

CONCERNS RE CENTRIFUGE

Thank you for the opportunity to respond to the late submissions by the proponent in relation to the proposed change to processing method.

Centrifuge and support infrastructure

What is the risk and level of contamination of the area on which the centrifuge and its support structures are built?

What happens to the centrifuge and related infrastructure in the event the mine is decommissioned, relegated to caretaker mode, bankrupts, is on sold? Will the community be left with an eyesore ie deteriorating structures, etc, and have to manage the site and its ongoing damaging effects in some manner?

What are the short term and long term impacts of the centrifuge and its directly and indirectly associated support infrastructure on the local environment – such as leakage of waste matter, lighting, noise, safety (radiation, accidents), etc?

What is the proposed rehabilitation plan for the centrifuge and associated structures site? Does the plan include management of any “overlooked” leakages and how would that be managed?

Tailings Storage Facility

If the centrifuge process is found to be inadequate for purpose, then will Plan B be a Tailings Storage Facility? If this occurs then is the significant change in processing subject to public and panel scrutiny? If not then why not?

Will holding vessels for the toxic and waste matter be above ground and held in built structures? or will they be holes in the ground and as such will they be lined, and if not why not? And further, how would leakage into the land and subterranean aquifers and beyond, be managed?

If there is a decision to include TSF systems either fully or partially then would they be lined, and would the liner have a greater life expectancy than the mine – even if bankrupt or in caretaker mode? If short duration liners are proposed then how will their disintegration be determined and how will they be replaced and would replacement result in any release of the contained toxic matter?

Hybrid systems

In the many mining projects where I have had involvement in studies and projects, **the high capital cost of centrifuges has overridden the benefits of centrifuging versus filtration.** https://s3.ap-southeast-2.amazonaws.com/hdp.au.prod.app.vic-engage.files/9316/1283/6719/Kalbar_-_Expert_Witness_Statement_-_Ivan_Saracik_-_Centrifuge_-_8_2_2021_Direction_59.PDF

Other papers indicate serious consideration of a hybrid model utilising both the centrifuge and TSF options.

Given both the comments from other papers and this comment from an Expert Witness it is important to ask the question “Are hybrid centrifuge:TSF systems being considered? If so then at what point will TSF management be subjected to public and panel scrutiny?” If there is any likelihood of a hybrid system then I suggest it is an imperative that the Panel also consider TSF management in detail

“Solid” waste

Will all “solid” waste, both directly and indirectly associated with all aspects of the mine, be rehabilitated to food producing quality? Given the mining process commences with food producing quality land, and the purpose of rehabilitation is to restore the area to pre-mine status, that suggests to me that rehabilitation includes returning the land to the food producing quality and capacity of pre-mine and drought levels.

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In the event the mine is decommissioned, relegated to caretaker mode, bankrupts, is on sold then how will all directly and indirectly associated “solid” wastes be managed? Who will monitor compliance with directives?

Water

What are the daily and annual operational water requirements? Given the previous significant underestimation of water requirements, how can we have confidence in the current numbers? And what happens if they are still underestimations? This and any further underestimations certainly continue to erode confidence in the proponent’s capabilities and integrity

How will the proposed water sources for the proposed centrifuge be managed? Who will monitor compliance with any imposed water restrictions and water management requirements?

One of the arguments for the centrifuge process is that water can be recycled, and since continued recycling of the water will result in a highly toxic fluid, will all water associated with all aspects of the mine, both directly and indirectly, be rehabilitated to water-drinking quality? Given the mining process commences with drinking water quality, and the purpose of rehabilitation is to restore the area to pre-mine status, that suggests to me that rehabilitation includes returning water to drinking water quality prior to release into the environment.

In the event the mine is decommissioned, relegated to caretaker mode, bankrupts, is on sold then how will all directly and indirectly associated toxic water be managed? Who will monitor compliance with directives, and for what period?

Energy

What is the energy cost of the direct and indirect consumption associated with the mining project? Where will the energy be sourced and how will it be accessed?

Will the local community’s power supply be impacted?

Will securing a stable energy supply for the centrifuge and associated structures necessitate installation of further infrastructure, potentially across landholders’ land? and how will the landholders be compensated for immediate intrusion and ongoing maintenance?

Sensory impacts

What will be the sensory impact of sustained industrial noise from the centrifuge and it’s support structures on the local and broader-area wildlife? Senses are part of the navigation and defence mechanisms of many forms of wildlife and impairment to one or more senses compromises their survival capability. No evidence would not mean no harm – it would mean no-one has considered this and therefore remains unknown. Further, the statement “There is no evidence ...” does not always mean there has been research and these are the findings – if there has been research then the statement typically prefaces with “Evidence indicates ...”

Noise travels therefore the impact on humans, fauna, birds, amphibians, etc can be extensive, and the impact on small beings is likely to be significant? What strategies will be initiated to manage noise pollution from both direct and indirect sources? Who will monitor compliance? and will they be independent of the mining company?

Will exposure to sustained noise negatively impact animal production such as milk production, fertility rate and newborn size at birth? Will exposure to sustained noise similarly negatively impact wildlife fertility rates? If there is any evidence, is it compelling in its conclusion?

Noise travels, so to what extent will noise abatement reduce noise impacts? I suggest noise should be reduced to a level that is inaudible at 100 metres. Sustained industrial noise is a stress and as such increases

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stress levels in the body – the consequences of sustained stress include generation of substances that result in negative health impacts

Earthquakes

Is earthquake resistance and management built into the safety requirements for the centrifuge and all its associated structures? to what level of resistance? and if not then why not? If and when the ground moves, at what point would damage be caused that would result in escape of the toxic matter?

What are the proposed management strategies in the event of a major or minor catastrophic event resulting in escape of the toxic matter into the environment – onsite, offsite and including the broader and local communities?

Uncontrolled fires

What is the capacity of the centrifuge and its associated structures to cause fire? and how will any fire outbreaks that are a consequence of the centrifuge and associated infrastructure be managed?

The mountains are very close, and have mostly not experienced bushfire since the 1960's, the risk of bushfire increases every year – and the risk is even higher given there have not been any completed backburning programs since those major bushfires. What would be the anticipated and likely impacts of the hot, fast-moving bushfire on the centrifuge and its associated structures? What would be the risk of toxic matter being released? And what is the risk of the resultant release of toxic matter in conjunction with a very hot fire creating damaging substances that could impact land and air and therefore be transported significant distances by air (dust, smoke) and water? – downwind the impacts could be quite profound. How would such an incident be managed – in its entirety?

Spills management

Will the local community, a definition that includes the Bairnsdale and Sale local government areas, be advised of

- any episodes of leakage of toxic matter at the time of event,
- the management strategies implemented to contain and cleanse the contaminated area, and
- when the episode has been resolved to the satisfaction of an independent (to the mining company) advisory service – preferably appointed by Bairnsdale Council?

If not then why not? And why would this level of accountability to the local community not be acceptable to the proponent?

Flocculants

What are the environmental and negative health impacts of the flocculants? And how will all those negative impacts be managed?

The Precautionary Principle

The Precautionary Principle is defined as follows:

When human activities may lead to morally unacceptable harm that is scientifically plausible but uncertain, actions shall be taken to avoid or diminish that harm. Morally unacceptable harm refers to harm to humans or the environment that is

- threatening to human life or health, or
- serious and effectively irreversible, or

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- inequitable to present or future generations, or
- imposed without adequate consideration of the human rights of those affected.

Environment management rule that if a threat of serious or irreversible damage to the environment or human health exists, a lack of full scientific knowledge about the situation should not be allowed to delay containment or remedial steps if the balance of potential costs and benefits justifies enacting them. In other words, "prevention is better than cure." Also called preventative principle.

Conclusions

There are many unknowns in relation to the negative impacts of the centrifuge and its related infrastructure on the immediate and broader community – including both humans, wildlife and land mass. The Centrifuge submission does not provide adequate information to ensure compliance with the Precautionary Principle. The lack of adequate documentation suggests approval of the application may cause more harm than benefit.