6,22 5741:2,11 5754:10 5755:5, 20 5756:6	website 5550:26 5569:12 5598:25 Wednesday 5554:1 weed-free 5688:17 weeds 5658:17 5659:2,18 week 5552:8 5554:25 5556:14 5640:2 5644:15 5705:2 5710:8 5713:12 weekly 5756:17 weeks 5552:8,9, 14,17 5553:12,25 5554:6,8,13,14 5555:15,19,26 5556:5 5559:2 5646:6 5688:13 5689:2 weigh 5676:15 5717:18 weighed 5652:15 weight 5553:21 5562:1 well-known 5737:5 well-recognized 5646:1 well-used 5741:5 Wellness 5568:26 west 5604:20 5609:12 5685:8 5708:7 5725:7 West/ yellowhead 5747:13 western 5601:1, 4,9,16,22,25 5603:16,20 5605:17 5609:7 westslope	5577:11 wet 5680:4 wetland 5604:24, 25,26 5605:3,20 5606:14,16 5607:8 5608:23, 25 5609:2 5610:9,24,25,26 5611:5,12 5612:5,13 5617:1 5618:12 wetland- dependent 5601:12 wetland-specific 5610:6 wetlands 5601:5 5603:18 5604:2 5606:1,2 5609:9, 10,26 5610:4,20 5611:9,14,18 5616:22 5620:13 5738:8 whatnot 5709:14 Wheaton 5666:19 wheel 5688:1 wheelhouse 5738:1 wheels 5725:20 white 5649:26 whitebark 5577:10 whoa 5627:17 wholly 5559:4 wide 5618:13 widely 5602:6 5603:6,7 Wilderness 5556:22 5667:21, 25 5668:11,21 wildlife 5557:21, 22 5575:11 5576:15 5586:25	5587:1,3,9 5590:11,12 5600:5,13 5614:10,23 5617:16 5619:15 5620:14 5632:7 5653:22 5659:6 5661:10 5668:19 5670:7,8 5721:7 5726:22 5727:15 5728:8 5729:1 5732:25 5733:9, 26 5736:5,15,23 5737:8,26 5739:9,15 5740:5,11,22 5742:23 5743:3, 14,24 5745:4 5746:10,15 5747:5,13,17 5748:25,26 5749:8 5751:3, 10,19 5752:5 5754:5 5755:9, 15,18,22 willingness 5723:19 5755:9 wind 5564:2,3 5680:1 5684:22 5686:13,16 5687:17 5688:19, 24 5690:18,21 5691:21,23 5692:5 5694:12 5741:21 wind-driven 5558:2 5559:12 windblown 5559:17,21 5560:5 5599:4 5684:8 5686:4 5688:8 5691:19 5692:7 winds 5563:16 5682:18 winter 5564:20	5565:11 withdrawal 5642:10,16 5643:4 5645:1 witnessed 5702:14 witnesses 5556:2 wondered 5653:15 wondering 5610:16 5624:9 5653:24 5712:10 5717:2 5720:17 woods 5725:9 woody 5746:1 word 5569:17 5604:11 5613:5 5646:12 5665:2 5714:13 5722:4 5725:10 wording 5672:7 words 5752:9 work 5554:25 5555:24 5589:12 5606:18 5615:24 5617:10 5628:12 5634:3 5656:13 5659:19 5681:10 5685:4,18 5696:8 5697:9,21 5710:18 5712:22 5713:1 5752:22 workable 5556:9 worked 5726:24 working 5555:24 5659:23 5678:12 5679:24 5684:10 5696:6 5712:24 5714:16 5746:19 works 5612:11 world 5650:26 5674:23 5705:21 worries 5660:25
--	---	--	---	--

worst 5714:22

5716:6

worst-case

5713:18,21

5716:3

worth 5650:4**wrap** 5597:24

5720:15

write 5553:14

5555:26 5586:6

writing 5555:18

5556:4

written 5552:5,

11 5553:23

5556:11 5719:18

wrong 5585:3

5593:5 5625:13

5683:5

wrote 5570:2

Y

yard 5698:12

5701:2

year 5558:22

5589:8 5590:20

5602:18 5606:25

5608:2 5612:19

5617:15 5636:15

5647:21 5717:20

5719:25 5721:12

5723:5 5753:18

5755:2 5756:20,

22

year-to-year

5618:4

years 5555:14

5568:17 5573:15

5589:13 5593:11

5595:4 5612:1

5658:7 5661:18

5717:20 5723:14

5744:6 5747:14,

17,23

yellower 5649:25**Yellowhead**

5747:19

yesterday

5551:12,18

5558:9,22

5560:15 5563:11

5564:19 5598:16

5652:16

Yewchuk

5556:23 5557:7

5577:25,26

5578:2,3

5579:11,13

5581:16,23

5583:26 5584:2,

7,10 5589:1,23

5593:1,3

5594:14,16

5597:21,22

5598:3,6

5599:25,26

5600:1,7 5603:25

5604:1 5607:1,3

5610:2 5612:23

5613:4 5617:26

5619:8 5620:2,3,

15,19 5667:20

York 5641:22

5642:1 5643:8,

13,17,23 5645:5

Youl 5671:3,5

5674:10,18

5675:6 5676:2

5687:2 5713:26

young 5743:18**Youtube** 5550:26

5551:4

Z

zinc 5613:18**zone** 5568:25

5569:1,6,12,20

5585:19,23

5586:13 5589:4

5605:13 5611:1

5613:7 5656:3

5753:6 5754:15,
20**zones** 5569:5,8

5606:10 5655:10

5656:9 5753:26

5754:11

zoom 5558:3

5567:10 5571:3,5

5581:16 5583:26

5604:18 5607:5

5627:7 5628:2,6

5629:14 5630:18

5635:14 5638:1,

2,7 5639:4,16,24

5640:4 5647:18

5650:12,14

5656:22 5727:19

5729:21 5733:24

5736:12 5753:1