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Parliamentary Inquiry into Health Impacts of Air Pollution in Victoria

Terms of Reference

- (a) state-wide practical, real-time, cost-effective mitigation strategies;
- (b) ensuring that Victorian air quality continues to track towards meeting or exceeding current international best practice standards and is enforced;
- (c) the impact of economic and population growth on air pollution and health outcomes;
- (d) strengthening commitments across all Victorian Government portfolios to reduce air pollution and minimise the impact on health; and
- (e) any other related matters.

My submission relates to (e) any other related matters

I wish to draw the Committee's attention to the very serious health impacts which will result from the proposed mineral sands at Fingerboards, Glenaladale, East Gippsland, which is currently subject of an EES process. If approved this mine would operate for 15 to 20 years approximately but its adverse environmental impacts could continue indefinitely.

The mine site is surrounded by a large number of homes, farms, a primary school and the Woodglen Reservoir, which provides water supply to the whole area, including Bairnsdale. Over 1600 people live in the immediate vicinity of the mine site. A further 19,331 (2020 stats) live in Bairnsdale barely 22 kms away in direct line of prevailing winds, which can be very intense. Even on relatively calm days, dust clouds can blow over the area. The mine site is located 500 metres from a major horticulture industry on the Mitchell River flats, which employs a significant number of local people and supplies vegetables to Melbourne, interstate and export markets. In July 2010, the State Government exempted almost 4000 hectares of this fertile floodplain from mining and minerals exploration in recognition of its significant role in food production.

This mine promises to put this valuable industry out of production. Perceptions are powerful influencers of behaviour. Remember the needles in strawberries and the eColi in frozen berries. Many people stopped buying these fruits altogether and are still wary. When consumers, especially importers, like China and Europe, looking for "clean, green" food learn that their vegetables might be covered in radioactive silica dust the whole Australian vegetable industry could be at risk because no one will be able to differentiate between contaminated and clean vegetables.

Just prior to the commencement of the EES hearings, the proponent, Kalbar Operations Pty Ltd (Kalbar) changed their original plan, saying they had decided to use a number of centrifuges to dewater the overburden. They claim the centrifuges can reduce the dust generated by the works and will avoid the need for a Tailings Storage Facility (TSF). However, this technology has never been used in mineral sands mining and may prove to be unworkable in the field.

As with any mineral sands mining operation, dust is a significant contaminant. According to Kalbar's reports, particulates in the dust range from PM10 to the invisible PM2.5 particulates, which become embedded in the lungs. In this case, the dust will consist of radioactive silica particles, mixed with tonnes of Polyacrylamide (PAM) flocculant used in the centrifuges. PAM breaks down to form acrylamide which is readily adsorbed via dermal exposure and inhalation. Acrylamide is an irritant, a potent neurotoxin that affects both the central and peripheral

nervous systems, a reproductive toxin, and a carcinogen;¹ and the silica, which is in the mineral sands, is well-known to lead to silicosis.

Kalbar's own experts confirm that the **"use of centrifuges will not reduce the quantum of dust**, which will still be generated by the cake haul trucks and will require additional water.² In fact, **"dust emissions from tailings management are anticipated to increase** due mainly to the materials being hauled during the day to their disposal site."³

Tabled Document 193, Impacts of the use of centrifuges on EES study areas p4/7, states: "Broadly, modelling of dust emission rates with centrifuges included in the Project, shows little change to the EES modelling. By using centrifuges, dust emissions from overburden haulage and vehicle exhaust emissions are reduced due to shorter haulage distances. **However, the additional haulage of cake from the centrifuges to the mining void is a new dust source, which increases dust associated with tailings management.**

While the amenity impacts of dust⁴ are bad enough, far worse are the health impacts of fine particulates,⁵ especially the very fine PM2.5 particulates.

As any farming woman knows, at the best of times, black dust invades the house and surfaces must be cleaned daily. And, without anyone to test the dust, she will never know just how much. No matter how hard and how often she cleans, she will not be able to keep her family safe. Do you think she will sleep at night? What will be her mental state of mind?

Water Supply contamination

Kalbar considers dust falling on the Woodglen storage dam water supply is not an unacceptable health risk to users who consume the water.⁶ Acceptable or not, people will still be anxious about water quality. The radionuclides and silica in the dust will not be able to be removed. And, like other claims, e.g., PFAS contamination around Commonwealth Defence bases, assurances that the water will be safe to wash in and drink will inevitably turn out to be false. At the very same time as I overheard one agency representative confess to his colleagues at the Sale PFAS community information meeting: "This problem will never go away", another government spokesperson was reassuring the public that there was nothing to worry about. As with PFAS, the assessment that "the health impacts associated with radionuclides in deposited dust on soil and on edible crops were quantified and found to be low and acceptable⁷ will also be found to endanger human and animal health. When people get sick and start dying the Government will ultimately find itself having to fund the compensation claims at great expense to taxpayers as it has in so many past damages' claims.

Human and animal health

TD 82 Health (Coffey), p13/42) refers to submitters' concerns about indirect ingestion of toxic dust via animal products and edible plants. Kalbar's experts do not consider the effects of dust on animal health; but livestock health is a biosecurity matter for which farmers have a legal duty under Commonwealth law. However, if the mine is approved, farmers will have no control over dust and will be unable to protect themselves, their families or their livestock against the contamination. Of interest is the fact that DHHS in its reply to the EES IAC on the management of radiation, mentions the potential exposure of members of the public [via] the consumption

¹ Smith EA; Prues SL; Oehme FW. (June 1997). "Environmental degradation of polyacrylamides. II. Effects of environmental (outdoor) exposure". *Ecotoxicology and Environmental Safety*. **37** (1): 76–91. doi:10.1006/eesa.1997.1527. PMID 9212339. Archived from the original on 2016-04-20. Retrieved 2007-11-02.

² Tabled Document 43, p7/9.

³ Tabled Document 43, p7/9.

⁴ Tabled Document 139 Supplementary Expert Statement Welchman.

⁵ Tabled Document 84, 3.1.2, p 11/83

⁶ Tabled Document 84, 3.1.3. 41, p 11/83

⁷ Tabled Document 82, p16/42.

⁸ Ibid., section 9.1.4, p16/42)

of meat products coming from meat producing areas near the mine. producing areas.⁸ While the DHHS is not overly concerned about this exposure pathway, it still has the potential to unsettle meat consumers and—given China’s embargo on Australian meat and other foods—to disrupt important export revenue.

Regarding farmers’ and livestock health, Kalbar’s Health expert witness, Karen Teague, states, at 5.4.4, Regional receptor radius and selection of sensitive populations: “Although I was not aware of the potential for farming activities on-site during mine operations, **it is suggested Kalbar provides these farmers with appropriate health and safety training, updates and PPE if required.**”

Occupational Health and Safety

Clearly, if Kalbar’s own expert advises PPE for farmers entering the site, then the dust must also be a health hazard for mine employees who, one would expect, would also need to wear PPE, especially to protect them against the effects of radiation and silica dust. Yet, Kalbar’s “experts” all conclude dust contamination is only a low or negligible risk and make no recommendations about OH& S. Surely, something to concern the unions and the Government.

Transport of toxic HMC sands

I respectfully request the Committee to investigate this situation closely because this toxic dust will not be confined to the East Gippsland area.

The toxic HMC sands will first be deposited into some form of Bulka bag (this is not defined) and then be either trucked to Port Anthony, Corner Inlet, South Gippsland –a RAMSAR site-- or freighted by train to Port Melbourne.

Tabled Document 84, p8/83, confirms⁹: **“fine particulate matter may remain suspended in the atmosphere for many days and travel many hundreds of kilometres.”** These PM particles can lead to cough, asthma and heart attacks, high blood pressure, stroke, other serious diseases and death. **The smallest and most dangerous particulate PM2.5 has an atmospheric lifetime of days to weeks over a distance of hundreds of thousands of kilometers.**

Radiation management licence

The radionuclide levels in the heavy mineral concentrate mean that the project is also a ‘nuclear action’ under the Australian Radiation Protection and Nuclear Safety Act 1998.

TD 197 Amended Draft Work Plan, p133/191, acknowledges that: “Kalbar will need to apply for a management licence to cover the radiation safety related aspects of operations within the mine, in accordance with the provisions of the Victorian Radiation Regulations 2017”.

However, there is no discussion in the EES reports about offsite risks during transport of the HMC from the mine. Offsite dust not only includes carcinogenic (radioactive silica sands) dust generated by bulldozers, trucks that is carried on the wind and deposited on nearby farms (vegetable, dairy, cattle and sheep), houses, and major water reservoir but also the dust that escapes from B-Double trucks and/or freight trains transporting the HMC loads to Port Melbourne. Absent from the EES reports is any reference to the risks of carcinogenic HMC dust blowing over all those homes, businesses and farms adjacent the Princes Highway and/or VLine rail line on the way to Corner Inlet or Port Melbourne.

⁸ Tabled Document 41 DHHS letter to IAC: DHHS review of Kalbar project, p4/26.

⁹ Tabled Document 84, Table 1, p10/83.

Transport of radioactive materials is an issue of concern, as evidenced in the ARPANSA study.¹⁰ Note: Effectively, radiation exposure to zircon dust would result in about 60% of radiation exposure received from ilmenite/synthetic rutile dust of the same activity concentration, and 65% of radiation exposure from HMC dust of the same activity concentration. As experience shows, cancers often take years to develop.

There has been absolutely no discussion whatsoever in the EES reports as to how a spill would be managed should there be a train derailment or truck accident. It is not clear which authority will regulate and monitor the offsite impacts? The Radiation Safety Regulations Victoria 2005¹¹, published by the DHHS says it is capable of responding to a significant radiation incident but there is no requirement for Kalbar to provide an Emergency or Disaster Management plan for HMC transport, nor has the DHHS published a plan. However, the exposure of hundreds of thousands of Victorians to radioactive and silica of radioactive would have obvious political fallout.

Health impacts on country people “Rural Australians experience a range of health inequities—including higher rates of suicide—when compared to the general population”¹². Yet, mental health impacts are never factored into decision-making. If this mine is approved, it won't just be the air quality that people will be worried about. Country people already have less access to health services than their city counterparts. The exponential effect on health and morale experienced by the people directly affected by this mine has already taken a heavy toll on their health, with people saying they are angry, frightened, despairing and “violated”. At least one person has been rescued from suicide. ANY perceived economic benefits touted by Kalbar—200 jobs over 20 years--compared to sustainable jobs in local tourism, agriculture and allied businesses will not compensate for the enduring pain and suffering.

Public Health and Wellbeing Act 2008

Under the Public Health and Wellbeing Act 2008, Section 1, the State Government has a legal duty to promote and protect public health and wellbeing in Victoria. Importantly, Section (4)(2) aims to “achieve **the highest attainable standard of public health and wellbeing,,,**”, including by:

(2)(a) protecting public health and preventing disease, illness, injury, disability or premature death; and

(2)(b) promoting conditions in which [persons](#) can be healthy.

Note: this **not a minimum standard**.

Section 6 also invokes the **Precautionary Principle**:

“If a public health risk poses a serious threat, lack of full scientific certainty should not be used as a reason for postponing measures to prevent or control the public health risk.”

People have a right to the peaceful enjoyment of their homes. And above all, to feel safe. If the Minister for Planning approves this mine, the whole of East Gippsland will suffer the environmental and socioeconomic social health consequences, which will be irreversible. People stand to lose their homes, their farms, and businesses—their wealth and wellbeing because their properties will be worthless, just like the PFAS-contaminated properties.

¹⁰ Radiation exposure in the transport of heavy mineral sands: Report for the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA), Sept 2008. For example: 3.7 Potential exposures of the members of the general public.

¹¹ Radiation Safety Regulations Victoria 2005, p20/21.

¹² Alison Kennedy 1,* , Jessie Adams 2, Jeremy Dwyer 3 , Muhammad Aziz Rahman 1,4,5 and Susan Brumby, Suicide in Rural Australia: Are Farming-related Suicides Different, Journal of Environmental Research and Public Health, 2020 17 2010.

Conclusion

The Hon Lisa Neville, MP Minister for Environment, Climate Change and Water said on launching the inquiry into the EPA, in 2016: “We need to better protect Victorians from exposure to chemicals and pollution than we unfortunately sometimes have in the past.”¹³
Is this a statement of meaningful intent or just more political lipservice?

The toxic dust due to be produced by this proposed mineral sands mine will be a devastating health and safety problem for large sections of the Victorian population not just in Gippsland but also throughout Melbourne. The Committee should be very concerned about this. Thank you.

¹³ Armytage, P., Brockinton, J. & van Reyk, J. 2017. The Independent Inquiry into Victoria's Environment Protection Authority (EPA) June 2015 to March 2016. Ministerial Advisory Committee for The State of Victoria Department of Environment, Land, Water & Planning. <https://www.environment.vic.gov.au/sustainability/independent-inquiry-intothe->