

Joint Review Panel Manager  
Grassy Mountain Coal Project  
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Dear Sirs:

I am writing to provide comments regarding the adequacy of the EIA and Addendum 11. At this point I should also note that I am working with the Livingstone Landowners Group, so that an in-depth analysis of the entire document may be presented to the Hearing Panel, whenever Benga manages to produce a reasonable product.

Most of my remarks will be in the area of human health. To comment in that area, however, I must also venture into areas as diverse as wind effects and air quality, water quality, and dam engineering and safety.

#### Dam Safety and Human Health

My first comments relate to dam safety. It is notable that some of the mine-related ponds and dams are located adjacent to Blairmore Creek. Should those structures fail, the resulting material will flow rapidly down the creek channel, which leads directly to the local hospital and into the centre of Blairmore. It will contaminate the Crowsnest River and then the Oldman system.

The proponent will undoubtedly state that they will use state of the art design and will continually monitor the structures to ensure they are structurally sound. Unfortunately, similar claims have been made about many mine-related structures that ultimately failed. These include such disasters as Aberfan in Wales, where dozens of school children died. The failure at Mount Polley released huge amounts of heavily contaminated mining effluent into a highly productive BC estuary and lake.

Using the precautionary principle, such structures should not be located in an area where their failure can have catastrophic effects. To reinforce the need to apply this principle in Crowsnest Pass, I would note that the US EPA has reported that all mine tailings structures leak.

Admittedly, the degree of leak is variable, but when the structure is immediately adjacent to a stream the effects of any leak will be widely distributed very quickly.

Similarly, a high flow event in Blairmore Creek (see 1995 and 2013 floods) could erode the dam and cause a failure that would have devastating effects.

Since any of the above scenarios have the potential to seriously and adversely affect human health, the proponent should be required to show how they intend to prevent that potential impact. Benga should also be required to demonstrate their disaster response plan, should such a failure occur. The response they used for a potentially toxic discharge from their property in 2017 was singularly unsatisfactory. It was principally to collect some water samples well after the release had occurred, and issue a bland press release saying nothing serious had been released.

## Wind and Airborne Pollution

My next comments relate to wind effects and dust dispersion from the mine area. It was good to see that the proponent has expanded the area from which they are drawing wind data. It was also good to see that they appear to have dropped the risible claim that winds rarely exceed 60 kph in the mine area.

However, they continue to use wind data that is derived principally from valley areas, while the mine will be at the mountain tops. Typically winds are significantly stronger at high elevations than in nearby lowland locations. Ideally the proponent would have installed monitoring instruments in the area of the proposed mine when they began exploration work. By now they would have more than five years of data to compare to data from lowland stations. The two sets of data would have allowed them to draw more realistic projections for mine area winds.

Lacking that, they might have tried to use data from Cowley Ridge, where there has been a wind farm for several decades. It would have been possible to compare those winds with the ones reported in less exposed locations, to improve modeling of wind speeds and their effects in the mine.

The proponent reports that wind borne debris usually travels a relatively short distance before settling. That claim flies in the face of the lived experience of many local residents. As an example I lived for a time in Bellevue, in a house that was sheltered from any local source of gravel by other houses. In high winds, small rocks steadily fell onto the roof of the house, having been airborne for a minimum of more than 50 m and having attained an altitude of at least 6 m to clear nearby roofs. To claim that small dust particles, especially the very light fractions that come with coal, will settle quickly is not believable.

Similarly, every local resident can describe watching dust storms coming off the reservoir in Chinook winds and travelling a couple of kilometres or more. From our current home, it is possible to watch dust raised by traffic on a road that is more than 4 km west of our house. When the predominant west winds are blowing, we can see that cloud move east and eventually pass our house. Again, the claim in the Addendum that dust will settle quickly is not congruent with the lived experience of local residents.

These points will be very important in properly assessing the impacts of wind borne contaminants on the health of local residents. That connection will be elaborated on in more detail later.

Overall, the information presented regarding winds and dust dispersion does not pass a 'sniff test' regarding reliability. As such, the proponent should be required to provide more realistic data, especially regarding the potential for significant escape of airborne materials from the mine area.

### Coal contaminants

I have previously commented on the lack of data regarding the materials that may be found along with the coal in this mine. The proponent has submitted data from other mines showing that most of them have a wide variety of COPC at varying concentrations. Without knowing what is in the coal in this mine, it is impossible to make even educated guesses as to what persons exposed to material from the mine, whether it is airborne or water based, might experience.

Benga should be required to provide a detailed analysis of what potentially harmful materials are present in the coal from this site. They should also be required to provide an expert opinion on what health impacts the various materials, alone and in combination, might have on persons who are exposed in any manner to those chemicals. That expert should have experience with epidemiological methods and a good knowledge of what impacts coal mines might have on populations near a mine.

### EIA Organization

Throughout the multiple versions of this EIA which I have reviewed it has been very difficult to ascertain exactly what data has been presented, where it was presented, and if it had been altered between versions of the document(s). The Panel has repeatedly requested that the proponent consolidate the document into something that can be more easily accessed and assessed. Benga has not done so, and for that reason alone this Addendum is not yet ready to be presented to a Panel.

### Water quantity and quality

Benga continues to insist that all water released from the mine site will be clean enough that there will be no problems. However, they have yet to point to any mine that has successfully remediated selenium releases. Of special concern is the recent report, widely noted in the public press, that the WSCT population in the Elk River has declined dramatically over the last two years. This happened despite the costly efforts by Teck to stop releases of contaminated water. Since Benga is using much of the information from Teck in their plans, there can be little confidence that they will indeed be releasing 'safe' water from a fisheries perspective. If that water is killing

the biota that lives in it, there are grounds for concern regarding any human or other animal that is exposed to it.

That lack of certainty should be extended to assessments of the potential impacts of mine water and associated contaminants on human health. This is another situation where the Panel should apply the precautionary principle. If we create a problem with this mine, it will probably not be apparent for years, and it will also take many years to correct. That is assuming the problem can be corrected. The selenium story suggests that there are mine-related problems that can not be corrected. Using the precautionary principle, the Panel must ensure that detailed forethought is given to such potential problems. Potential water quality problems should be avoided in whatever fashion is appropriate, including not licensing this mine.

### Epidemiology and Human Health

There is considerable research in the eastern United States that clearly shows significant and serious negative impacts on human health as a result of living near coal mines. The relevant research was done by Hendryx, Ahearn, and multiple others over the past two decades.

Because the evidence relies on epidemiology at the population level, it is not always clear exactly how the negative impacts develop, but it is very clear that coal mines cause severe negative impacts on human health. While the negative impacts could be from water borne pollutants, it is more likely the effects are due to air pollution.

Research suggests that the negative impacts probably relate to ultra-fine particulates that penetrate far into even healthy lungs. In some respects this sounds similar to recent reports linking increased mortality from Covid19 infections to air pollution.

The exact mechanism by which these pollutants damage health has not been fully elucidated, but their impacts are clear in the population data from Appalachia. These range from substantial increases in rates of premature births and low birth weight babies to significant increases in heart, lung and kidney disease.

Benga has not addressed this issue in their reports to date, and the problems with their wind modeling and dust dispersion projections make this an issue of urgent concern. The Panel should direct Benga to fully address this concern before proceeding to a Hearing.

Again, this is a concern where the Panel should apply the precautionary principle. If the mine is in operation and health issues similar to those in West Virginia and Kentucky arise, it will not be possible to correct them. The mine must show that it can be operated in a safe manner before the application goes to a Hearing. In this context, safe means with minimal dust dispersion beyond the mine boundaries. As

noted above, this will require much better assessment of wind behavior and dust dispersion than has been presented to date.

### Economic Analysis

It goes without saying that the economic conditions have changed drastically since the inception of this project. There have been massive changes in the demand for all industrial commodities. It would be difficult to support an assumption that economic conditions will return to the previous normal. Additionally, Alberta has changed the corporate tax system dramatically in the past year. All assumptions and projections that were used in the initial cost-benefit analyses relating to the project must be re-evaluated, and adjusted. The costs and benefits attributed to the mine need to be recalculated in light of the new reality.

There should also be a critical appraisal of the tax payments that Benga indicates they will make when the mine is operational. The Environmental Court in New South Wales in Australia reviewed projected tax payments against the actual tax payments of several coal mines. Those mines paid very little in the way of taxes, much less than the nominal rates quoted by the proponent for that mine. If that pattern continues in Canada, the benefits that the EIA claims will accrue to the Alberta and Canadian governments are likely overstated. The Panel should request that Benga indicate why tax payments in Canada would be higher than the low percentages recorded in their home jurisdiction.

### Conclusion

In short, this application is not yet ready to go to a Hearing. The company has yet to show that it can indeed control water and air pollution in a manner that will prevent serious harm to human health, in addition to potential impacts on the environment. The economic basis for the mine needs to be re-assessed.

As requested multiple times previously, Benga should be required to provide a consolidated document where information can be followed and cross-referenced by those attempting to assess the entire proposal.

Benga must do all of that before their proposal can proceed to a Hearing.

Respectfully submitted,

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