

Nick Barton

IAC panel hearing

14<sup>th</sup> July 2021



Short range weather forecast

Let us look at the proponent.

They clearly have expertise in promotion and marketing, as has been made clear in their shareholder briefings and regular local press items.

However, they have shown a concerning lack of expertise in the practicalities of actually planning a mine in what is a complex and highly sensitive environment, where a failure to control either airborne or water emissions could have disastrous effects on local communities, industry and the environment.

Since the EES, **touted as the last word in project design**, was finally released last year, there have been a multitude of changes as members of the community have pointed out multiple flaws in this document.

Replacement of the Tailings Storage Facility with centrifuges is the most obvious, as Kalbar realised the water balance model on which they had been relying was seriously flawed. The deletion of the TSF is welcomed, as among other problems, the removal of 5 years of accumulated, and probably still sloppy fine tailings which had been pumped in, but would have had to be loaded and transported out to the mine void, would have created huge difficulties.

Initially, fines tailing were to have been placed directly into the TSF. It is now stated that they will be placed directly into the mine void. Coarse tailings will be placed in Perry Gully for the first four? months until space is available in the void. There is no mention in the revised work plan (Doc 197a) as to where the first four months fine tailings will be placed.

Centrifuges have never previously been used on mineral sands mines. Kalbar (Doc 197a) have assumed that slimes can be dewatered to 65- 70% solids, in which case some 1500ML/year of water will be lost in the fine tailings. They estimated the net process water demand at between 2,700 and 3,000ML/year, without provision of water for dust suppression. However, the Alfa Laval video . (<https://www.youtube.com/watch?v=8FXxGXg7q4w> ) on the use of centrifuges on mineral tar sands tailings) estimated that centrifuge cake contained only 55% solids. If this were to be the case here, 3.2 ML per year would be lost in the fine tailings bringing the demand to over 4500 ML/year.

Another change is the introduction of silos (Doc197a). These appear to have been conceived in response to concerns about the exposed stockpile of radioactive HMC.

Professor Mudd (Doc 87) stated that the HMC contained 278 mg/kg (0278%) uranium and 1579 mg/kg (.1579%) thorium, which are of a similar magnitude to ores in commercial uranium mines.

There is no indication how the HMC is to be transferred to or from silos. All previous movement has been via pumped slurries, which clearly will not work. There is also

no indication as to acceptable water content for HMC, as once enclosed in silos evaporation cannot take place.

Confusion still abounds about transport of HMC.

Doc 197a P 5-1 mentions

*“Dewatering of the concentrate and loading from product silos into enclosed shipping containers for transport to the rail siding”.*

From Doc 537 TN 39

*.....“transporting the HMC to the Port of Geelong via rail in sealed containers for bulk shipping overseas.”*

**Thus it is proposed to completely negate the careful sealed transport of the radioactive ore by emptying the containers into a ship’s hold at the Port of Geelong.**

Doc 197a P 5-2

*“Up to 500,000t of concentrate may be stockpiled on a temporary basis adjacent to the WCP.”*

**It is obvious that 500,000 tonnes will not be stored in silos!**

A further flaw in the EES was pointed out by Mr Welchman (Doc 255)

Para 20. *“ In preparing this updated inventory it was identified that the electricity demand accounted for in the EES greenhouse gas assessment reflected an earlier iteration of the project description with power use of approximately 3.6 MW. This is now expected to be 9 MW without the centrifuges. The revised greenhouse gas emissions inventory accounts for the 9 MW of power (78,840 MWh assuming 100% utilisation at maximum capacity as well as the additional 10,550 MWh of electricity per year required by the centrifuges.”*

**So the initial EES, apart from underestimating water requirements also significantly underestimated power needs.**

Welchman (Doc 255) also stated

Para 19 *“Scrapers are no longer proposed to be used for overburden extraction and transport.”*

Yet in the revised work plan (Doc 197a)

P 4.12 *“Topsoil will be mined by tractor scoop on the plateau...”*

*Overburden removal will be undertaken using truck and face shovel, with support from a scraper fleet on shorter hauls.”*

The equipment list in Doc 197a, Table 4.3, p 4-14) still lists 6 scrapers.

The panel can have no confidence in the ability of the proponent to develop a coherent, practical plan in such a challenging environment when so many changes are made and so many contradictions still remain.

The difficulties posed by dispersive soils, as illustrated by the photo of the bogged truck (Doc 473), do not appear to be appreciated by the proponent. These were spelled out in detail by Rick Coleman yesterday.

Kalbar have proposed to build 19 water management dams, plus a water process dam and a 2.2 GL freshwater dam, using dispersive clay liner which they hope to stabilise with the addition of lime. By comparison, East Gippsland Water's 2 storage dams at Woodglen have a combined capacity of 1.565 GL.

The epicentre of the massive storm which hit South Gippsland and the Dandenongs on 9<sup>th</sup> June this year had, two days before, been forecast to hit the Sale and Bairnsdale area. Mt Baw Baw experienced 280 mm in 24 hours. With climate change, such extreme events are expected to become more common.

Kalbar's water management dams are scaled to take 95 mm runoff from empty (Doc 474)

Imagine the scenario if the mine is approved and 10 years down the track we get another such event, this time with the epicentre here.

Dams upstream of the mine will overflow into the mine void. Dams downstream (already with mine contact water) will overflow to the rivers. There is the potential for one or more dams, or even the mine wall to collapse. Huge sediment loads from disturbed ground will flow off site. All downstream users of water and the Gippsland Lakes will be affected.

Mining companies never admit that their dams may fail. The Mariana (Samarco) dam failure in Brazil in 2015 was the biggest environmental disaster in the country's history. 3 years later the Brumadino dam, also owned by Vale collapsed. Newcrest's Cadia tailings dam in NSW collapsed in March 2018, and since then dust has polluted the surrounding district. (<https://www.abc.net.au/news/2021-04-20/cadia-residents-exposed-to-tailings-dust/100078334>)

Closer to home, in 2012 the Yallourn open cut mine was flooded when a viaduct constructed to divert the Morwell river collapsed. Modelling had predicted it would cope with all but a 1 in 10,000 year flood event. It was repaired according to recognised engineering standards, but within the last couple of weeks has triggered an emergency by threatening to collapse again. Modelling is an inexact science, and engineering is not infallible.

Yet that is exactly what Kalbar has relied upon in its assertions that the risks posed by the mine are negligible.

There is a worldwide trend for governments to underfund regulatory bodies. Yet these are essential to confirm that mines are operating safely. Dr Joyner (541) places huge store in the ability of DHHS to ensure the effectiveness of Kalbar's radiation and radioactive waste management plans. Yet the same DHHS was criticised over the escape of covid19 virus from Victorian quarantine hotels. EPA and ERR have also been exposed for lapses. Unfortunately, lapses by regulatory bodies are all too common.

It is astonishing that the Radiation Management Plan and Radioactive Waste Management Plans are not required as part of the EES process. It is a case of trust us, we will get it right in the end.

Concern has also been raised over dust emissions from the proposed mine.

Katestone, in the EES Appendix A009 Table 17 listed standard dust control measures as

*Scraper on topsoil or overburden: Continuous use of water truck.*

*Dozing: Travel routes and materials kept moist*

*Haulage and Grading: Application of water and/or suppressants*

Yet in the work plan (Doc 197a) the Equipment list (Table 4.3, p 4-14) includes

5 excavators

11 dump trucks

8 dozers

2 graders

1 Front end loader

6 scrapers

but only 1 agricultural tractor and 2 water trucks.

**It is obvious that Kalbar do not have sufficient correct equipment (or water) to enable dust to be suppressed.**

Much of Katestone's work (EES Appendix A009, Doc 84, Doc 139, Doc 255) is concerned with the concentration of airborne particles and pollutants. Much greater quantities of dust are raised at higher wind speeds.

(Katestone uses 5.4m/s (19.5 km/hr) as threshold for lift-off from stockpiles, emission factor from stockpiles  $1.8 \text{ g/s} \times \text{area} \times \text{wind speed}$ , but only .85 g/s from exposed areas.

However, because of the much greater volumes of air passing a point per unit time at high wind speeds, particle concentrations of pollutants in  $\text{mg/m}^3$  as modelled are not necessarily elevated. The increased dust however, must be deposited somewhere.

EES Appendix A009 Tables 22, 23, 26, 29 give dust deposition rates at sensitive receptors.

It is totally unclear how expected dust deposition rates have been calculated.

P77/78

*“There will be physical processes that are not explicitly accounted for in the model.....For example, in the real world when a plume of dust reaches an area of sloping terrain, mass from the plume will be removed through impaction on the surface. In a dust model, however, the dust plume is treated as a gas in this situation and the plume will pass over or around the obstacle with no loss of mass.”*

**How can such a model be used to calculate dust deposition at sensitive receptors? House water tanks have a catchment much greater than their surface area, so will concentrate any dust and pollutants which are deposited on the house or shed roof. How can it be concluded that dust deposition will not adversely affect the horticultural area?**

The panel has heard from internationally recognised experts such as Andrew Helps (Docs 574-576) about the hazards posed by the mine to the local community.

Members of the community have raised concerns which Kalbar has attempted to address by ad hoc changes to work plan and procedures. Rio Tinto did not judge that this mine was viable in this situation.

Numerous presentations have emphasised the importance of the Lindenow Valley horticultural industry to the region and the state. Local farmers have demonstrated their detailed practical knowledge of the local soils and environment which they have gained over many years. This is in marked contrast to Kalbar’s experts, none of whom live locally, and all of whom resorted to plugging numbers in to desktop models to conclude that the project poses negligible risks to the people, industries, and environment into which it is proposed to build this mine. .

Should the mine place the local industries in jeopardy the detrimental effects would far outweigh any benefits from the mine. The adverse consequences of contamination of the Mitchell river, the Lindenow flats or the Gippsland Lakes would last for decades. Land suitable for intensive food production is becoming more and more scarce as urbanisation encroaches onto some of the State’s most fertile country. It would be madness to place one of the best of the remaining areas at risk for a likely marginal, relatively short lived mining venture. Even the best laid plans go awry. One has only to look at the repeated breaches of hotel quarantine to realise that the unforeseen happens all too frequently. The chances of the mine operating without problems, as described by the proponent, are infinitesimal. And failure could be catastrophic. If the mine did turn out to be profitable profits would accrue mainly to overseas investors, while all adverse effects would be borne by the local community. .

The IAC must produce a written report for the Minister for Planning containing the IAC's:

- a. conclusions with respect to the environmental effects of the project and their significance and acceptability
- b. findings on whether acceptable environmental outcomes can be achieved, having regard to legislation policy, best practice, and the principles and objectives of ecological sustainable development.

Given all you have heard from people with a real understanding of the local industries and environment, I urge you to find that it is extremely unlikely that acceptable environmental outcomes can indeed be achieved.

The panel is to be congratulated in truly seeking to understand the industry, and the environment into which it is proposed to construct this mine.

The panel has allowed all submitters who wished to, to present their case. Searching questions have been asked of the proponent.

Yet there is concern within some in the community that this whole process is an elaborate sham, with approval for the mine a foregone conclusion. This would mean that the thousands of hours of voluntary work put in by members of the community has been a complete waste of time.

This has been reinforced by the behaviour of the proponent who has been publicising new appointees to key positions even though the IAC hearings are not yet finished. They have also applied for a mining licence, even as the EES process continues. Even more worrying was the June 22nd announcement by MP Jane Garrett that \$700,000 would be granted to the Fennings timber rail siding in Bairnsdale to assist Fennings to diversify their business away from hardwoods toward freight.

When we read in TN 39 (Doc 537) that one of the options for Kalbar is

*HMC transport to Port of Geelong will be via rail, involving truck transport of HMC via Lindenow South and the Princess (sic) Highway to the existing Bairnsdale (Fenning) siding....*

it only fuels paranoia.

The Avon rail bridge has also been finished well in advance of the mine construction.

It is clearly up to the panel to evaluate the merits of the cases put for and against this mine.

My plea to you is to make an honest evaluation of this proposal, and if you believe that the potential risks of the mine are too great, recommend that it not be approved.



If the Minister for Planning chooses to overrule this finding, the responsibility for any adverse effects will be his, and the panel members will have retained their integrity.

Thank you for hearing me.