

Stockman Base Metals Project EES

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Gippsland Environment Group Inc appreciates the opportunity to comment on the Stockman Base Metals Project EES.

Summary

Gippsland Environment Group is opposed to the Stockman Base Metals Project as detailed in the EES.

The expanded tailings storage facility proposed in the EES should not be built; it is not logical to proceed with this form of development, at this site. Independence Group NL and the relevant government authorities cannot guarantee that the tailings dam will not fail. At this remote location in the extreme headwaters of the Tambo River if the dam wall fails emergency services are unlikely to even access, much less contain the spill of millions of tonnes of toxic tailings into the Tambo River.

- In the event of catastrophic failure of the tailings dam wall the Tambo River ecosystem is at risk of total collapse from the headwaters all the way to Lake King in the Gippsland Lakes.
- The EES tailings dam design does not include a secondary dam wall below the proposed expanded tailings dam to contain major spills in the event of catastrophic failure of the tailings dam embankment. The site topography would make it impractical to construct a secondary downstream dam and it would be difficult to construct a bund wall around the whole mine development site which would be the minimum requirement to negate the risk of major spills impacting on the environment.
- An environmental bond adequate to cover a meaningful emergency response plan and subsequent rehabilitation of the Tambo River following catastrophic failure of the tailings dam wall would make the whole project unfeasible.

Discussion

Tailings Dam

The Stockman Project EES proposes an expansion of the existing tailings storage facility to enable it to store up to 100% of mine tailings if necessary. During the nine year project a total of nine million tonnes of ore will be removed and processed, resulting in seven million tonnes of tailings to be disposed of. During each year of operations, approximately one million tonnes of ore will be processed, producing 850,000 tonnes of tailings, to obtain approximately 150,000 tonnes of copper and zinc concentrates per year.

GEG does not support the proposal to expand the existing tailings storage facility (TSF) for the following reasons:

- The Stockman Project investigated 23 potential tailings storage sites. The investigation was limited to walking over most of the sites, and they decided on re-using the existing tailings dam –the EES identified that this is the cheapest option. If the Stockman project can only proceed on the basis of the cheapest tailings storage facility option then the whole project is clearly unsustainable.
- The Stockman Project plans to expand the existing tailings dam by raising the embankment in staged lifts to another 25 metres in height in order to store around seven million tonnes of tailings. The tailings dam will finally be approx 45m above the valley floor and cover 35ha. The staged construction of the tailings dam embankment poses risks to the structural integrity of the dam wall as the permeability and stability of the embankment may be compromised by need to key in the successive lifts. The increased height of the dam will massively increase the head pressure on the dam wall.
- The first staged embankment raise will be 8.4m in height but before that can be happen the water level in the tailings dam will have to be lowered by a depth of up to 3metres to enable 1.6m of the existing dam embankment to be removed first to repair the structure before any additional height can be added. Whilst the company has proposed that it could build a coffer dam to store the water during the works they have not ruled out the possibility that the tailings water will be discharged into the Tambo River. Will the EPA permit discharges from the tailings dam if a coffer dam is not built? How will the company process the tailings water to ensure it satisfies ANZECC freshwater standards before discharge? Will the EPA permit discharges of tailings water exceeding the freshwater limits during periods of high river flow? GEG is concerned that discharges of diluted tailings water may be permitted even though this will increase the total load of pollutants to the river.
- The company has proposed that they may store up to 50% of the total volume of tailings mixed in a paste with cement underground in the Wilga mine as it is progressively mined. Backfilling the Wilga mine with the tailings paste poses a significant risk of contaminating the groundwater through rock fractures caused by mine blasting. The waste rock is highly acidic and the backfilled tailings paste has to remain covered with at least two metres of water permanently to prevent an acid reaction occurring. GEG is concerned about the significant risk of contamination of the downstream river system from groundwater inflows.
- The option to backfill the Wilga mine void with tailings paste may not eventuate, it may not be technically feasible or it may be too expensive, in which case 100% of tailings would be stored in the expanded tailings dam increasing the risk of dam spills (Appendix C3p38).
- Construction of the expanded tailings storage dam will destroy another 0.36 ha of the remaining 2ha of the original 21 ha endangered montane swamp complex of which 19ha was destroyed in the construction of the existing tailings dam. Even though this is a small remnant of the much larger original swamp it is still a significant area of the state and federally listed community and has been identified by botanists as a unique

variant. The expansion of the tailings dam will also potentially affect a larger remnant of the same montane swamp immediately downstream of the toe of the dam.

- The HDPE liner to be used to line the embankment wall only has a limited lifespan of possibly 30 years. Who will fund the intergenerational cost of the upgrade of the liner? Does the Stockman Project accept that this will fall to the taxpayer?
- Failure of the dam wall embankment due to breaching, embankment piping or earthquake would result in the discharge of millions of tonnes of sulphidic tailings and heavy metals into the Tambo River possibly all the way to Lake King in the RAMSAR listed Gippsland Lakes. This event would put the river ecosystem at risk of total collapse. It would pollute the water supply of farmers along its length including the Bruthen dairy industry and the town water supply of Swift's Creek, impact on the downstream amateur fishing industry and cause severe economic damage to the tourism industry of the Gippsland Lakes.
- The EES proposes that post-closure the tailings dam will be managed by maintaining two metres of water over the tailings in perpetuity. The catchment of Straight Creek above the tailings dam is significant when compared to the volume of the proposed TSF. The rainfall contribution in the local catchment could be several metres per year and the evaporation at this altitude is low for much of the year. Constant management will it be necessary to ensure there are no spills. If due to mismanagement the dam is at risk of overtopping or spilling how will the polluted water be removed? Will a reverse osmosis system be required to treat the water and how would the energy be supplied to run it? Due to the likely impact of climate change there will be both drier and more extreme weather events. DEPI modelling of expected impacts is on the conservative side of predicted trajectories. How can the Stockman Project guarantee that in the next decades there will not be extreme dry periods resulting in drying out of the tailings or lowering of groundwater level in the mine voids resulting in oxidation and an acid reaction contamination to soil and ground and surface water; or that there will not be extreme wet periods that result in a breach of the dam wall or spills; or flooding of the mines.
- Why has the Stockman Project EES not assessed and costed the post-closure option of completely de-watering the tailings dam via a reverse osmosis system, then trucking the remaining polluted water away from the catchment and capping the dam site?
- The expanded tailings dam will potentially store up to 7 million tonnes of toxic tailings, ten times the volume currently stored there. Increasing the height of the tailings dam in the headwaters of the Tambo River exponentially increases the risk. This creates a toxic legacy for generations. Maintaining two metres of water over the tailings dam may be possible during mine operations but it is next to impossible for any company or government authority to guarantee there will not be serious contamination of the ground or surface water or a catastrophic ecological disaster in the future.

Biodiversity Impacts

GEG considers that the Stockman Base Metal Project poses unacceptable risks to biodiversity.

- The National Heritage listed Alpine National Park borders the project site on the whole eastern boundary. Buchan Headwaters Wilderness Zone in the Alpine National Park borders the eastern border for 14kms. Marble Gully – Mt Tambo Nature Conservation Reserve extends along 0.5kms of the projects site downstream on the western boundary and closely borders the south-western boundary. A twenty kilometre section of the Tambo River flowing through the project site is a Streamside Reserve – Natural Features Zone identified by the LCC. The upper reaches of the Tambo River 25kms downstream of the project are a declared water supply catchment. The Stockman Project will impinge on the amenity of the adjacent National Park and Reserves in a number of ways, potential pollution, noise and dust. Infrastructure works and the associated clearing of vegetation will cause drying out and fragmentation of adjoining habitat.
- The tailings dam expansion will directly destroy an additional 0.36ha of rare montane swamp (listed under the national EPBC Act as Alpine Sphagnum bog and associated fens). Another area of montane swamp complex below the tailings dam will also be impacted (Appendix D1p85) however it is not clear from the report whether this area will also be offset.
- Even if all of the damaged or destroyed montane swamp complex were offset GEG considers that there is still a net loss of the endangered EVC and we strongly object to the use of offsets in this critical situation. In our opinion the continuing loss of native vegetation including rare and threatened ecological communities and species will not be halted until there is zero tolerance of their damage and destruction.
- The proposed offset site for the area of montane swamp complex directly destroyed by the tailings dam is an area of Sub-alpine Wet Heathland at Dinner Plain. Ethos NRM (Appendix D1p82) identify montane swamp complex as meeting the characteristics of Sub-alpine Wet Heathland (EVC210) which comes under the EPBC Act Alpine Spagnum Bog and Associated fens ecological community. However McMahon (1988)¹ identifies montane swamp complex as an ecological community occurring between 1100-1400m. Dinner Plain is located at an altitude of 1570m. Botanists (Taranto et al 2004)² have stated that montane swamp complex at the tailings dam site does not occur elsewhere. Is the Dinner Plain offset proposal strictly equivalent floristically with the variant sub-community of montane swamp complex present at the tailing dam site?
- Protection of the Alpine Sphagnum bog and associated fens require a large buffer zone to ensure the integrity of the ecological community is not negatively impacted. The proposed offset site at Dinner Plain has very limited buffer. It is part of larger recreational area owned by the Alpine Shire and used by walkers, horse riders, snow mobiles, mountain bikes. Will the land manager have the capacity to provide long-

¹McMahon A.R.G., (1988) *Aerial Survey of Montane Swamp Vegetation in the Benambra Project Region, North-east Victoria*, Report to Kinhill Engineers P/L

² Taranto, Maria; Judy Downe, Fiona Coates, Alison Coates, (2014) *Recovery of a montane swamp complex after bushfires in northeast Victoria 2003*, ARI Technical Report Series no 152.

term security of protection to the whole Alpine Sphagnum Bog of which the offset area is only a small part? GEG rejects the offset proposal and considers that stronger protection than the proposed s173 agreement is required and that the whole site should be zoned for conservation purposes.

- Other areas of the montane swamp complex (at the Stockman Project site), which are groundwater dependent systems, may also be affected by mining operations due to changes in groundwater levels, damage during infrastructure works, or pollution and weed infestation. There is no proposal for any additional area of off-sets for the montane swamp complex areas that may be impacted during operations or in the longer term due to accidental damage, altered ambient temperatures due to clearing of surrounding vegetation, or hydrological changes.
- During construction of mine infrastructure an additional 70 hectares of native vegetation will be cleared, including 600 old trees. There is no assessment of the number of hollows likely to be lost, nor the potential impacts on large forest owls or gliders and possums etc. Loss of hollow bearing trees is listed as a threatening process under the FFG Act.
- The cumulative effect of additional clearing will have negative impacts on biodiversity, particularly the removal of such a large number of hollow old trees. Even EVC's with conservation status of least concern are still important biodiversity refuges from the adjacent heavily logged state forest
- A number of Special Protection Zones (SPZ) and Special Management Zones (SMZ) established to protect certain Ecological Vegetation Classes (EVC), Old Growth and Victorian Rare or Threatened (VROT) flora will be impacted.
- Numerous threatened species occur or have been recorded within the project site or within 5kms; including Alpine spiny crayfish (in the Tambo River immediately upstream from the confluence of Straight Creek) previously unknown outside the Alpine National Park (according to the FFG Action Statement #136), Giant Burrowing frog (1.5km downstream of Wilga), Kiandra (or Blue tongue) greenhood, Mountain banksia, Alpine trigger plant, Poison rice flower, Spreading and Mossy Knawel, Hair sedge and Strawberry buttercup, Purple Eyebright and many others.
- Road works, clearing, pipeline and other infrastructure construction will impact on a number of threatened species that have been previously recorded in the area but not found in the recent field surveys. More surveys are required before the existence of a key threatened species can be excluded.

Water

GEG rejects the proposal because of the impact the Stockman Project will have on ground and surface waters.

- Processing of the ore will require 2,500ML of water per year with the company planning to source most of the water from mine dewatering and rainfall.
- An additional 230ML of water will be sourced from a groundwater bore under the Benambra Plain which is in the Mitta Mitta/Murray River catchment. Is this a sustainable level of take? Though the company suggests that the groundwater they

will access is below that currently accessed by local farmers risks to farm bore water levels over the longer term in a drying climate cannot be excluded.

- If the majority of processing water to be sourced from mine dewatering is not suitable enough for the method of tailings processing proposed, will the company then request access from Goulburn Murray Water for increased volumes from under the Benambra Plain?
- There is a risk of heavy metal contamination to groundwater during and following mine operations at Wilga and Currawong. Acid mine drainage (AMD) can potentially occur for decades and more post-closure.
- Mine dewatering will reduce groundwater flows to the Tambo River, groundwater dependent springs and bogs.

Transport

The concentrate will be transported by B-double trucks (ten return trips per day) down the Great Alpine Highway to Bairnsdale and then on to the Port of Geelong. In total, an additional approx. 40 heavy vehicles per day are expected to use the narrow road down the Tambo Valley during mine operations.

- After nine years of mine operations, this number of heavy vehicles using the sealed road from Benambra to Bairnsdale (approx 150kms) will cause severe degradation of the tarmac such that the road may require complete reconstruction. The total cost to replace the 150 plus kms of sealed road would be in the order of \$200-300 million. The Community Fund proposed in the MOU between the EG Shire Council and Stockman Project is likely to be insignificant compared to the funds required for road repair.

Historical Legacy: failure of mining regulatory authorities

GEG does not have confidence in the capacity of the regulatory authorities to ensure that the management of the Stockman Project during operations or for the next hundreds of years will occur without serious environmental impact. The Stockman Project mine site has a history of environmental damage caused by failure of the regulatory authorities and approval processes, which resulted in large rehabilitation costs to the taxpayer and ongoing contamination of the Tambo River.

- The 1988 EES produced for Macquarie Resources/Denehurst promised great economic benefits for the local and wider community from the Benambra mine project including millions of dollars per annum in royalties and other government charges to the State and Commonwealth Governments for a 20 year period of mine operations. However the Benambra mine (Wilga ore body) was operated by Denehurst Pty Ltd for only four years from 1992-96. Copper and zinc prices collapsed, the company went into receivership and walked away from the project forfeiting their environmental bond of \$150,000, leaving the DPI with \$6.9 million cleanup bill to rehabilitate the toxic tailings dam which was leaking heavy metals and sulphuric acid into the headwaters of the Tambo River

- The construction of the tailings dam destroyed 19 ha of a 21 ha rare montane swamp, the largest and most diverse example of the ecological community and almost half the area of its then known occurrence. This location was the cheapest option of possible tailings storage sites.
- At the time the montane swamp complex ecological community was being considered for listing under the new Victorian Flora and Fauna Guarantee (FFG) Act 1988 but had not been processed. It is now listed under the both the FFG Act and the national EPBC Act (under the Alpine Sphagnum Bogs and Associated fens ecological community).
- EPA has approved discharges of contaminated tailings water in 1999, 2000, 2001-2 & 2005 from the tailings dam into the Tambo River to avoid the risk of embankment overtopping.
- The design of the monitoring program was insufficient to identify whether the emergency discharges had caused any impact on aquatic ecology, according to GHD's Aquatic Ecology Impact Assessment report for the Stockman Project EES (Appendix D p41).
- Despite the expensive rehabilitation by DPI of the tailings dam in 2006 the environmental risks have still not been completely remedied: potentially acid forming (PAF) rock waste was inadvertently used in the reconstruction of the dam embankment; the Wilga mine void which was de-watered during the previous mine operations is gradually refilling with groundwater contaminated by high levels of salinity, cadmium, manganese, nickel, lead and zinc above ANZECC & ARMCANZ default trigger values for freshwater, as well as arsenic, and will inevitably spill into the Tambo River; water contaminated with cadmium, copper, zinc above freshwater protection limits as well as arsenic and other metals is constantly discharging into the headwaters of the Tambo River from the tailings dam; seepage is also occurring from the northern corner of the tailings dam embankment; and the 700,000 tonnes of tailings currently stored in the dam have to remain covered with 2 metres of water in perpetuity to prevent an acid reaction occurring.

Environmental Rehabilitation Bond

GEG is of the view that because of the nature of the Stockman Project development that an initial environmental rehabilitation bond should be established as part of the EES process. GEG considers that an environmental rehabilitation bond for this specific site should be in the order of 200-300 million dollars.

- The Victorian Department of State Development, Business and Innovation require mining companies to lodge an environmental rehabilitation bond. An environmental rehabilitation bond may not cover catastrophic environmental events during operations or post-closure; once the company's mining lease expires, the bond is returned to the company and responsibility for management returns to the State Government.
- The tailings dam post-closure should be completely de-watered to eliminate the risk of dam failure post-closure. This would require installation of a major power system to drive a reverse osmosis system to capture the heavy metals and other toxic

chemicals in the tailings to process the tailings water to ANZECC freshwater standard before release downstream, and any remaining toxic leachate transported away from the headwaters of the Tambo River and the site capped. The Stockman Project proposes leaving the mine voids filled with tailings paste and covered by 2 metres of water in perpetuity. How can this be considered a safe option for the next hundreds of years? The mine voids would have to be secured and plugged against leakage into groundwater and flooding through the mine portal. Does the Department of State Development, Business and Innovation require an environmental rehabilitation bond that would cover the real cost of rehabilitation of the Stockman Project or only one which covers the less toxic elements of the project such as removal of housing etc. and replacement of earth and revegetation?

- Who will pay for the long-term monitoring of the tailings facility and mine voids? The company states that it will establish a Trust Fund to cover monitoring in the long-term however there are no details in the EES about this fund. Long-term management of the tailings dam as proposed in the EES would require attendance at the site for hundreds of years. In which case a Trust Fund would need to be established upfront with sufficient investment funds to guarantee the interest covers long-term management costs post-closure of several million dollars per year.

Emergency Response Plan

- There is No Emergency Response Plan in the EES. A draft emergency management framework is identified but there are no details of actions required on the ground and the capacity of the company to respond in the event of disaster. The Stockman Project is located a long way from emergency services. If thousands of tonnes of lime are required to inhibit a severe acid reaction event - how will the company source supplies much less get it there?
- Why should approval to this project even be considered when there is no Emergency Response Plan?

Conclusion

Regulatory authorities such as Victorian Department of State Development Business and Innovation have stated that the regulatory process ensures that risks of an environmental disaster are minimised, however the experience of communities in the Tambo Valley and elsewhere has shown that that is not the case. The regulatory and approval processes are simply inadequate to protect the environment. Regional communities are left with a toxic intergenerational legacy after mining companies have abandoned the site.

If the Stockman Project Base Metals Project as detailed in the EES is approved an environmental disaster is inevitable. The expanded tailings dam will fail at some time in the future; the dam design does not include a bund wall or secondary dam to capture spills in event of catastrophic failure of the tailings dam embankment or overtopping; failure of the dam wall would decimate the Tambo River possibly all the way to Lake King with massive environmental, social and economic consequences; an adequate environmental bond to cover the emergency response and rehabilitation of the Tambo River following catastrophic dam failure would make the whole project impractical..

Therefore the Stockman Base Metals Project must not proceed. Gippsland Environment Group Inc urges Planning Panels Victoria to reject the proposal.

Yours sincerely

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