THE ALBERTA ENERGY REGULATOR
PROCEEDING ID NO. 444

IN THE MATTER OF the Public Lands Act Application for a Coal Exploration Program (A10123772); Coal Conservation Act Application for a Deep Drill Permit (1948547); and Water Act Application for a Temporary Diversion Licence (00497386) to the Alberta Energy Regulator by Northback Holdings Corporation

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AER PROCEEDING
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Calgary, Alberta
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Proceedings taken at Govier Hall, Calgary, Alberta

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(PROCEEDINGS COMMENCED AT 9:02 AM)

Opening Remarks

THE CHAIR: Thank you. Please be seated.

Good morning, and welcome back. I wish to remind everybody that no recording of the proceeding, photographs, video or voice

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recording, please.

Those of you in the hearing room may be seen on the camera. If you have any concerns, either talk to one of the staff or you're welcome to move to the overflow room down the hallway.

And please speak to the microphone. Speak slowly for the benefit of the court reporters 'cause they need to capture it.

And any preliminary matters from the parties? No? Hearing none.

Okay, Mr. Fitch.

G. FITCH: Thank you, Madam Chair, and good morning. I'm pleased to present the final two witnesses for the Livingstone Landowners Group. Seated closest to the Hearing Panelists is Mr. Lorne Fitch, and next to Mr. Fitch is Dr. Brad Stelfox. At this time, I would ask that the witnesses be affirmed, please.

BRAD STELFOX, Affirmed

LORNE FITCH, Affirmed

Direct Evidence of Livingstone Landowners Group

Q G. FITCH: Good morning, Mr. Fitch. I'm going to start with you first. You can confirm that to the best of your

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knowledge, you and I are not related?

A L. FITCH: I can confirm that, Mr. Fitch.

Q Okay. And can you also confirm that you were retained by the Livingstone Landowners Group to review the June 2023 predisturbance site assessment prepared for Northback by Trace Associates?

A I was.

Q And you did that, and you prepared a report titled "A Review of the Proposed Northback Coal Exploration Application for Grassy Mountain"; correct?

A I did.

G. FITCH: And for the record, Madam Chair and Panel Members, Mr. Fitch's report is Exhibit A to the Livingstone Landowners Group's written submissions of October 2nd, 2024. That's Exhibit 84.01 beginning at PDF 13.

Q G. FITCH: Mr. Fitch, can you confirm that your curriculum vitae is attached to your report at PDF page 47 of the LLG submissions?

A It is.

Q And you can confirm that your CV accurately

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sets forth your experience and your qualifications?

A It does.

Q Okay. And returning to your report, the report you prepared, can you confirm it is accurate and true to the best of your knowledge and belief?

A It is.

Q And do you adopt it as your evidence in this proceeding?

A I do.

Q And, sir, can you confirm that since you prepared your report, you have reviewed the rebuttal to your report that was prepared by Trace Associates?

A I have.

Q And you have also reviewed the Trace Associates' updated October 2024 PDSA?

A I have.

Q Okay. Thank you.

And, finally, sir, can you confirm that as an expert witness providing opinion evidence to the regulator, you are obligated to be independent, objective, and impartial?

A I can confirm that.

Q Thank you.

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All right. I'm going to start by asking you to introduce yourself to the Hearing Panel and to summarize your experience and qualifications.

A Thank you.

Good morning, Madam Chair and Panel Members.

I'd like to give you a bit of background on myself.

I've been a practicing biologist for over 50 years. I've been a professional biologist, a member of the Alberta Society of Professional Biologists for 48 years. I'm a retired provincial fish and wildlife biologist for 35 years. I held positions as a fisheries research and inventory biologist, the section head of regional habitat management, the section head of regional fisheries management, and the provincial riparian specialist over a time span from 1971 to 2006.

I was also an adjunct professor with the University of Calgary from 2004 to 2018, and I'm the cofounder of a riparian stewardship initiative colloquially known as "Cows & Fish".

As -- in the span of my career, I've reviewed land and water use applications;

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monitored land use activities and effects; collected evidence for environmental prosecutions and acted as an expert witness; proposed terms of reference for fish and wildlife inventories and participated in data collection and analysis; led mitigation programs for Fish and Wildlife Compensation; managed, directed, and monitored mitigation actions; participated in trout species at risk recovery planning; participated on the provincial Endangered Species Conservation Committee; was the Fish and Wildlife division lead for the Livingstone-Porcupine Hills integrated resource plan; and assisted local community groups in the development of the Livingstone-Porcupine Hills subregional plan; and in addition, I've developed and delivered education and outreach programs.

I have the following experience with coal exploration and development: In 1972 I undertook a biological survey of Dogrib Creek in the Panther River drainage to assess the effects of coal exploration on a stream with bull trout populations. A coal exploration road had been constructed two years previously and crossed several of the tributaries of

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Dogrib Creek. I also assessed the erosion from coal exploration roads in the watersheds of the Panther and Dormer Rivers.

In 1976 I undertook biological surveys in the Crowsnest River watershed, including streams impacted by existing and legacy coal mines, the Tent Mountain mine, and the Grassy Mountain mine on Crowsnest Creek, East Crowsnest Creek, Blairmore Creek, Gold Creek, and additionally on another legacy mine in McGillivray Creek.

I monitored the effects of the Tent Mountain haul road and mine settling ponds and water quality and provided concerns to regulatory agencies in the early 1980s, and I did the same for the legacy Racehorse Creek coal mine.

In the 1980s I provided review comments on terms of reference and environmental impact assessments for several proposed Plains coal mines.

I inspected the aftermath of the coal spoil pile failure from Grassy Mountain into Gold Creek in 2015 and made observations of the extent of coal spoil covering the stream substrate materials with possible implications

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to trout populations. I reviewed the aquatic section of the Benga environmental impact assessment for the proposed Grassy Mountain coal mine in 2020 and provided expert testimony to the joint review panel on impacts to westslope cutthroat trout populations at Blairmore Creek and Gold Creeks.

I participated with researchers from the University of Lethbridge in 2021 on water quality sampling in the Crowsnest watershed to define issues related to selenium contamination of surface waters from legacy mining operations.

Failures of settling ponds beneath the Tent Mountain mine on East Crowsnest Creek and the infilling of beaver dams from overburden on Crowsnest Creek led to extirpation of the westslope cutthroat population of East Crowsnest Creek and the headwaters of Crowsnest Creek.

In 2021 I provided input to the Canadian Impact Assessment Agency and the AER on the Montem coal project EIA terms of reference based on these concerns.

With four retired Alberta Fish and Wildlife biologists, we provided a synoptic review and

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comments to the Alberta Coal Policy Committee in 2021 on environmental issues from coal mining in the eastern slopes based on our collective experiences and observations over a 50-year period.

I inspected coal exploration roads on Cabin Ridge in 2022 and provided an assessment of concerns to the local municipality, to conservation concerns and to the AER. I provided Department of Fisheries and Oceans and the AER with advice and concerns related to coal exploration in the eastern slopes in 2022. I reviewed expansion plans for the Vista coal mines south of Hinton in 2024 and provided concerns over the implications of coal exploration and development for species-at-risk trout to Ecojustice.

And although not related to coal, I have reviewed, inspected, and measured the effects of forestry roads, which are similar to coal exploration roads, on water quality and impacts on trout and aquatic invertebrates.

Q Thank you. Thank you, Mr. Fitch.

With that summary of your qualifications, and in particular relating to coal, I would now ask you to please provide a summary of your

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report and your principal opinions.

A Thank you.

I'd like to provide you a brief summary of my review comments on the Trace reports for proposed coal exploration on Grassy Mountain, and these were taken from the evidence that Mr. Fitch has indicated I provided.

The conclusions from the Trace report were that no wildlife were observed and no wildlife sign was apparent, so there is low potential for the coal exploration program to affect wildlife.

The use of best management practices will prevent erosion, and, presumably, there will be no impact on downstream trout populations, although there was no mention of trout in downstream water.

So, first of all, I'd like to provide some comments on the utility of the desktop assessment done by Trace.

Although no meaningful results were provided from the desktop assessment done by Trace, there are some inherent flaws in relying on this source to do more than scope out the terms of reference for an impact assessment. Referral maps and the species databases from

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Alberta Environment and Protected Areas can be characterized as generalizations, broad-scale summaries derived from a variety of sources at irregular intervals.

They are often missing information on scarce, rare, threatened, and endangered species; ones most likely to be impacted negatively by a land use activity like road building, drill site preparation, stream crossings, and any subsequent reclamation efforts. Historical information is lacking since most have not been digitized.

There may be problems in data verification. As an example, in the Fish and Wildlife Internet Mapping Tool, which, presumably, is the scan done of species present for the coal exploration area, the species summary report notes brown trout, which are not found in Blairmore, Gold, or Daisy Creeks, but misses bull trout found in Daisy Creek.

Q Sorry. And maybe I'll just stop you there, Mr. Fitch.

G. FITCH: If we could pull up Exhibit 86.1 and go to PDF 108, please.

Q G. FITCH: All right. You just mentioned the Fish and Wildlife Internet

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Mapping Tool. I take it you were referring to the document that's now up on the screen?

A Yes. And if you look on the left-hand column under "Fish Inventory", it lists a number of fish species, including brown trout, which are not found in Blairmore, Gold, or Daisy Creeks, but misses bull trout, which are found in Daisy Creek.

Q All right. Thank you. Carry on.

A The information on many groups of plant and wildlife species is unavailable because departmental priorities don't allow inventories to be completed or updated. Amphibians, rare plants, small mammals, plus resident and migratory birds are common examples of overlooked and underreported species. There is a high likelihood of data gaps, and the existing information may be incomplete and out of date.

In light of consistent budget cuts and lack of resources available to government staff to update inventories and research, availability of critical information is severely limited.

Other key features missing are: mineral licks; dens; cavities; seeps; springs; and burrows important for nesting; foraging;

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calving; lambing; nursery; source water; and overwintering habitats. When available, some of these are not noted on referral maps to protect sites from unwarranted public use. Some radio caller datasets and sensitive features may be filtered from public or stakeholder or industry analysis and requires specific requests to gain access.

So to summarize, a desktop method is not robust enough to use exclusively for decision-making. It is a starting point and provides a set of guidelines to understand what additional information has to be collected, the timing of collection, the appropriate methodology, how detailed and robust the assessment should be, especially for cryptic species-at-risk listed species like Columbia spotted frog, long-toed salamanders, and boreal toads to better able understand impacts and avoid, reduce, or mitigate the negative effects of a proposed land use activity.

I'll turn my attention now to comments on additional biological information.

Additional information on the biodiversity values of the proposed coal exploration area was available to assist in the assessment of

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impacts. This would have assisted in identifying Fish and Wildlife species distribution, abundance, key habitats, and critical areas in the watershed. I have detailed the extensive list in my review, but in the interest of brevity, I won't provide all of the details. However, some comments are useful.

During the development of the Livingstone-Porcupine Hills Land Footprint Management Plan, the majority of wildlife datasets were compiled by the Southern Rockies GIS unit. This included the area around Grassy Mountain as it was evident the Livingstone complex was one of the most important landscapes for wildlife north of Highway 3. Nothing from this source was referenced in the consultant's report, including the linear disturbance thresholds required to sustain fish and wildlife populations.

The Southern Rockies Landscape Planning Pilot Study provides an extensive review of biodiversity information that includes the Grassy Mountain area. This source would have provided some measure of historical information and potential habitat for many underrepresented

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wildlife species.

Other publicly available sources included information on grizzly bears, elk, mule deer, cougars, wolverine, and wolves. In the October 23rd -- October 23rd, 2024, reply submission of Northback prepared by Trace consultants, some additional information was provided on grizzly bears. Trace indicated, according to a Government of Alberta 2020 report, that the bear population in Bear Management Area 5 was stable. And in their opinion, existing road density was not a problem; however, the Government of Alberta 2020 report on population status was for the entire area of Bear Management Area 5, which encompasses the area between Highway 1 and Highway 3. In that entire area, there may not be a problem with existing road density, but that does not pertain specifically to the Grassy Mountain area.

Also referenced was a report by Apps, et al. 2007, which indicated the landscape surrounding the coal exploration area in there -- and I quote from that report: (as read)

... is of poor suitability for grizzly

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bear at current conditions. Those current conditions include a large human footprint, including road density, and are not an indication of poor habitat suitability for grizzly bears which should have been noted in the Trace report.

Road density as noted in the grizzly bear recovery strategy is concerned with open routes, defined as "roads and trails that receive motorized use".

Other sources of information might have added some rigour to the assessment of species presence. Again, the Fish and Wildlife internet mapping tool report notes just eight bird species in the species summary report. A quick review of the Atlas of Breeding Birds of Alberta would have added substantially to that list.

Habitat features define the survival, abundance, and distribution of Fish and Wildlife species, yet these critical features can be poorly understood, mapped imperfectly, or missing from any referral maps.

Similarly, travel corridors and seasonal stopover habitats important for ungulates like sheep, elk, mule deer, and goats, as well as

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large carnivores do not appear on referral maps. Population dynamics are not tracked by any referral mechanism, yet an understanding of this is key to appreciating and responding to the vulnerability of a population to a land use activity and fully assessing risks and impacts.

Because of the limited data available on government referral maps and associated information, it would have been advisable to consult subject matter experts in Alberta Environment and Protected Areas, in other agencies, as well as other resource professionals to fully understand the information available and its limitations. This was not undertaken.

It is especially useful to do so when consultants are not conversant with or fully qualified to interpret Fish and Wildlife data or input particularly to understand data gaps in situations that require subject matter expertise to interpret risks to population sustainability.

So in summary, without the referenced publicly available information and discussions with content experts, it's evident the assessment of the coal exploration program has

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noted deficiencies, data gaps, inaccuracies, and inappropriate findings.

I'll make some comments on assessment, scope, and scale.

Despite the potential issues of coal exploration programs, the assessment is too narrow in scope and scale to be an effective predictor of issues and impacts. Artificially separating public land from contiguous deeded land for an assessment of the coal exploration program does not reflect reality or even a rudimentary cumulative effects assessment. This wrongly presumes impacts to biodiversity and water quality on Northback deeded land, both past and as part of the coal exploration program will not affect or flow downstream to public land.

The information provided by the proponent only touches on exploration activity proposed on public lands and deliberately excludes information related to the work planned on Northback's private land. It is therefore impossible to fully understand the cumulative impact of the entire exploration program. If there is extensive new road construction, more habitat impacted, additional stream or drainage

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crossings, and extensive industrial traffic on private land, that may have an important cumulative impact on affected streams and biodiversity in the area.

Carnivores and ungulate species operate at large scales. The field surveys undertaken for this coal exploration program are only specific to a very limited portion of the landscape. Narrowing the scope for assessment provides an inappropriate and incorrect answer of little or no negative impacts on biodiversity of an industrial activity. This is inconsistent with cumulative effects assessments.

Carnivore and ungulate signs may or may not have been present on the days of the surveys, but that does not mean these species are absent or don't use the habitats at some point. Not all habitats are created equal, are equally used year-round or between years, are equally distributed, or are equally critical. However, all habitats have to be present to ensure species' survival over the range of natural variability and more so with the addition of the human land use footprint.

Carnivores and ungulates tend to have large home ranges, and to fully understand the

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presence and use of both at the sites in question, much larger field surveys over larger landscape units and at least over one season would have been a minimal requirement.

For grizzly bears there is a low population density with large home ranges. Coupled with that are recent land use activities in nearby areas, including a major pipeline construction crossing the Livingstone Range and lower flanks of Grassy Mountain and logging in Daisy Creek. Given these factors and low or no sampling effort, it might provide the sense of low or no grizzly bear use, which is incorrect.

No cumulative impact assessment was done or referenced to understand the larger implications of the coal exploration program. There is a large body of research on the cumulative impacts of development, including a cumulative effects assessment that included the Grassy Mountain area. I'm referring here to the report "Cumulative Effects of Land Uses and Conservation Priorities in Alberta's Southern East Slopes Watersheds". This source provides warning signals on the current land use footprint, future trends, and the risk to sensitive and threatened species, especially

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native trout and grizzly bears.

So in summary, a rapid field assessment of an application with a checklist approach to very complex questions undertaken over a limited number of days is not an effective review of potential issues from coal exploration that could impact fish, wildlife, biodiversity, water quality, water quantity, and cumulative effects.

It might be evident that the reason no wildlife was observed and no "wildlife" sign noted is the search horizon was restricted to the proposed 20-by-20-metre drill pads and a small buffer zone. If you shrink the scope and scale of assessment down to a few 20-by-20-metre squares, the likelihood is nothing will be found that sets off concerns.

I'd like to make some comments on mitigation with particular reference to best management practices and their efficacy.

The conclusions from the Trace report are the issues of downstream water quality affecting native trout, which are unmentioned and seemingly unrecognized in Blairmore, Gold, and possibly Daisy Creeks, will be mitigated by simply following unspecified best management

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practices. Even if no new trails are constructed for the coal exploration program, there is an acknowledgement that existing trails will need to be upgraded. As stated in the proponent's application, and I quote: (as read)

Some access and pad locations will require minor surface improvements to accommodate safe equipment passage and associated drilling activities.

End of quote.

Other parts of the application indicate existing trails will be widened to 7 metres. This cannot be considered minor and requires significant soil disturbance.

There is substantial ambiguity about how watercourse crossings will be undertaken, methods used, whether appropriately sized stream and riparian buffers will be in place, and if these measures are adequate to ensure no sediment addition occurs.

Widening and other trail improvements combined with heavy vehicle passage will increase erosion potential. The Trace report indicates construction and use in dry or frozen conditions and that this will minimize impacts.

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Given frequent chinooks and winter rains, this mitigative strategy seems unlikely to reduce erosion. Generally, most erosion happens during the first full year following disturbance.

In 2015 an unreclaimed spoil pile on the legacy Grassy Mountain strip mine failed during a rainstorm event, causing a catastrophic spill of overburden into Gold Creek, one of the last streams in the Crowsnest watershed with a genetically pure westslope cutthroat trout population. Jim Rennie in testimony to the Grassy Mountain JRP hearing estimated the cutthroat population had declined 95 percent following this sediment event. The AER investigated but could not determine that ongoing exploration caused the failure and took no action on the incident.

This underscores that best management practices are inadequate, given the topography of Grassy Mountain and several routes that cross old and unstable spoil surfaces.

G. FITCH: If we could now pull up, please, Exhibit 4.01 and go to PDF 125.

A So these are examples from the Trace report of steep, in my opinion, virtually unreclaimable

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slopes. They're shown from Photographs 1, 2, 7, 13, and 14 of the 2023 Trace report, and, additionally, Photographs 3 and 8 are routes crossing existing steep, unstable coal spoil, similar to the slope failure site of 2015.

Q G. FITCH: All right. So we've looked at photo -- we've scrolled through Photos 1 to 3.

G. FITCH: If we could just move to 7 -- I think is the next one you wanted the Panel at there -- and then 8 and then 13 and 14, please.

A Okay. Thank you, Mr. Fitch.

Q G. FITCH: You're welcome.

A Other best management practices include the use of unspecified sediment control measures, reliance on infiltration to avoid overland flow, and the expectation that, I quote: (as read)

Overland flow is not anticipated due to vegetation cover and precipitation levels typical of the area.

End of quote.

There is no empirical evidence from monitoring to substantiate that these practices will be effective at preventing erosion and

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movement of sediment to downstream locations of trout habitat. No long-term precipitation records were provided to substantiate the assertion overland flow would not occur, especially with the extreme rainfall events as we've seen in 2013, rapid snowmelt, or rain on snow events.

The reality is that newly graded access roads will continue to intercept overland flow, increase erosion, and transport of sediment to watercourses that these roads intersect with.

G. FITCH: And if we could now call up the visual aids for Mr. Fitch's presentation and go to PDF 4.

A So this is a coal exploration road. This is on Cabin Ridge. It was built on top of -- or it was -- an old logging road was improved to construct this now upgraded coal exploration road. So it is an example of the requirements to meet the needs of heavy equipment and safety on coal exploration roads.

Thank you, Mr. Fitch.

G. FITCH: Thank you. We can just leave it up. That's okay.

A So literature references provide information that unpaved roads are major sediment sources,

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increasing landslide erosion rates 10 to 300 times, and sediment production rates in order of magnitude are more than unaffected slopes. This is referenced in determining appropriate nutrient and sediment loading coefficients for modelling effects of change in land use and land cover in Alberta watersheds.

Unpaved logging roads equivalent to mine roads under heavy use -- there's more than four trucks per day -- generated 500 tons of sediment per road kilometre per year and delivered 70,000 kilograms per hectare of sediment per road. This is referenced in Cederholm et al., 1980.

G. FITCH: And if we could now go to PDF page 5, please.

A So this is -- this is a series of photographs from one site on Gold Creek. Gold Creek flows on the east flank of Grassy Mountain. I was there during a 25-minute rain shower, and over a 10-minute time span from virtually crystal clear water, the turbidity changed to what you see there.

So I'm -- I'm not suggesting that -- or I am suggesting that these are not trivial events to the biota of these streams. And if you keep

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the image in the lower right-hand corner in your mind, I'll get Mr. Fitch to change to the next slide.

G. FITCH: PDF 2, please.

A For another environmental investigation, I constructed these turbidity examples. These are total suspended solids from zero to 5,000 milligrams per litre. And so as -- if you can remember from the slide in the lower right-hand corner of the previous image, the turbidity would have been quite high in Gold Creek following that rainstorm event.

I would point out that concentrations of 100 milligrams per litre of total suspended solids had been found to impair survival of juvenile trout. So, again, these are not trivial events to the biota of these streams.

Thank you, Mr. Fitch.

Q G. FITCH: Thank you.

A In the analysis of extreme flow events and maximum probable floods, the probability of multiple extreme rainstorm events close together and possibly coupled with rain-on-snow events does not seem to have been taken seriously in assessment of erosion from roads in the coal exploration program or in any

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mitigative strategies.

G. FITCH: If we could just pull the same document up, please, and go to PDF 6.

A So this is the Lions or the Sartoris Road south of Blairmore. It traverses south of Blairmore into the Carbondale River drainage. This is a road washout from the 1995 flood event, again, showing the magnitude of some of these rainfall events and what the implications are for erosion and sediment transport downstream.

Thank you, Mr. Fitch.

The reality is that all roads erode, and many intersect with watercourses whether they have seasonal, intermittent, or permanent flows. Erosion from these roads is not a trivial issue given the threatened status of trout in the receiving waters.

"Best management practices" is a term meant to provide some assurance that a high degree of due diligence has been applied to a land use activity. Rather than the descriptive of "best", it might be better to consider these as "standard" or "minimum" practices.

I have observed the use of these standard or minimum management practices for erosion

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control, including cross-trenching, berming, culvert installation, and use of sediment fencing. With few exceptions, these have short-term effectiveness, fail quickly, are rarely maintained or repaired, and downstream water quality inevitably diminishes.

Acute and chronic erosion are prevalent on most.

G. FITCH: And if we could go back to the visual aid, please, and go to PDF 3.

A This, again, is a coal exploration road on Cabin Ridge. The downstream effective erosion and the delta of sediment that has come off the road. The sediment curtain is, if not overwhelmed, soon to be overwhelmed by that sediment load, and, based on several field trips to this site, was never maintained, the sediment never removed, the sediment fence never fixed. And so it leads me to believe that these are not effective measures to prevent sediment addition to receiving streams.

And by the way, just over that bit of greenery past the sediment curtain, past those conifers is a small tributary stream to the Oldman River.

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Thank you, Mr. Fitch.

Q G. FITCH: Thank you.

A So ineffective and unmonitored mitigation can lead to the vain hope that we can continue to do everything, everywhere, anytime, and all the time with our development footprint effectively erased behind us. At worst, it creates the impression there's still room for expansion of development, and biodiversity is protected. My review provides substantial insights of issues with mitigation.

And so in summary, one of the primary goals should be to provide enough information so that decisions about an activity ensure fish and wildlife populations continue to persist into the future for multiple generations with assurances of resilience to natural and anthropogenic disturbance.

The literature is replete with instances of problems with mitigation and reclamation, of failures, lack of compliance, inability to replicate habitat structure and function, and monitoring gaps with mitigation plans.

Now I'd like to turn to and make some comments on species-at-risk trout and their habitats.

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Bull trout and westslope cutthroat trout have spatially restrictive biology requirements at individual and population levels and are vulnerable to human disturbances beyond the range of natural variation to their habitat. Biological adaptation cannot keep pace with an increasing land use footprint and human activity that changes stream discharge patterns, removes riparian vegetation, modifies habitat conditions, substantially increases the discharge of sediment into watercourses, and results in additional disturbance to trout.

Each unit of habitat -- the sum of appropriate water quality, quantity, and temperature, along with abundant overhead and instream cover, clean substrate, and riparian shading -- is capable of producing and sustaining a number of units of trout. Any activity that changes, reduces, or eliminates units of habitat effectively kills fish because it removes the potential for fish to exist.

That activity can occur at local stream-side scale or at a watershed scale in headwaters tributaries such as those crossed by coal exploration roads. The suggestion by Trace consultants that no trout critical

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habitat will be affected by exploration activities ignores downstream effects.

This is why bull trout and westslope cutthroat trout are currently threatened, and the persistence of the issues that cause their declines will tip the scale into an endangered category. Human activities that reduce survival rates increase the likelihood of local -- that is, populations in Blairmore, Gold, and Daisy Creek, and eventually at a watershed scale to be extirpated. Provincial fisheries biologists have used a fish sustainability index to assess the status of cutthroat trout in Blairmore and Gold Creeks as being at very high risk.

I provided in my review references that unequivocally point out the issues of sediment from paved roads and the implications to trout habitat and population security and resilience. The issues are watershed in scale since the current road density for the Northback property and adjoining coal lease area is 4.2 kilometres per kilometre squared.

Q Thank you.

G. FITCH: And if we can just now turn to PDF 1 in this document we've

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currently got up.
A Madam Chair and Panel Members, this gives you a visual -- visual indication of what linear density looks like. The current one for the Grassy Mountain site is 4.2 kilometres per kilometre squared. Ecological research for a variety of species but certainly for native trout indicates that we should not exceed 0.6 kilometres per kilometre squared of linear road density to allow the survival into the future of those species.
Thank you, Mr. Fitch.
Q G. FITCH: Thank you.
A The crossing of tributary streams, even of femoral ones, by vehicles creates issues of downstream fish populations and fish habitat, causing harm or disruption. These include physical changes to aquatic and riparian habitats at or near the crossing sites. Additional erosion adds sediment to the aquatic environment in excess of what the natural background level is from the watershed.
The effects of deposited sediment on the physical habitat of trout include the infilling of the interstitial spaces between substrates of gravels, cobbles, and larger materials,

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which reduces and/or eliminates the spaces essential for aquatic invertebrates, which are trout food, and for juvenile trout to rear and defined overwinter cover; the cementing of larger substrate together by sediment creates problems for spawning fish, for eggs incubating when flows through the gravels are blocked, and for the inability of fry to emerge; reductions in water depth in pools, including loss of pools and instream cover, which decreases the physical space available for juvenile and adult fish for critical rearing times and for successful overwinter conditions; sediment accumulating on the surface of substrate materials has been shown to have a smothering effect on trout eggs and young fish as well as aquatic invertebrates.
So in summary, a less than robust assessment of the risks of this coal exploration program for water quality, quantity, and trout habitat is an example of the issues confronting species-at-risk trout and leading to continual declines in populations.
So my overall summary is: The nature of the Trace assessment lacks robustness to

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provide enough information upon which you, the regulator, can make a fully informed decision about the coal exploration application and the possible effects on biodiversity and water quality. The level of review provided in the Trace report is substantially deficient to assess the full range of potential impacts to biodiversity, especially species at risk and water resources issues.
The insights provided in my review suggest the Alberta Energy Regulator should seriously consider if the Trace predisturbance site assessment provides enough or any useful information upon which to base a decision to approve the proponent's coal exploration program. Based on this review, my recommendation is to reject the application.
Thank you very much.
Q Thank you, Mr. Fitch. I just have a couple of follow-up questions for you.
You -- I think you were tuning in on the livestream earlier, and you may have heard that Northback has given evidence in this proceeding that since 2013 they have drilled 199 exploratory wells. In your opinion, sir, given this number of wells, is it likely that

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there have been adverse cumulative effects on the critical habitat of westslope cutthroat trout in Blairmore Creek and Gold Creek?
A These are additive and, by association, cumulative impacts, adding to the sediment burden that the streams of Blairmore and Gold Creek and perhaps Daisy Creek are now sustaining. Reading through Mr. Cooke's report on legacy coal mining activities, he notes the total suspended solids in Gold Creek and Blairmore Creek have increased on Grassy Mountain, and that would be an indication, I think, of the additive effects of those additional coal exploration activities.
Q Thank you.
And, finally, sir -- and I don't think we need to pull it up, but in paragraph 61 of your report, you mention that one of the pit lakes had an introduced population of brook trout. You recall including that in your report?
A Yes.
Q Okay. And in response -- and I believe you read this -- Northback asserted that you provided no data in support of that statement. Do you have any data to support that statement?
A Yes. When I did the biological surveys of Gold

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and Blairmore Creek, I was alerted to the fact that fish might be present in some of these mine lakes -- mine pit lakes. And so I set a test net in the largest one in 1976 and caught brook trout.

It was asserted that brook trout couldn't survive in these mine pit lakes because there was no overland flow in which brook trout could spawn. Brook trout have the ability to spawn in upwelling spring flows, which they do in several alpine lakes, and so it's possible that brook trout may still be present in some of these mine pit lakes.

Q Thank you.

All right. I'm going to move to you now, Dr. Stelfox. And I'll just have you confirm, firstly, that you were retained by the Livingstone Landowners Group back in, I believe, 2018 to prepare a study to assess the watershed scale consequences of surface coal mine in the headwaters of the Oldman River watershed?

A B. STELFOX: Yes.

Q You're going to have to pull -- sit closer to the mic, sir.

A That's correct.

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Q And you completed that study which is dated June 2021?

A Correct.

Q Okay. And you can confirm that you were asked by the LLG to present some of the findings of that study to the Panel here today?

A Correct.

G. FITCH: Okay. And for the record, Madam Chair, Panel Members, the study in question is attached as Appendix B to the Livingstone Landowners Group written submissions of October 2nd, 2024. So that's Exhibit 84.01, and the study commences at PDF 67.

Q G. FITCH: Dr. Stelfox, we'll get to the study in a moment, but can you confirm that the study is accurate and true to the best of your knowledge and belief?

A I can.

Q And do you adopt it as your evidence in this proceeding?

A I do.

Q And can you confirm, sir, that your curriculum vitae has been filed in this proceeding and, for the record, that's Exhibit 108.1?

A I can.

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Q Okay. Thank you.

And does it accurately set forth your experience and qualifications?

A I believe it does.

Q Okay. And, sir, finally, as an expert witness providing opinion evidence to the regulator, you confirm you are obligated to be independent, objective, and impartial?

A I can.

Q Okay. And you have prepared a PowerPoint presentation to walk the Panel through, I guess, the highlights of your very lengthy study. So if we can pull that up now. And I'm going to ask you to present your presentation to the Hearing Panel.

A Thank you, Mr. Fitch. And because of some eyesight problems, I'm going to ask my colleague Lorne to advance the slides. And I very much appreciate the opportunity to talk to the Panel and participants at the hearing.

So the study that I'm going to talk about, and the one that Mr. Fitch is referring to, was commissioned by the Livingstone Landowner Group who had expressed concern about the consequences of large-scale surface mining of coal proposed in the headwaters of the Oldman

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River watershed basin. Now, these new proposed mines represent an abandonment of the Lougheed-era coal policy that previously had prohibited coal mining in Category 2 lands of Alberta's east slopes.

Now, the range of LLG's concerns were very broad, but their central focus for this project was on water quality and, specifically, selenium; water quantity; the difference between supply and demand; and threatened fish species, particularly westslope cutthroat trout. This conservation really depends on watershed integrity which has been very well discussed by my colleague, Mr. Lorne Fitch.

Now this talk is a very short overview of the key project findings, and they're, of course, described in detail for the report that has been provided to the committee.

Next. I'm a retired landscape ecologist.

Q Just before you carry on, we don't seem to be advancing -- the slide did not advance.

A Let's see if -- I think you have to scroll it. Let's see if you do it -- this. Let's see. I think we're going to pass it back to you.

Q Do you need the --

A No, that's -- thanks a lot.

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Q All right. We've worked out the logistics. Carry on --
A Yeah. I'm a landscape ecologist with the ALCES Group, and over the past 30, 35 years, I have completed a broad array of cumulative effects assessments on landscapes that are dealing with multiple overlapping land uses and built technology that allows stakeholders to understand the benefits and liabilities of these multiple overlapping land uses, whether they be social or economic or environmental indicators. So that has given me the opportunity to conduct several dozen projects in Alberta, United States, Australia, and Malaysia, including projects in each of those landscapes involving coal mining.

So my specialty is that of a systems dynamist looking at the discipline of cumulative effects, and it's through that lens which I examined these studies.

And so the report that I'm going to present on behalf of my colleague, Dr. Bill Donahue, will focus on that.

Next slide. And I'll mention slide numbers for referencing.

So Grassy Mountain, which is clearly the

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focus of this hearing, is found within the headwaters of the Oldman River watershed in southwest Alberta, as we can see in the image to the left. Coal mine activities, whether they be exploration, extraction, or reclamation, clearly can affect terrestrial land, air, and water indicators not only in the site itself but in much of the basin if not all of the basin, either downwind or downstream.

Now, this watershed -- it's about 26,000 square kilometres -- currently has a population of about 180,000 people, growing at about 2 percent per year, and a significant diversity of land uses, including cattle production. There's about 1.1 million head, animal units of cattle in this basin and an extensive array of dryland farming irrigation and footprints of the residential, industrial, recreation tourism sectors. It's a busy landscape, particularly the downstream components of this landscape.

Now, its human populations and land uses have grown in the basin over the past century. Citizens of this basin are increasingly recognizing the critical need to discuss limits to all land uses and to carefully assess both

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the benefits and liabilities of each new land use. And to do so requires a system-based cumulative effects approach, which looks at a broad range of indicators and a broad range of scenarios.

What happens if certain new land uses are admitted at low levels? Medium levels? High levels? There's only one landscape; there's only one watershed. All these land uses are interacting with each other.

And this is what the Alberta land use framework was intended to deliver. This hearing, which I believe lists its limited scope in both time and space and what I've considered to be an incomplete list of indicators, clearly violates all reasonable criteria of cumulative effects assessment and ensures that the citizens of the Oldman River basin and those of all Alberta will not gain robust insight into both the benefits and the liabilities of a large reasonable coal mining narrative in southwest Alberta.

Water, both quality and quantity, is of highest concern to the Livingstone Landowners Group, to the residents of the basin, and illustrates to me why a proper cumulative

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effects approach is required.

Next slide, please.

We need to remind ourselves that the Oldman River basin in Alberta is a headwater of a much bigger basin that includes Saskatchewan and Manitoba with about 1.6 million people on that landscape and a multi-multi-billion-dollar array of land uses that are completely dependent on water quality and water quantity.

Next slide, please. Slide 5.

So the Alberta land use framework indicates the need to adopt a cumulative effects approach to land use. This would allow stakeholders to better understand, again, these benefits and liabilities, and this has largely been ignored today.

Now, if we look at these images -- and here we're looking at the headwaters of the Oldman. On the satellite image on the right shows in green eight proposed coal mines, which is -- which have -- two years ago have been formally disclosed, leases have been bought, recoverable volumes of coal had been identified, and risk capital had been secured or was being secured to move these projects forward for coal mining. Those are the ones that are in bright green.

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That's in the headwaters of the Oldman River drainage basin.

That very white thin line from top to bottom is the Continental Divide. That's what separates Alberta from BC. To the left of the divide in red -- I can't see it 'cause of my eyes, but I'm hoping you can -- are the existing coal mines in the Elk Valley that have been mined by Teck and its successor and predecessors.

It's important to understand that the scale of the area and coal on the Alberta side is approximately the same as has occurred historically in the last five decades in the Elk Valley. So there are 1.7 billion tons of known coal reserves in the headwaters of the Oldman. That's why those eight proposals exist.

As of 2022, there are eight coal leases shown in green. In total, these -- these mines, if approved, would conduct coal mining, largely mountain-top removal of these headwater basins and would create a direct footprint of 90 square kilometres, or 9,000 hectares, and extract approximately 700 million met ton of coal over a five-decade period.

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To produce this coal, they would need to remove approximately 6 billion ton of overburden rock. Collectively, these activities would profoundly reshape the regional topography of these basins by removing mountain tops and filling valleys.

Now, the amount of area affected and coal produced in the headwaters of the Oldman watershed would be very similar, as I said, to the scale we've already seen in the Elk Valley, which we see to the west.

The Elk Valley, therefore, provides a very useful template in understanding how this scale of coal mining are going to affect key environmental, social indicators.

So in 2020 to 2021, the ALCES Group in conjunction with colleagues at the Integrated [sic] Ecology Group and MacHydro conducted a cumulative effects framework study to assess the consequences of different levels of coal mining, and what we did is we said, Okay. Let's run these with no coal mining at all -- that's low -- a meeting scenario where we let the Grassy Mountain and Tent Mountain proposal go forward and a high scenario where all eight mines proceeded in a staggered fashion.

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Next slide.

Now, before we get into those results, it's critical to understand a little bit about plumbing in this -- in this watershed. The maps you see are the Oldman River watershed. Elevations to the left, temperature in the middle, and precipitation to the right.

So if we were to walk from the right to the left, from east to west, we would see a profound increase in elevation, profound climb in temperature, and a profound increase in precipitation. So we have all of these moisture-laden air masses coming into Alberta from the Pacific Coast, and as they go over to the Continental Divide, they drop precipitation. And almost all of it is in the headwaters.

Next slide, please.

The image on the left prepared by Stefan Kienzle at the University of Lethbridge does a good job of illustrating the amount of water contributed to the flow in the basin. Now, blue is high; red is low there. And, again, basically shows us that about three quarters of all water that rolls off that basin is coming from about one fifth of that landscape. So it

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cannot be more clear how important the headwaters are to the production of water at every single one of those land uses, agriculture. Whether it be on the grazing side, on the cattle side, or crop side, people, industry, mining, and all others require water of adequate quality and quantity. So there's no confusion as to where that water is coming from.

If we shift to the image on the right, we're not looking at water supply. We're going to turn to water demand. Blue is low; red is high. This basin has a significant demand for water, all over a billion cubic metres of water per year, and almost all that demand is in the downstream component of the basin.

So any land use or event that interferes with water quality or quantity will have detrimental effects on all downstream water users, and, of course, as mentioned, that's not defined to Alberta. It includes Saskatchewan and Manitoba.

Next slide, please. Slide 8.

So what we see here is a dendritic network of streams, rivers, reservoirs, and canals that deliver water from these headwaters to a large

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and thirsty downstream array of land uses, and hopefully you can see on the map on the left just how many essentially tens of thousands of kilometres of creeks that drain the headwaters, collectively joining and producing the Oldman River.

So anything that happens in these headwaters that roll off the landscape, as Lorne Fitch was describing, will move progressively downstream.

The middle -- image in the middle, we get to see, again, the high headwaters. These water towers, rain barrels essentially, that get most of the precipitation in the winter, melts in the spring, rolls off through these rivers, filling up these reservoirs, and then moving out the basin into Saskatchewan and Manitoba or moving through canals and providing the critical water to all the land uses. Of course, agriculture is by far the dominant use of water, particularly irrigation.

Next slide.

So we'll go back to a little bit of math just so we can understand why we've got a supply, demand, and balance problem.

If you could measure all the precipitation

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that falls in the basin no matter where, on an average year, it would be about 12 billion cubic metres. More important in that is the variance. They can range from 8 to 16. There is profound year-to-year variation in precipitation.

Now, our land uses, when we build them, generally require about the same amount of water each and every year. Maybe it's growing at 1 or 2 percent, for an example, with human populations. But the supply is not constant. It's highly variable.

Now of the 12 billion cubic metres that falls in the basin, only one quarter will make its way into the large rivers. The other three quarters are lost through evaporation. So that leaves us with about 3.2 billion cubic metres, and for our naturalized flow in any given year, we owe half of that to Saskatchewan. That's 1.6 billion. So that leaves about 1.6 billion cubic metres of water that is available on an average year. In an average year or a mean year is largely meaningless because water's so darn variable in terms of its precipitation.

So if we looked the bottom, we can see that our current allocations are not 1.6 billion

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cubic metres; they're 2. We're already allocating more water than we have to use in the average year.

Now, fortunately, not all allocated water is used, and the current amount of use is about 1.3 billion cubic metres, and you can see the relative importance of irrigation, municipal, which is largely people, and livestock.

So the point here is the supply of water is unpredictable, highly variable, and those are looking at historical data trends largely before the magnitude of droughts that we anticipate under climate change scenarios, which are going to increase in frequency and magnitude.

There's a lot of water demand relative to supply.

Arguably, we're already overallocated, and that's why this basin was closed in 2006.

Next slide, please. This will be Slide 10.

Here we're looking at approximately 100 years of data in the Oldman River at the location of Lethbridge. In red is the amount of actual flow, recorded flow. In blue is -- is the -- what we would consider to be the naturalized flow, which would be how much water

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would have flown -- flowed through those rivers if humans were not removing it.

The reason I wanted to put this slide in is just again to have people understand just how much variation in water availability there is year to year, decade to decade and that this area is prone to significant droughts. In fact, over the last 100 years, it could be argued, as David Schindler and Bill Donahue and Dave Sauchyn have, that it's been a century of significantly constant water relative to what could happen if we look back into previous centuries.

Okay. So water is highly variable and is likely to become even more variable as time marches on.

Next slide, please. Slide 11.

Now, here are some simulations that we did that are looking at the water runoff, and we're not looking at difference between years. Now we're looking at an average year. On the left we're looking, I think, at the lower Crowsnest River, and on the right, the Oldman River above the reservoir. And you see this peak in the spring. So we have all this precipitation coming in the winter in the form of snow

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accumulating, and in the spring, as the temperatures warm, it melts and runs off.

Hopefully you can see the black line in both places. That represents the long-term historical average. When we run climate change scenarios, called "representative concentration pathways", we've run two: the high scenario and a medium scenario. "High" would be 8.5, and "medium" is 4.5. This is essentially an expression of energy coming in, which is in watts per square metre, but they're just different climate change scenarios.

The 4.5 is considered to be a moderate scenario of future climate in this area, and what we see is a very profound shift in water flow to the left, meaning that this landscape is going to see more and more precipitation that people like Mac Blades would have seen as snow when he was a kid is going to come down as rain.

So spring freshet is going to happen earlier. So we're going to have more water in very, very early spring or late winter, but there's only so much water, which means that for the summer months, it's going to be progressively less at a time of year where most

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of the land uses have the greatest demand for water.

Okay. So climate change tells us that water not only is going to become less common because of increased magnitude and frequency of droughts, but it's also going to shift in its monthly distribution and production, and this is going to cause major issues for land users in this basin.

Next slide, please. It's going to be Slide 12.

So this leads us, by way of background, to the simulations that we wanted to do. So we can show benefits and liabilities.

So clearly there are some benefits. 700 million metric ton of coal at a nominal rate of, I don't know, a hundred bucks a metric ton. $70 billion. That's a lot of money. I can see why industry is interested in extracting that resource. There are clear economic benefits.

So we need to talk about those. And, in fact, I think by yesterday, as I was listening in, I think Northback made the point in writing and in testimony that exploration really only can be considered in the context of what's

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downstream, which they clearly, in writing, have indicated logically flows to the production phase. And I think they're wise to make that point. And so will I with respect to environmental effects.

It goes back to what Lorne said: If you want to answer these questions, you've gotta look at appropriate space and time, and that's what we're attempting to do here.

So we ran a bunch of scenarios. What would happen in the next 50 years if no coal mining went forward? We'll call that "low". What happens if there's a medium amount? Grassy Mountain and Tent proceed. That would generate, I think, a maximum of around 4.5 million metric ton per year. What if it was high? What if all eight were to proceed over the next five decades but in a -- in a staggered fashion because there's only so much logistics? You can't have all the mines coming on at the same time. If you did that, what would be the indicators, or what would -- how would that affect key indicators? And, again, going back to LLG, the key issues were: How does it affect water supply? How does it affect water demand? How does it affect water

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quality, particularly selenium? What's its effect in biodiversity and landscape integrity? So we ran these scenarios to look at these indicators.

Next slide, please, which is Slide Number 13.

The satellite image -- I should just stop to see if -- am I speaking too quickly? A little bit? Okay. I'll try and slow down.

On the left we see the satellite image, reminding us that -- of where the leases and probable mine sites would be. We can see what has already happened over the last five decades in the Elk Valley, and the table identifies each and every one of the eight mines and how they fit into the low, medium, and high gross scenarios and lays out the lease area, the cumulative disturbance, the proposed lifespan, their average annual coal production, the maximum coal production, the cumulative coal production, and what they think their proven reserves were.

These are some of the thousands of inputs that went into the cumulative effects model to grow these mines. Now, would our simulations be precisely accurate as to exactly which mines

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come on on which day and how much they produce? And the answer is clearly not.

Is it a reasonable depiction at a strategic level of a large regional coal mining trajectory in southwest Alberta at the headwaters of the Oldman? Yes. It takes the best available information and projects it into the future and examines the consequences. So let's look at some of those.

Next slide, please, which is Slide Number 14.

So this is a satellite image of the Oldman basin, and in yellow, if you squint, you can see as of today, we have footprint on Tent Mountain and a larger -- to the northeast on Grassy. So there already is footprint, and Lorne Fitch described that footprint, which is a product of historical mining and more recent exploration. So we already have a footprint.

Having said that, area where the regional landscape or regional land use trajective coal mining can unfold is some of the best remaining native habitat and connectivity of headwater ecosystems that we have in all of southwest Alberta.

So let's time travel ahead. Next slide.

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We'll zoom in a bit too here to make it a little bit easier. And, again, we can see -- we can see Grassy, and I think if we zoom up, yeah, we can see Tent there too. And on the right, we see a trajectory, and this is not net landscape disturbance, so this is cumulative. So there's also reclamation occurring in this -- this particular image is not showing the reclamation. We'll talk about that later.

Okay. So that would basically be kind of the middle of the first decade, and this'll be a five-decade run.

So we'll go the next one. All I'm trying to do is help people understand the visuals here. We're now in the middle of Decade 2. And Tent and Grassy are being developed, and we're beginning to see some of the next mines unfold to the north.

We'll then go forward to the next slide, which is Decade 3. And then Decade 4. And Decade 5. And to the end of Decade 5, which is basically the beginning of Decade 6.

So what we're seeing is the unfolding. We're keeping track of everything basically at a square-metre resolution of 93 square kilometres of direct footprint tied to surface

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mining and its associated infrastructure. 9,300 hectares. And if we want to know what that looks like, all we'd have to do is move a few kilometres to the west and see essentially the same magnitude and scale of footprint in the headwaters of the Elk Valley.

So that is the amount of footprint that would be required to extract about 700 million metric ton of coal.

Next slide, please.

So when you see these graphs, the one that -- at least for my eyes -- that is orange, that's Grassy Mountain, which, of course, is the key issue that people are considering here today, and the left page is the moderate. So that's only Grassy and Tent. Tent is in grey; Grassy is in orange. And here we're looking at coal production. And so we see -- my eyes are not great -- that Grassy is going to produce somewhere around 4 million metric ton per year over 20, 25 years; Tent, less. And on the right we see each of the different mines as they unfold in a staggered way, maxing out at about 25 million metric ton per year in a couple of decades and up to a cumulative of about 700 million metric ton over five decades.

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Next slide, please. So that is, what? Arguably $70 billion worth of coal.

Now, to get it out, you have to disturb part of the landscape, and on the left again, we see Grassy and Tent -- that's a medium scenario -- and it would generate a direct cumulative footprint of about 12 square kilometres, about 1,200 hectares. If all the mines go forward, it would be about 9.3 square kilometres, 9,300 hectares. That is a significant fraction of the total headwaters of these basins.

Okay. So to get coal out, you have to disturb large amounts of area, but at the same time, there's also reclamation. So we need to talk about that here in a few minutes.

Next slide, please, which is Slide Number 23.

And this is critical to understand from an environmental standpoint. I understand how coal generates jobs and royalties and rents, but from an environmental standpoint, the issues are water.

And coal isn't the big problem here. It's the overburden to get the coal out.

So for every, say, cubic metre or metric

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ton the coal removes in this area, you've got to disturb about nine times that in terms of overburden; in some of these mines much less, and others much higher. So you have to produce this waste rock, and for the medium scenario, about 800 million metric ton of waste rock, but if the full scenario goes forward, we're dealing with about 6 billion cubic metres of waste rock. Now, that waste rock, which right now sits as largely a consolidated block of rock -- it's not without some seams, but it's largely consolidated rock. We call them mountains.

Next slide, please.

I think everyone in this room recognized Crowsnest Mountain. A little bit to the west of Grassy. That mountain within 10 percent is 1 kilometre by 1 kilometre by 1 kilometre. It's one cubic kilometre. Grassy Mountain and Tent Mountain -- I say let me back up.

A kilometre by a kilometre by a kilometre is one cubic kilometre. Crowsnest Mountain is 1.23 cubic kilometres. It's a little bit bigger. It's also almost identically the volume of Grassy and Tent Mountain. It's a massive amount of rock. That is what would

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have to be removed in terms of the overburden, plus the coal, give or take.

Now, if the high scenario goes forward, it's not one Crowsnest Mountain; it's 5.2 Crowsnest Mountains. It's significant. But it's not the volume that's the concern here; it's the surface area.

So to remove that burden -- or to remove that overburden, you have to break it up into small pieces. Let's say it's 1 metre by 1 metre by 1 metre, a cubic metre, which I think is generous. There'll be some that'll be bigger, but most of those particles will be much smaller. And that overburden, once it becomes basically exploded, you know, through nitrogen, once it becomes exploded overburdened rubble, we'll see a 1,000 time increase in surface area.

So Crowsnest Mountain right now is about 4 to 5 square kilometres -- I'm not talking about volume now; talking about surface area -- 4 to 5 kilometres, if you could measure every square -- every, essentially, square inch or square centimetre and add them all together. And let's say it's 5 square kilometres. After that Grassy Mountain equivalency has been

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removed, the overburden, what we're left with is not 5 square kilometres, but 5,000 square kilometres of surface area.

So why is that important? And the answer is that coal, which is a sedimentary material -- it's basically ancient sunlight in the form of compressed plant material -- that's all sedimentary, but inside of it is imbedded an immense amount of pyrite. And pyrite likes to attract selenium.

If you then -- but that selenium will stay with the pyrite unless you break it up and subject it to water and air, in which case it can mobilize. As long as there's water moving through, that selenium mobilizes with it. And what determines the rate at which selenium mobilizes from rock is surface area. So we're talking about a 1,000 time increase in surface area at any scale, whether it's one mine or two or -- or -- or ten.

So that is the key issue, is once we take this overburden off and crumple it up into a bunch of rubble, it has the capacity to move a lot of selenium. And, in fact, it can do that even without coal mining.

But we just can rapidly increase it. And

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maybe it's worth reminding that selenium is actually a critical element, micronutrient essentially. None of us can be alive without it. Same with our plants, same with our livestock. So we need it.

But at excessively high concentrations, it's highly toxic, whether it's aquatic invertebrates, whether it's livestock or people. Some of these indicators, like aquatic benthic invertebrates, are highly --

THE COURT REPORTER: Can you slow down a little bit, please?

A Thank you.

Some of these indicators like the mayflies that -- and stoneflies, caddisflies that Lorne was talking about are highly sensitive. So are salmonids, like westslope cutthroat trout.

People are far less sensitive; livestock are less sensitive. But we still are sensitive to selenium if the concentrations are too high.

Okay. Can we go to the next slide, please?

So using the equations that are used in Elk Valley to understand selenium, we would be liberating just with Grassy about 2-and-a-half metric ton of mobilized selenium per year. Cumulatively over five decades, about a hundred

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metric ton.
Under the high case scenario, at the end of the simulation, we'd be at 10 ton per year, and cumulatively about 250 metric ton of selenium. This is what we'll call "load". Now, the question is: How do you get rid of it, or how do you reduce it?
Historically, the single greatest technique or approach is as water runs off of these mine sites, the selenium gets progressively more dilute as more and more creeks from non-mine watersheds roll into it, and the concentrations just falls. That's a very important approach.
Of course, the coal sector also tries to reduce this with a variety of strategies, and I think Teck and Elk Valley in BC is a very helpful template to understand just how challenging and expensive it can be to try and remove selenium. They've spent billions of dollars and historically have largely been unsuccessful.
Let's see. Yeah, next slide, please.
So we have to now move into selenium attenuation. If there's coal ming, whether it's just Grassy or all of them, there will be a significant amount of selenium that's going

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to be mobilized because of surface area.
There are not limits, regulatory limits, in Alberta, what we might call "end of pipe", that legislatively require coal miners, coal mining operations, to restrict the amount of selenium that's released. Rather, we have guidelines that look at how much selenium aquatic life or drinking water or irrigation crops or livestock can tolerate. And then the challenge is to attenuate those levels with whatever technology is being deployed.
So what we see here from our simulations, given that we've simulated these land uses, let these coal mines proceed, generate that selenium load, is how much selenium would, say, Northback and Grassy Mountain or any coal mining company in these headwaters have to remove in order to meet these guidelines. And at the headwaters, where the concentrations -- is the highest, for very sensitive indicators like aquatic life, you essentially have to be in the 98 to 99 percent, or you're going to have an adverse toxicity effect.
Now, for crops, particularly as you move downstream because so much of the selenium has now been diluted by more and more water, you

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may only need to remove 40 or 60 or 80 percent.
And by the time the water gets down to the Oldman, say, to Lethbridge, for irrigation purposes, it's been largely diluted by the water flow. But for aquatic life, you'd still need to remove 90 percent. And, of course, the regulations in BC are more stringent than we have here in Alberta.
So you need to mitigate this with attenuation strategies. This has been very challenging in BC, in the Elk Valley. Companies like Teck, they've been around for a long time and spent billions of dollars of years -- billions of dollars to try and solve this problem.
Now, the current approach, SRF, saturated rock fill, is it's essentially the newest technology attempting to solve this problem. And some of the initial results seem quite encouraging, although I think the Elk River itself has not shown a major improvement and probably because there's some sort of lag involved there, but it remains to me unclear whether this methodology will work effectively once all the rock fill is fully saturated and overfill occurs.

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So perhaps this is a technology that will partly solve this problem, but no one is going to know that until meaningful time has unfolded and robust monitoring occurs.
So, in my view, there is no technology that solved this problem today.
So we have a major selenium toxicity issue in my estimation.
The next slide moves -- so that would be Slide 27. Here we're going to talk about water consumption.
In absolute numbers, coal needs millions of cubic metres of water to be mined. That sounds like a lot. And if you're talking about the very, very headwaters where these streams are small, it is a lot of water. If you're talking about the entire basin and comparing it to all the other human land uses, it's almost infinitesimally small.
So it's really about scale. But put yourself in the shoes of aquatic life or a rancher that has a cow-calf operation and is grazing their cattle at the headwaters of these basins. Those streams are small, and our results suggest, for example, if you're up in Blairmore Creek, if you look at those graphs, I

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better explain a little bit to the right.
You see where they're very high in the left -- because this is throughout the year, the amount of water extracted as a fraction of the water there is very high because there's so very little water moving through. And the coal mines need those waters. So they can use up to 40 percent of the water in some of these basins if we use the metrics that we think are most appropriate for coal mining.
Now, once the winter starts to die out and it warms up and all this snow melts, there's a lot more water, and, therefore, the amount used by coal mining is relatively low. And then it just continues to build back up.
When we go from Blairmore Creek where the -- in a high -- high coal mining scenario, could be as high as 40 percent -- go down to, for example, the Oldman River at Lethbridge, it's more like three quarters of 1 percent; it's exceptionally low.
But if you are a cow-calf operator and your cattle need water, or if you're the benthos, these aquatic invertebrates that are required for westslope cutthroat trout, that is a profound loss of water. And it may, in fact,

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be an underestimate because as climate change becomes more pronounced and as the frequency and magnitudes of droughts becomes more pronounced, there will be less water in those creeks than we think there is based on historical data.
Next slide, please.
I'm going to briefly talk about mine reclamation, and if we make the assumption that the coal mining sector in Alberta performs as well as the proven major players to the west in the Elk, players like Teck, we would see that at the end of 50 years, approximately one quarter of the disturbed area reclaimed, reclaimed to a point which would be eligible for certification.
So one quarter reclaimed, three quarters not which means if we looked at the high-case scenario, there would be about 20, 25 square kilometres reclaimed out of, what, a total of 93 square kilometres.
So reclamation is difficult. It's expensive. If we're reshaping the regional topography -- and let me say that there's a big difference between reshaping the topography and putting plants on it and those systems

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recovering their ecological integrity. A good example would be alpine versions of fescue grasses, which are critical to many ecological indicators; it's also very important to cow-calf operators and essentially impossible, in a cost-effective way, to reclaim on coal mine sites.
Next slide.
So I'd like to zoom back out to the Oldman. And on the left, we see a map with a lot of white and some pink and green. The areas that aren't white are areas that are considered to be either internationally, federally, or provincially critical in terms of their environmental services: water quality, water quantity, biodiversity, charismatic megafauna. And what you see is that most of that integrity has been lost in the basin, except for the headwaters.
That's why organizations like Y2Y, Yellowstone to Yukon, have identified these corridors as being so critically important. And a lot of them are protected but not the area of the headwaters of the Oldman.
And now if we look at one of the ALCES maps to the right, which looks at a broad suite of

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ecological indicators, including water quality, water quantity, carbon dynamics, biodiversity, natural plant communities, we see that there's very little green left. The green that is left is in the headwaters. And that's not surprising. That's why our analyses are very supportive of provincial, national, and international assessments of these critical areas. And smack-dab in one of the few vestiges of these remaining corridors of ecological integrity is with a functional question that I think is in front of Albertans, not whether it should be a coal exploration permit for Northback, but whether there's going to be a significant coal mining trajectory in southwest Alberta.
Next slide.
So, in summary, we need to remind ourselves of the key values of the Oldman watershed and its headwaters. It's critical for the provision of water quality and quantity, whether it be wildlife, agriculture, recreation. These land uses cannot exist if our water degrades.
It's also one of the last landscapes that support extensive cow-calf operations with

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native fescue systems.
So against that, should surface coal mining proceed, and on a strategic level, whether it's just Grassy or Grassy or Tent or all of the eight that -- or it's probably changed now -- would like it to, my opinion would be it would certainly create massive challenges relating to selenium toxicity of water unless very high recovery rates can be attained over 90 percent. And it's not over a week or a month or a year or a decade. Given the amount of rubble, we're talking about centuries, if not millennia. That's how long -- well, if you have to -- those performances would have to perform as long as people care about water quality.
So I would think it would jeopardize basically all downstream land uses.
Although gross water demand from coal mining is low at a basin scale -- I think we've established that -- it would be high at the basin's headwaters, particularly in late summer and during winter. It would result in the loss of the integrity of wilderness and its connectivity in the east slopes. Almost all that connectivity is gone. It's just one thin corridor left. The risk of long-term

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probability of pollution liabilities for all downstream users would be high.
Next slide, please.
So my final thoughts would be that we need to recognize that the primary purpose of the east slopes is water and watershed protection. It seems like in Alberta, every 10 or 15 years, we go back to have this conversation, only -- remind ourselves that that's the most important. And then we begin to discuss land uses that will interfere with that primarily objective.
The east slopes are already exceptionally busy providing deliverables. They produce our water. They produce sustainable beef and the recreational opportunities that already -- busy producing societal services. Adding a large coal mine trajectory, whether it starts small as in Grassy and expands more recently to this precious renewal system, will cause significant lasting damage. It will likely significantly damage the current land uses and the natural capital of the east slopes. It's just inadvisable if we're thinking about the importance of this natural capital for our generation and for future ones.

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Thank you very much for the opportunity to present.
Q G. FITCH: Thank you, Dr. Stelfox.
G. FITCH: Madam Chair, that concludes the direct evidence of these two witnesses. I know we're a bit over time for break, so I assume that we'll come back, and the witnesses will be available to answer questions.
THE CHAIR: Thank you, Mr. Fitch. Thank you.
Thank you for your presentations.
We will take our break. I would suggest -- well, on my schedule I have 11:15 to come back. We can still adhere to that. And since we are -- or -- sorry -- or we can come -- yeah, 10 past 11. Thank you.
(ADJOURNMENT)
THE CHAIR: Thank you. Please be seated.
M. IGNASIAK: Madam Chair, on behalf of Northback, we have no questions, and we'll address relevance in argument. Thank you.
THE CHAIR: Thank you.

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So we initially had two hours scheduled for Northback. Now, next on the agenda is Piikani Nation.
C. HANERT: Thank you, Madam Chair. Piikani Nation has no questions for these witnesses.
THE CHAIR: Okay. Thank you very much.
So I'm going to turn to AER counsel. Are you prepared to proceed, or do you wish to have a break? You're prepared to proceed?
S. GIBBONS: Yes, Madam Chair, we're prepared to proceed.
THE CHAIR: Okay. Thank you.
S. GIBBONS: One moment, please.
Alberta Energy Regulator Staff Cross-examines Livingstone Landowners Group
Q S. GIBBONS: Good morning, Mr. Fitch, Dr. Stelfox. My name is Shauna Gibbons. I'm one of the counsel for the AER and counsel to the Panel.
In consultation with Teichreb -- Mr. Teichreb, who is AER staff, I have, I believe, just one question for you. And it's to Mr. Fitch. In your report at Exhibit 84.01 -- I don't think we need to bring

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it up -- but we can if needed.
You, in your report, Mr. Fitch -- oh, before I begin. I just want to let you know as I did the last time I asked questions that the purpose of my questions is to clarify the record.
So in your report, you mention the risk of erosion associated with activity a number of times. Can you provide specific measures or reference to available guidance which would effectively mitigate erosion risks associated with this type of activity in this region of Alberta? It's a long question, so if you need me to paraphrase, that's fine.
A L. FITCH: No, I think I understand the question. I think the first way to answer that is avoid disturbance because it's very difficult once disturbance happens, even in spite of the mitigative measures taken to deal effectively with erosion, particularly with these events that we now seem to have more and more often. Since 1995, it strikes me we've had -- what is it -- four one-in-a-hundred-year flood events. It tells us that the climate change is happening; we're part of it; and that the past way of looking at

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the techniques to deal with erosion and sediment prevention no longer work, and it requires substantial more activity in terms of reducing the effects of that sudden flash of runoff, and, again, the first way of doing it is to reduce or eliminate a lot of our footprint.
Q I don't know if you recall, but this morning in your direct you mentioned something about best management practices are inadequate. Do you recall that?
A I do.
Q What -- do you have anything other than no activity that you would consider more than minimal -- I believe you referred to it as more than minimal adequate measures?
A Well, in thinking through this, one is avoiding steep slopes where it is virtually impossible to corral water from one of these events that causes massive amounts of erosion.
Second of all, if some of the mechanisms of dealing with this volume include culverts, they should be sized appropriate for maximum probable flood rather than the minimum. And in some cases, it might require bridges rather than culverts to ensure that there's a free

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passageway of maximum probable floods. And sometimes even that may not be enough.
Q Okay. Thank you.
One moment. One last question. Do you have any guidance documents for those mitigation measures in terms of avoiding steep slopes, et cetera, that the Panel should consider?
A I'm sure there are. I'm not aware of them, but my experience tells me -- and, in fact, I'll just read you a passage from the document that myself and four colleagues made on insights on coal development over our 50-year lifespan of looking at coal mines and exploration: (as read)
High snowfall runoff and major rainfall events have happened on a regular basis, often causing flows that were well above the levels that regulatory agencies and companies anticipated included in modelling and for which infrastructure was designed and built. This would be exacerbated by climate change, making historic rainfall, snowfall, and stream flow data increasingly out of date for

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planning and engineering purposes.
Q One moment.
Thank you, sir.
S. GIBBONS: Madam Chair, those are our questions.
THE CHAIR: Thank you very much.
S. GIBBONS: Oh, one moment. One moment.
My apologies, Madam Chair. We have no further questions.
THE CHAIR: Thank you very much, Counsel.
We are going to take ten minutes break to discuss if the Panel may or may not have any questions. We'll be back at around 11:30. Don't hold me to that, though.
(ADJOURNMENT)
THE CHAIR: Thank you. Please be seated.
So we have a couple of questions for witnesses. Commissioner Barker, would you like to go first?
COMMISSIONER BARKER: Thank you, Madam Chair.
The Panel Questions Livingstone Landowners Group

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Q COMMISSIONER BARKER: Mr. Fitch, I have a question for you. In your -- there was a diagram on your visual aids. It was Number 1 of 6, and it was the linear road density example diagram. I wonder if you could put it up for us, please.

Yeah. I'm not an expert in this, and I wonder if you could help us understand what this diagram means, how to interpret --

A L. FITCH: Sure.

Q -- it?

A So --

Q You might have to speak into the microphone.

A The box that these are in is 1 kilometre squared.

Q Okay.

A The blue line is a stream. The black lines are roads. And so it's a way of helping people understand this concept of linear density. When we say "0.6 kilometres per kilometre squared", what does it look like? And -- and this is a visualization of what that looks like to help you understand how many times, given a road density figure, would a road intersect with a stream or a tributary to a stream, and, of course, then the implication is that if a

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road is crossing that stream, roads erode -- roads erode and carry sediment. What's the implication, then, in a drainage system of all of that drainage happening from the roads at various road densities?

Q Okay. Thank you.

A Does that help?

Q That's very helpful. Thank you.

So in this diagram here, the little blue curvy line is --

A Is a stream, that's right.

Q -- a stream, and the straight lines are potential roads?

A Roads or trails.

THE COURT REPORTER: Sorry. One at a time.

A L. FITCH: Sorry.

Q COMMISSIONER BARKER: And the roads are -- the straight lines and the diagonal lines are roads?

A That's correct.

Q Now, thank you for that. That's very helpful.

One other question for you was that we heard from Northback that they are planning no new linear disturbance for this exploration program. What are your views, then, on that in

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light of this?

A Well, it may be true that they're not contemplating any new road density. There will be disturbance because they've indicated that they have to blade or grade some of the roads to meet access requirements for their equipment and for safety standards. And that's -- that's an indication of disturbance, not an increase in road density.

Q Okay. Thank you very much, sir.

COMMISSIONER BARKER: Thank you, Madam.

THE CHAIR: Thank you, Commissioner Barker.

Commissioner Mackenzie.

Q COMMISSIONER MACKENZIE: Morning, Mr. Fitch. Just one question.

In your testimony, you mentioned, I think, that it was in -- it was in reference to waterbodies and whether or not there were fish baiting on Grassy Mountain?

You mentioned, I think, that it was in 1976 you observed that one of the pit lakes had fish in it. And I just wonder, Northback appeared to use a numerical system to identify their pit lakes. Are you able to tie that observation back to the pit lakes that have been referenced

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in this particular application?

A L. FITCH: It was the biggest pit lake in a series -- I think there's three in a row -- and the biggest pit lake is in the middle of those, and that's the one that I set test nets in.

Q Okay. Thank you.

I know that there's -- there are -- there are several exhibits -- whether I can find them right now -- that Northback have provided that indicate where the pit lakes are that this application concerns. I believe it's in Mr. Hatfield's report. I'm just hoping that we can maybe pull it up, but I need to find the right reference.

M. IGNASIAK: Madam Chair, I believe it's PDF 111 of Exhibit --

COMMISSIONER MACKENZIE: 86.1, I believe.

M. IGNASIAK: That's correct.

COMMISSIONER MACKENZIE: Okay. Thank you. Can we just pull that up, please? Oh, I just found it now. I believe it was page 111 of the PDF. And if you just shrink it slightly 'cause there's a fourth lake on ...

Q COMMISSIONER MACKENZIE: So are we talking about any of these pit lakes? Is it Pit

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Lake --
A Yeah, yes.
Q -- Number 3 that we're discussing here, with the lake in the middle?
A It's Pit Lake 2.
Q Okay. Thank you very much. Thanks.
THE CHAIR: Those are all of our questions.
So I have to check -- please, go ahead for these witnesses.
G. FITCH: Thank you, Madam Chair. I have no redirect. But I have neglected to ask that we mark certain documents as exhibits arising from the testimony of Mr. Trafford yesterday and our two witnesses today.
So, firstly, there's the written version of Mr. Trafford's testimony which we had prefiled essentially with the AER, and some of you may have been looking at it while he was speaking.
So if we could mark that as the next exhibit.
THE CHAIR: Any objections? No?
G. FITCH: And then secondly --
S. GIBBONS: Just before you go on, sir, Madam Chair, we would mark that as

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Exhibit 125.
THE CHAIR: Thank you.
EXHIBIT 125 - Written Version of Bill Trafford's Testimony
G. FITCH: Thank you.
Then next would be the visual aids to Mr. Fitch's testimony that he referred to this morning. Okay?
THE CHAIR: Any objections from Northback? No.
G. FITCH: Apparently not. So that would be Exhibit 126; is that right?
S. GIBBONS: That's correct, sir.
G. FITCH: Thank you.
EXHIBIT 126 - Visual Aids to Lorne Fitch's Testimony
G. FITCH: And then, finally, Dr. Stelfox's PowerPoint presentation, which I guess would be Exhibit 127.
THE CHAIR: And no objection to that? No? Okay.
S. GIBBONS: Correct. That would be Exhibit 127.
THE CHAIR: Thank you.
EXHIBIT 127 - PowerPoint Presentation of Dr. Brad Stelfox

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G. FITCH: Thank you, Madam Chair. That completes the evidence of the Livingstone Landowners Group. We want to thank you very much for your time.
THE CHAIR: Thank you very much. And thank you for your presentations and your evidence.
(WITNESSES STANDS DOWN)
THE CHAIR: So next we have Mr. Emard. I don't know if you're prepared to come forward. We have allocated 30 minutes for you. Hold on. Sorry. Can you turn on the mic, please?
V. EMARD: We would ask that we could do this after lunch. My partner assistant is in need because of medical reasons for food.
THE CHAIR: Absolutely.
We can be back at 1:00 for your presentation, Mr. Emard.
V. EMARD: Thank you.
THE CHAIR: Thank you very much, everyone. See you after lunch.

PROCEEDINGS ADJOURNED UNTIL 1:00 PM

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Proceedings taken at Govier Hall, Calgary, Alberta

January 16, 2025 Afternoon Session

P. Meysami	The Chair
S.F. Mackenzie	Hearing Commissioner
M.A. Barker	Hearing Commissioner
M.G. LaCasse	AER Counsel
S. Gibbons	AER Counsel
T. Wheaton	AER Staff
E. Arruda	AER Staff
D. Parsons	AER Staff
A. Stanislavski	AER Staff
N. Hymers	AER Staff
A. Lung	AER Staff
M.K. Ignasiak, KC	For Northback Holdings Corporation
J.D. Eadie	For Northback Holdings Corporation
G.S. Fitch, KC	For Livingstone Landowners Group

A. Dingman	For Livingstone Landowners Group
C.E. Hanert	For Piikani Nation
B. Barrett	For Stoney Nakoda Nation
M.B. Niven, KC	For MD of Ranchland No. 66
M.A. Custer	For MD of Ranchland No. 66
A. Gulamhusein	For Municipality of Crowsnest Pass
D. DiPaolo, CSR(A)	Official Court Reporters
S. Murphy, CSR(A)	

(PROCEEDINGS COMMENCED AT 1:02 PM)

THE CHAIR: Thank you very much. Please be seated. Discussion

J. EADIE: Good afternoon, Madam Chair, Panel Members. We just wanted to advise that we received a request for a further

response to an undertaking that was provided yesterday. And we're working on that right now, and we expect to have that prepared shortly.

M. LACASSE: And can you let us know what exhibit that relates to for the record? Is that 123?

J. EADIE: I believe so, yeah.

M. LACASSE: Okay.

J. EADIE: It was response to Undertaking 3.

M. LACASSE: Okay.

J. EADIE: Yeah.

M. LACASSE: It looks like Mr. Fitch has something to say.

G. FITCH: Yes. I intended, when I was up here having the exhibits marked, to put on the record that Mr. Trafford misspoke himself when he was asked by, I believe, you or one of the AER people about the distance that Cabin Ridge is from Tent Mountain, and he said 3 or 4 miles. That's not correct. The answer is more like 20 miles. And he was just -- wanted to make sure that that was corrected.

M. LACASSE: Thank you for that correction.

C. HANERT: Madam Chair, I'm pleased to report that Piikani Nation has finished its responses to the questions the Panel asked. We have provided a copy of that to Ms. Wheaton, and we ask that that be introduced as an exhibit.

M. LACASSE: And I believe that will be Number 128.

C. HANERT: Thank you.

EXHIBIT 128 - Piikani Nation Responses to Questions of the Panel

THE CHAIR: Thank you very much. Thank you, Ms. LaCasse. So next we have Mr. Emard. Please proceed.

V. EMARD: Madam Chair --

THE CHAIR: Yes.

V. EMARD: -- I have not been sworn or affirmed.

THE CHAIR: We need Mr. Emard sworn --

V. EMARD: Yeah.

THE CHAIR: -- or affirmed --

V. EMARD: Okay.

THE CHAIR: -- 'cause he's our full participant.

M. LACASSE: The practice is that

only those giving evidence are sworn, and Mr. Emard is the witness. Emard, my apologies.

THE CHAIR: We'll get it right. Madam court reporter will get that for us.

VERN EMARD, Affirmed

Direct Evidence of Vern Emard

THE CHAIR: Okay.

V. EMARD: Good day, Panel. My name is Vern Emard, and I thank you very much for allowing me to be here.

My friend, Kevin Turner, will help me with some of this stuff if I get stumped.

I got a little bit of a tick in my brain from a stroke I suffered from maybe stress from not getting home on time.

But "on time" is a different thing because in 2019 I retired and moved onto my property, Grassy Mountain, in a house. And I was living the life until Northback -- at the time it was Benga -- first blocked my access to my road.

So I wrote an SOC to the Panel because I'm thankful that I'm allowed to do this.

They put a concrete block on my road one day, and I say it like it's my road because in 1993 I bought some property through the Alberta land registrar with an easement on it to a

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common point called "four corners" on a public road at the time.

So Benga started early -- I knew them since 2013 when they first come. Keith Bott was a friend of mine. He was -- he was good to me for a while until the JRP hearings when he suggested that my access wasn't what the Alberta land registrar had given me, that I should scoot around up Highway 40 across the back of what we call "Kasega" [phonetic] and come down a bush trail to access my property.

I kind of got mad at them after that, and they weren't my friends. So I become a little bit abjective to everything that they were doing.

So then they put a lock -- a lock on the gate and give me two keys and said, That's it. That's what you get, to go home. And they give a piece of paper; kind of what they like to do is give pieces of paper, and tell you what is up without talking to you or having consultations, especially that -- that road served 13 quarters of land that was divided off of the original mountain and sold to the public using the Grassy Mountain road as the public access to everybody's property.

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Now, I'm going to worry too much about the details of -- of the legalities of it because I did go to court once. And the judge give me a good hammer and said, You could go home.

And I went home for a little while, and then, because I'm not the smartest critter, they -- I messed up on -- the Rules of Court are very extensive if you think that you know everything. I know a lot about stuff. Maybe I should give you a little.

My name is Vern Emard. I'm a road builder of 40 years. My father built roads for 50 years. Both my grandfathers built roads for 50 years. So when these miners told me that that wasn't a road, that it was theirs, it agitated and hurt because I had given 30 years to that mountain, and I got to retirement, and this is what they done to me.

So without consultation they just blocked the road again, and I've been barred access from my home again now maybe since May; I'm not good at dates. If you need stuff like that, Kevin can help me find it.

So through the course of those years from 2019 to now, "belligerent" is the word that I have been with them because going up and down

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the mountain for groceries or whatever, the gate and these two key things, you'd be locked out or in. You couldn't go up or down or home. The dogs would be in the cabin. There's nothing you could do and the stress.

I was thankful towards the end of secretary Diana Lazzarotto; she treated me really good. And she would come after hours and let me in so I could go home. And then one day again, the road is locked, even though they told me originally, If we go mining, we'll close that road, and you have to find your own way in. Well, there again, I took exception, and I started to read the rules and all that.

Under the Responsible Energy Development Act, which made reference to the Alberta Energy and Utilities, which I had dealt with three times before, the two most important things in responsible energy development were the environment and the landowner.

And the environment had already said, No, and the landowner was crying, Please, please.

And I did approach Northback, so what they did was send me a piece of paper with a road use agreement that I did refuse to sign, mostly because what it said on it would be giving up

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my rights as a homeowner that the Alberta government had given me through the Alberta land registrar through easements of an implied consent and conditions on the public road of Grassy Mountain. And it wasn't right. And I knew this from my hundred-plus years of road building in Alberta. I built roads as far north as the Dunvegan special areas. I did roads in special areas. And that's a special area, I'll tell you what. That's the government zone.

So I knew what I thought. I'm not the most authority on road building, but like I say I've done it all my life. That was my thing.

So I learned a lot, and I knew what Benga was doing to me wasn't right. Because I retired and sold the business, I had a little bit of money, and I decided to say, No, this isn't right.

So when the opportunity come for this hearing, I thought, Hmm, maybe I can tell some smart people this, and we can figure this out.

But, again, it's not for you to figure out. I will get to court again, and they will figure it out.

So I'm asking maybe that you guys are aware

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that they're not the responsible resource developer in my eyes for the certain things that they have done to a landowner in the process of exploring and developing resources in Alberta, which has programs.

And under the REDA, it makes reference to Alberta Energy and Utilities Board, even though it was old in 2003, change over maybe to the AER. I'm not sure of dates. I do have a tick in my brain.

So under -- I read all of that stuff, and, you know, I got pages and books and boxes of all of this stuff with little underlined things of the rules that they are breaking and shooing around, trying to push this development forward to us that -- and the one thing that I told them is, This is not in the public's interest. It isn't a utility, a road, electricity, natural gas for the public. It is a private development, that they have to follow the rules and take care of all of those involved.

So within the scope of my SOC, Northback's response to me -- I'm imagining, and I don't know all of this because I'm blind in one eye, so I have a real problem in juggling paper.

But Northback's belligerence back to me

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saying that I don't have a residence and I don't live on the mountain, I'm just a seasonal thing -- under the law there is -- a principal residence is a place where one resides more than any other place. And that's what the mountain was to me since 2019. I didn't live up there seven days a week, four nights a week, and then I went and flirted around life. I have a vacation property on Vancouver Island, so I lived life.

And in all their communications with me, the key thing was very stressful. And I would never prove it and never try and prove it, but the stress that it give me might have been why I had a stroke one morning after getting locked out again.

And, you know, I'm still alive, and I'm still kicking, but I've got issues. And I got a hurt in my heart that I want to get out, and I'm asking for help because I did write all of our government things. I went to all of the government people asking for help. And you know what? These people are pretty powerful. Pretty big. They got some big cojones on them, and they got -- and nobody would help me.

So when I did that thing with court, I went

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about it myself because, again, the lawyer thing is a tough thing to find.

I did find one now that is experienced in some of the stuff that I talk about because I think one of the problems with the lawyer thing is within the law of roads, which I claim that the Grassy Mountain road is a forced road under road builders -- it's a common-law road; 40 years-plus of being a public road -- that I had a right.

So here I am to let you know that I -- I'm not happy. I'm sad. I'm hurt. And I know you might not be able to fix it, but I want to know what these people are capable of, this corporation. It isn't the people; it's the corporation 'cause there is some good people in that corporation -- has no disregard for anything that stands in their way when they want something. They seem to push through the paper of claimants and this, that and the other thing. And one of the things under my constitutional right in my Alberta Bill of Rights is I should not be denied access to my property without proper court and a judge making decisions, not a corporation sending me paper of claimants of ownership.

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I didn't claim that I owned that road, but there is -- there was 13 owners of land up on that Grassy Mountain that the original owners -- and not what they assume was Kootenay Wood -- the original owners was a French company, Consolidated Coal, and when they lost two trucks, a shovel, and a dozer in a mine cave in the -- 1956, they left two men to take care of it. They closed the mine. The mine was effectively done. They sold off half of their mine interests to ranchers that used the Grassy Mountain road as their access to their property.

When it was further sold again from ranching to the public, 13 new owners, that was their common point given by the Alberta land registrar under the Torrens system. Like, that's why you and I buy houses and farms and everything like that 'cause we trust that system that we put our life into, to go forward with life for whatever reason. We decide. That was rights that were given to us. And they have arbitrarily expropriated my road access.

And, you know, they want me to sign a road use agreement. I have a road use agreement

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with the Alberta government on a public road already. Why would I need to sign my life away and my property to a corporation that doesn't respect the fact that there's a landowner living there, and they should be dealing with him in some form or manner.

I just -- you know, originally they had said that, If we go mining, we'll close the road, and you better sell us your property, or you'll have no access to it, and it will be worthless. Well, another thing that made me mad.

So it's like, what -- this isn't 1880s United States train coming through. This is a public thing.

So, again, I'm appreciative of this because you get to hear this, how they interacted with myself. My children's mother, they did the same thing to her. And we -- we are divorced but we have a relationship. And the things that went on through that were just not good.

So, yeah, I don't know. I sent a lot of stuff in to the AER. I'm hoping all the peoples that want to got a website. I went looking for it on your website; I couldn't find it. But I know it's out there for people that

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are really interested in just seeing what the acts of unkindness showed towards a resident of the lands -- so I -- yeah. And like I say, too much paper. And the lawyer will take care of the paper at some part.

So I am currently still locked out of my home 'cause I will not sign the road use agreement that gives them the power over my property and my person. That's not right.

So I did find a lawyer, and it's going to proceed again.

So I would like the Panel or -- you know, to ask that, you know, if this project does have to go through, that there be conditions on it for Northback to properly deal with the remaining landowners after they conquered and divided the other landowners, and there was only a couple of us left is when we seem to get the paper trail coming of their claimants of a wholly owned road by Riversdale and now Northback, Benga, the Gina Rinehart thing, like --

So I tried -- my family and I met with them and tried to come to -- but all they want to do is own the land, and they don't really care if I'm not there because the other thing that I

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believe, again, it's just a feeling that they don't want me there, because I can't get in there any other way than through that road access. So I'm effectively blocked out of going to my home.

They have made other claimants that I graded the road. Well, I've been grading the road for 30 years. There's some times I didn't grade or snow clear the road because when Shell was there, Northstar was there, Devon was there; sometimes they would run a grader up and down the road in the winter. And I only had a little piece to do, so I never worried about it.

And then when I retired and I bought myself a couple of Sno-Cats because graders are cool. But the big ole Cat things use fuel, and they're tough and slippery on the road. The Sno-Cats seem to clear the snow off the road quite easily up and down, and I was going in and out.

I did this for a couple of winters, and then they figured out that it was me clearing the road to get in in the winter 'cause remember I lived there and I needed to go up and down the road. And it wasn't an issue.

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And then all of a sudden, it was.

So I see now why it was, is because they are doing stuff up there, and I watched them before do some of the stuff up there. They're not that bad in the exploration phase. They did a couple of sneaky things, but they were generally trying to behave in the exploration. But they have no consideration on some things.

So part of my life up there being a retired man was riding around on my horse at night, seeing what they were up to during the day, their drill holes and that orange stuff that comes out of the pipes when they drill there. And it flows pretty good, like 5 gallons a minute this orange stuff -- and not all the holes. And it -- it comes out the funniest places.

And I've been up in the Daisy. I haven't been to the Cabin Ridge, but I've been all -- all of those holes, all of that stuff that they did.

I phoned the AER, 2019, and they sent a -- Tyler down just immediately. I appreciate that too. Anybody says that the AER doesn't care, I believe that you people do. And -- I really do.

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So maybe that's why I got myself here to try and do this up. I've been working at it a long time. And, yeah, I'm -- I'm sad. I'm sad for the environment and this whole process that, again, we thought we were free to live a life, but obviously not. And, you know, again, if a Panel decides that that is in the public's interest to do this going forward, I will accept that with some justification that Northback deals with me and my concerns going forward.

I don't know if I need to say any more. If they want some -- what do you call it -- documentation on anything that I'm talking about, I can get Kevin to help me pull it up. All I see is paper with lines on it.

I don't know if I can say much more, so -- I could. I could talk for hours. You give me 30 minutes. If you need any corroborating stuff, Kevin could help out there. He's been friends of mine for a while, and I've shared this stuff with him that goes on. He's a journalist, a good one. Because of my impairment, it's been nice to have somebody support me.

And I'll answer any questions you want to

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know about anything. Like I said, I've lived, well, not the last 2 years, but for previous 28 years, I lived on that mountain. And it wasn't just a recreational place. I sent my lawyer a file of hundreds of pictures how I lived a life with my kids and everything up there, working towards retirement to be my permanent residence, which it was at a certain point.

Are you okay?

K. TURNER: Yeah. I just had to move.

V. EMARD: Yeah. The two key thing -- in control is part of the expropriation control of that road that they want. They won't share the road I think, because in their ultimate mine design, that that road is going to become a working thing. And I see that, and I asked them at one point to build me another road in. They said, No, you build your own road in. Well, I probably wouldn't mind doing that. I got nothing else to do right now. But I feel that they should set up all the dominoes for helping me go in and out of my home, if that's a back door or not. But they are as belligerent to me as I am

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back to some of them.

I hope we can resolve all our issues going forward in this matter.

Thanks.

THE CHAIR: Thank you, Mr. Emard. I think I got your name finally correct.

So you don't need to file any further documents; we have all your writing.

V. EMARD: Yeah.

THE CHAIR: It's on file. It's on the website. So if you need to refer to it, we will.

Mr. Ignasiak, questions for Mr. Emard?

M. IGNASIAK: Thank you, Madam Chair. Thank you, Mr. Emard. No questions.

THE CHAIR: Okay. Thank you.

Staff, any questions?

M. LACASSE: Staff has no questions. Thank you, Mr. Emard, and thank you, Mr. Turner.

K. TURNER (UNAFFIRMED): If I may have a moment to speak. Mr. Emard encouraged my association here and my assistance, mindful of the fact that Northback's documents themselves expressed Mr. Emard's inability to create -- to

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craft a functional defence.

THE COURT REPORTER: Sorry. Is your mic on?

K. TURNER: No, I'm sorry. The reason Mr. Emard got ahold of me is his incapacity to create a functional defence. He was aware of the fact that I had significant information on the file, including my journalistic records, including ten years of journalistic work that has been applied in courts of law in the past.

He's also -- he also came to me in early 2022, I believe it was -- it's in my notes, and I have them with me today -- to express these concerns in January. In July we attended on the mountain once. Then we made a visit to Northback's office, and then we attended on the mountain a second time.

There is information extraordinarily relevant to this exploratory drilling program that speaks directly to it and the access concerns involved.

I also hold information that speaks specifically to the hydrology, the 22 -- 2022 acid drain rock drainage release event for I conducted the investigation into the original

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one in 2017. That information is held by the AER for I provided the evidence to the AER.

I also -- I'm also aware of the 2014 release off of a drilling pad that occurred from Grassy Mountain during the original exploratory drilling that occurred for the project.

The AER applied a $6,000 fine, if I remember, under an administrative penalty, and that hasn't been mentioned at this hearing. And I find that quite remarkable as a journalist that my work is exceeding that of the Panel at this moment.

THE CHAIR: So thank you for that.

We have received all the documentation that were relevant to this application. We have a limited scope, and we will have regard for all the relevant information that has been put before us, so ...

K. TURNER: I appreciate your scope, but Mr. Emard provided me with all the documents. I've spent the last five days creating a cogent outline for them. That's all the time I had. I don't have the resources of the other individuals in this room, and with

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the spinal injury, that slowed me down.

I put that together, and I intend to provide a journalistic report that includes all of this. I think it's incumbent upon justice; I think it's incumbent upon the landowners. It's fair to Northback; it's fair to all the participants here that we have the whole truth on the table in this alleged crucible.

I mean, that's our first function here, I believe, is to get the whole truth on the table so that the Panel can make a functional decision. I assisted the AER in the original EIA application. When they missed the deadline to Windspeaker magazine by two weeks, I literally -- I can't remember who the head of the AER was at the time, but we wound up on a four-person conference call, after which I agreed with the head of the -- I will just speak in positions because I cannot remember the names. I haven't had sufficient prep time.

THE COURT REPORTER: Sorry. Sorry. Slow down. Slow down.

K. TURNER: I'm sorry. Thank you for being the metronome.

I've had insufficient prep time. Therefore, what I've done is I've created a

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journalistic outlet that I intend to carry forward to a journalistic report and then a court-appropriate report that -- what occurred in 2015 is in that -- in that conference call -- I cannot remember the names of the leaders. I believe there was the leader of permitting, the head of the AER, another individual, and Julia Fulford, who I was communicating with at the time. She was communications lead. And once I presented the problem with the Windspeaker delay, that created a two-week addition to the -- it extended the period of the EIA by two weeks. I did the AER a favour by posting that extension on Riversdale's door.

And all of this evidence is available on a Facebook page called "The Crowsnest Journal" because of the impacts -- the direct impacts of this project to me as a journalist, some of which I share with Mr. Emard, and have evidence of our mutual interactions with Northback that speak directly to what Mr. Emard has put into evidence here.

I believe it's incumbent upon the Panel to take that into evidence. If we can find a procedure, as we did in Pincher Creek, to allow

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new participants to speak in that lesser crucible. Certainly, when you have an individual sitting here with this experience and the court experience, and the AER has already accepted my evidence in the past to prompt investigations -- I also led the federal investigation into the release of substances off the east flank in 2015. That hasn't been put into evidence here. The results of it that occurred within the scientific community and within the mining community were put into evidence, but the investigative enforcement actions were not entered. How can we -- how can we come to a reasonable conclusion without that information?

I'm -- I'm not a member of the bar, but I do have extensive experience within court situations, both in criminal and environmental law, in contract law, and in insurance law. So I have some alacrity in being in a courtroom. I've never been in a quasi-judicial before. But I'm trying to apport myself as I did in the federal trial, R v. Brooks -- R. v. David French and Brooks Motorcycle [sic] Club, which was the first successful CERA conviction in Alberta, to my knowledge.

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So I do my believe my knowledge and information and ten-year dataset evidence set that I hold is of value to this Panel, is of value to the Alberta Energy Regulator, and ultimately to the people of Alberta.

So the AER can make a decision on that. We can either accept the evidence today, or I will send it to the AER once my journalistic report is complete, and I will -- I will pass that information along to all of the interested parties in this room.

So it's, you know, should we do it today, or should we do it next week? That's the question that I pose to the Panel.

THE CHAIR: Okay. We are going to take a break and discuss --

K. TURNER: Okay. Thank you.

THE CHAIR: -- the path forward.

K. TURNER: Could it be long enough that I can stretch my back out so that I can --

THE CHAIR: Sure. Yeah.

K. TURNER: -- give the most cogent and complete response, if you choose to take it.

THE CHAIR: Ten minutes? Would

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that be --

K. TURNER: Ten minutes would be sufficient. Thank you.

THE CHAIR: Okay. Thank you.

(ADJOURNMENT)

THE CHAIR: Thank you. Please be seated.

Sorry, sir. Mr. Emard, can you come to the podium, please?

So thank you, Mr. Emard. We appreciate your statement. As the full participant, we heard you. Your statement is on the record. And this Panel has no questions for you.

And, moreover, we are not going to hear from Mr. Turner. He's not a participant. We have turned down many other people for fairness to participants who have been preparing like Mr. Emard for the last however many months.

So with that, we are going to take a break before we ask Northback for any redirect that they may have. No more redirect? Or -- sorry.

Thank you, Mr. Emard.

V. EMARD: Thank you.

(WITNESS STANDS DOWN)

M. IGNASIAK: Madam Chair, we don't have any rebuttal evidence. Thank you

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very much.

THE CHAIR: No rebuttal evidence. Okay.

So with that, that actually brings us to the end of this -- this part of the proceeding. We really appreciate everybody's participation, everybody's patience through our process. And we will adjourn the proceeding until we receive the advice from the Aboriginal Consultation Office. And after that we will solicit dates through letters from full participants for final argument.

Thank you very much, and have a lovely rest of your day.

PROCEEDINGS ADJOURNED

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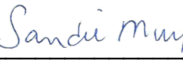
CERTIFICATE OF TRANSCRIPT:

We, D. DiPaolo and S. Murphy, certify that the foregoing pages are a complete and accurate transcript of the proceedings taken down by us in shorthand and transcribed from our shorthand notes to the best of our skill and ability.

Dated at the City of Calgary, Province of Alberta, this 16th day of January 2025.

D. DiPaolo, CSR(A)
Official Court Reporter
Commissioner for Oaths Appointee No. 0751145
ASRA Membership No. 386
NCRA Membership No. 1003835



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