



Monday 5th March 2018

To: Manager
Earth Resources Tenements
Department of Economic Development, Jobs, Transport and Resources
GPO Box 2392 Melbourne Vic 3001.

RE: Application Number MIN006642 Locality: Gippsland East 19km south-east of Benambra in Victoria.

Gippsland Environment Group is a community group based in Bairnsdale, East Gippsland, with approximately 30 members. We submitted an objection to the Stockman Base Metals Project EES proposal in May 2014 and presented further information opposing the project at the EES Panel hearing at Lakes Entrance and in Melbourne in June 2014.

CopperChem has applied (MIN 006642) for an infrastructure mining licence to reopen and expand the existing Tailings Storage Facility (TSF). Works will involve removal of vegetation and earthworks, construction and operation of the [enlarged] TSF, management of water and runoff, waste rock management and site rehabilitation and closure.

Gippsland Environment Group strongly objects to MIN 6642 mining infrastructure licence being granted for the following reasons:

1. In 2006 it cost nearly \$7million of taxpayer funds to rehabilitate the abandoned Benambra mine tailings storage facility (TSF) and mine site, and the tailings dam area was exempted from any future mining licence. First and foremost this exemption should never have been subsequently revoked or amended. If the economic viability of this project depends on a highly risky expansion of the existing tailings dam that was rehabilitated at considerable taxpayer expense then it is obviously not sustainable and should not proceed.

The original Benambra copper and zinc mine was operated by Denehurst from 1992 until 1996 when the company abandoned the site, going into receivership in 1998 and forfeiting their rehabilitation bond of \$375,000. The company left behind a tailings dam containing 700,000 tonnes of toxic tailings leaking acid and heavy metals into Straight Creek a headwaters tributary of the Tambo River which flows into the Gippsland Lakes. The dam wall was at risk of overtopping (no spillway had been constructed) and mine tailings were exposed to the air at risk of causing acid mine drainage. In 2004 the area was exempted from any future mining licence. In 2006 DPI rehabilitated the tailings dam and mine site at a cost of almost \$7million to the taxpayer. Following rehabilitation the tailings dam was renamed Lake St Barbara and listed on the Register of Geographic Names on the basis that it would

not be used for any future mining operations¹. It is most regrettable that the Victorian Minister for Resources Tim Pallas amended the mining licence exemption in December 2017 to permit a mining infrastructure licence to be granted over the site. According to the Stockman Project EES the expansion of the existing tailings dam was the cheapest option for storage of mine waste. CopperChem's Stockman Project mining operation cannot be considered economically sustainable if it is not financially viable for the company to construct a new tailings storage facility well away from any water way and on private land where the taxpayer will not be liable for any future cleanup costs. The existing tailings dam was rehabilitated at great cost to the taxpayer in an attempt to stabilise the structure and control the contamination of the environment by the highly acidic heavy metal tailings. Re-opening and expanding the tailings dam jeopardises this rehabilitation work. If the short-term economic benefit of this project depends on expansion of an extremely risky tailings dam across a waterway that poses an environmental risk for generations to come then it clearly should not proceed. This mining infrastructure licence should not be granted.

2. The existing tailings dam poses unacceptable risks to the environment and downstream communities; the tailings dam requires further remediation not massive expansion.

We have serious concerns about the long-term viability of the existing tailings dam, its capacity to prevent toxic pollutants escaping to the environment, and the threat posed by climate change to the required maintenance of at least two metre water cover for the next thousand years. The existing tailings dam should not be expanded.

The original Benambra mine tailings dam was constructed right across Straight Creek upon a Montane Swamp that is fed by groundwater springs all the way down the valley. Due to the limited supply of local clay the dam embankment was constructed largely with rockfill with the upstream face of the dam wall being covered by 0.5 m low hydraulic conductivity clay (compared to the current minimum standard 1m) overlain by a geomembrane liner with a very limited lifespan (possibly 30 years). A concrete grout curtain was installed at the base of the dam which has a lifespan of between 2 years (in high AMD conditions) and 80 years.

In 2006 when DPI remediated the abandoned tailings dam, the dam wall was raised a further 1.6m and a spillway constructed. However the HDPE liner that was then connected to the original geomembrane was not extended past the level of the spillway at RL 1173m, the liner connection was inadequate, and PAF rock was used to sheet the crest surface. HDPE liners have a limited lifespan of only 100-200 years. At some time in the future the capacity of the protective liners will fail and subsequent generations will have to deal with the legacy. The tailings dam has continued to leak from beneath the toe of the dam at a rate of approx 1 litre/sec². The source of this seepage has not been identified.

The dam wall requires further intervention and remediation immediately to protect the downstream environment. Failure to address legacy issues of the existing tailings dam would be an abrogation of responsibility by the relevant State Government authorities.

3. The expanded tailings dam will be built upon the seriously inadequate foundations of the original Benambra mine tailings dam. The proposed expansion of the tailings dam will exacerbate the risks the existing tailings dam poses to the environment and downstream communities which depend on the Tambo River for their water supply and should not proceed.

¹ Project Director, Benambra Mine Rehabilitation Project to Registrar of Geographic Names 27.2.2007.

² *Stockman Project Gap Analysis – Post Closure Monitoring*, GHD report for DSDBI (February 2014).

According to the Stockman Project EES, the expansion of the tailings dam will involve a series of staged lifts to raise the dam wall from its current height of 20 metres above the valley floor to up to 45 metres, increasing the surface area from approx. 7 ha to 32ha to store up to another 7million tonnes of tailings. The proponent also plans to use HDPE liners on the upstream face of the wall to control seepage. HDPE liners are relatively inexpensive but they are only a short-term solution, they have a very finite design life. This is a totally unacceptable method of dealing with the long term risks to the environment posed by a massively expanded tailings dam.

It is inevitable that at some time in the future the original concrete grout curtain and successive HDPE liners will fail due to their limited engineering lifespan for seepage control but the Stockman Project dam design does not address this inevitability. It would be technically possible to cut a trench down through the dam wall and into the foundations and fill it with soil bentonite (clay) which is not affected by time or acidity but it is much more expensive to install relative to the use of HDPE liner. The Stockman Project design for seepage control has put short-term financial benefit ahead of long term environmental protection and community safety. According to the EES the only solution the proponent has proposed to deal with the predicted failure post-closure of the concrete grout curtain and HDPE liners is to install a solar powered pump. The company has not proposed a dam design and construction that is adequate to deal with the long-term consequences of storing a massively increased volume of toxic tailings that has to remain quarantined from the surrounding environment forever.

The staged lifts will exacerbate risks to the structural integrity of the wall creating points of weakness at each join. The doubling of embankment height will also double the hydrostatic pressure and potentially increase the seepage rate. The GHD Assessment report (February 2014: 5)³ prepared for DSDBI during the EES process, indicated that there was insufficient supporting information and modelling to justify the assumptions that the long-term seepage will remain at current rates. A potentially increased seepage rate will impact on the depth of water cover. At the same time the tailings dam water quality will also deteriorate due to inputs from the Wilga mine dewatering and recycled process water. However the wetland currently capturing the seepage will be removed when the dam wall embankment is enlarged.

The GHD Assessment report also noted (2014:7) that whilst the EES documentation provided information on the quantity and concentrations of constituents in the seepage *there is no impact assessment of the net flux discharged from the TSF and its impact upon the waterway nor an assessment of the environmental fate of these constituents*. However the expansion of the tailings dam will result in further discharges of tailings dam water to the environment. Prior to work beginning on the first staged lift of the dam wall, up to 3metres of polluted tailings dam water will have to be released. The current water level (28.2.2018 site visit) is to the mouth of the spillway at RL 1173m and according to the EES before work begins the water level will have to be reduced to RL 1170m. According to the EES the supernatant water is above ANZECC limits for cadmium, copper and zinc. There is no mention in CopperChem's licence application information regarding potential construction of a coffer dam to store this water. Will the EPA permit this water to be discharged into Straight Ck if it does not meet ANZECC limits?

The EPA authorised emergency discharges totalling 160ML to Straight Ck of contaminated water from the tailings dam in 1999, 2000, 2001-2002, & 2005 to prevent the tailings dam

³ GHD report: *Assessment of the Proposed Post Closure Design for the Stockman Tailings Storage Facility* prepared for DSDBI(February 2014)

overtopping (the dam had been built without a spillway) and potentially failing. Zinc levels in the tailings dam water discharges ranged from 0.63mg/l to 6.33mg/l (c.f. ANZECC freshwater limits .008 mg/l). According to the Benambra Mine Rehabilitation Project Control Board the discharges caused contamination of groundwater. The discharges would have also contaminated Straight Creek but no baseline studies of water quality in Straight Creek were conducted prior to the construction of the original dam.

Additional discharges (140 ML) were also made from the tailings dam in late 2005 to lower the water level by 1-2m prior to the rehabilitation works being undertaken by DPI to strengthen the dam wall and construct a spillway. Heavy metal levels in the discharges made during rehabilitation were permitted well above ANZECC limits e.g. ANZECC limit for zinc is .008mg/l but the objective during rehabilitation was set much higher at .16mg/l (EMP Nov 2005). The heavy metal levels in the tailings dam discharge water exceeded the rehabilitation objective limits a number of times, causing the shutdown of discharges during that period. It is completely unacceptable that further releases of supernatant water may now be permitted before CopperChem starts work on expansion of the tailings dam, as well as throughout the mine life as additional lifts are constructed.

According to the EES water quality objectives would not be established until after work commences. This is completely unacceptable. It is imperative for the health of the waterway ecosystem and downstream users that water quality objectives are established based on the water quality condition of Straight Ck ABOVE the tailings dam and the Tambo River above the junction of Straight Ck not on the now contaminated section of Straight Ck below the dam wall.

The expanded tailings dam will have a much greater surface area than the existing dam. At the recent site visit (28.2.2018) eroding soil from the bank was visibly discolouring the water along the dam's south-eastern bank as the wind drove waves against the shore. Strong winds across the surface area of the expanded dam will create much larger waves, potentially driving aerated water down into the tailings and causing an acid chain reaction. The surrounding gravel soils are also highly erodible. Runoff from the exposed areas above the dam has already created deep washaways. What will these gulches be like in another thousand years? Post-closure the expanded dam will have a greater surrounding area exposed to the risk of soil erosion. The soil runoff into the expanded dam will affect dam water cover levels, PH levels, and potentially create a route for dam wall failure.

The Stockman Project EES stated that the proponent intended to store 45% of the tailings in the mine voids and that detailed studies would be undertaken to determine the quantity of tailings that could be stored underground. However CopperChem has stated in the information accompanying its mining licence application that the company plan to store 100% of mine waste in the tailings dam. With 100% of the tailings stored in the expanded tailings dam the facility will contain ten times the current volume of tailings. In total the expanded storage facility will contain 7.83Mt of tailings that geochemical assessment has identified as being *highly reactive to the combination of oxygen and water, generating 916kgs H2SO4 per tonne of tailings with associated dissolved metals and other constituents. This represents a significant environmental risk*, (GHD Assessment report 2014, p 6).

In addition, plans to store all the tailings in the tailings dam will necessitate construction of staged lifts 3 and 4 involving installation of a saddle dam on the northern embankment which will raise the dam wall final height to RL 1200 m. According to the GHD Assessment report (2014 p4) seepage control measures for this saddle dam have not been detailed in the design drawings *and the as-presented design does present a seepage risk that will require counter measures to be developed for the 8 metre head that will be imposed upon the structures'*

foundations. This lift will further increase the risk of dam failure. It is totally unacceptable that the current dam design is so perfunctory.

In fact the GHD Gap Analysis (2014) indicates that there are at least 67 instances where information on the expanded tailings dam design or performance modelling is missing or inadequate. In addition the post-closure maintenance plan will not be developed until 2 years after works commence. This is a completely inadequate process. Any information identified by the Gap Analysis should have been addressed in the design process. To begin construction without addressing these gaps risks causing serious and irreversible environmental damage.

The expansion of the tailings dam will also result in the immediate destruction of 20ha of vegetation including 0.36 ha of Montane Swamp (Listed FFG in 1989, EPBC listed as Alpine Sphagnum Bog and Associated Fens EVC 2009), Montane Riparian Thicket EVC of high conservation value, 205 Large Old Trees and 320 Rare *Banksia canei*, and the possible destruction of rare Kiandra Greenhood, Montane Grass Trigger-plant and Alpine Spiny Crayfish. The original Benambra mine tailings dam was constructed on top of a 21ha Montane Swamp and destroyed 19ha of the site, this represented a loss of 47% of the total area of the community in Victoria. The Montane Swamp at the tailings dam site is a distinct sub-community. The offset for the 0.36ha of the remaining 2 ha Montane Swamp that will be destroyed is an area of Sub-Alpine Wet Heathland at Dinner Plain which does not have the exact same floristics.

The Montane Swamp offset site at Dinner Plain, which is owned by the Alpine Shire, only includes a small buffer of protection around the Alpine Sphagnum Bog within a much larger unfenced area adjacent to Dinner Plain village. Trust for Nature was originally engaged to source potential offset sites and recommended a total area of 85 ha to be protected under a Trust for Nature covenant to adequately protect the EPBC listed ecological community within it. However the proponent and the Alpine Shire came to their own arrangements and declined TFN's advice. The small offset buffer proposed in the EES is insufficient to protect the site in perpetuity. The proposed offset site is also used for various recreational activities including horse riding, ski mobiles and bike riding. It is currently zoned Special Uses Schedule 2, which may include accommodation and educational facilities. Much stronger legal protection than an s.173 agreement is required and the whole site should be zoned for conservation purposes only.

Groundwater flows to the Montane Swamp at the foot of the dam wall may have been intercepted by construction of the spillway in 2006, and should be investigated to identify whether additional dam works will further intercept groundwater flow to the swamp. Works for the expanded dam including access tracks, removal of surrounding vegetation causing drying out, and the diversion of 0.75 of Straight Ck will further jeopardise the survival of this rare EVC.

The information provided by CopperChem with its mining infrastructure licence application states that the company intends to construct a 300ML freshwater dam above the tailings dam but within the TSF footprint as part of the first stage of the Stockman project development. This freshwater dam was not included in the Stockman Project EES dam design. The 300 ML freshwater dam will result in the destruction of additional areas of Montane Swamp that would not otherwise be destroyed until stage 3-4 of the dam expansion. Such a significant change to the EES project design should require CopperChem to submit a supplementary EES.

The vegetation that will be destroyed within the expanded TSF footprint includes hundreds of Large Old Trees which are habitat for many species including the Greater Glider. In relation to offset obligations for the removal of vegetation that is potential habitat for threatened species, the Minister's Assessment (Recommendation 53, & Appendix B3/) recommended that *if significant impacts to matters of national environmental significance (MNES) are determined offset requirements will need to be determined in accordance with the relevant [Commonwealth] Department of the Environment (DoE) offset guidelines and calculator. Habitat quality of the proposed area of each species habitat to be impacted would need to be determined in order to calculate EPBC Act offsets.* During the EES process potential habitat for the Greater Gliders was identified within the footprint of the proposed expanded TSF and significant numbers were recorded nearby at Currawong Hill the proposed site of the processing plant. Since approval of the Stockman Project EES in 2014 the species status has changed. The Greater Glider was listed under the the EPBC Act in 2016 and the Victorian FFG Act in 2017. If the Stockman Project proposal proceeds, vegetation clearance at Currawong Hill and the expanded TSF site will destroy significant Greater Glider habitat, and in the case of Currawong Hill significant numbers of Greater Glider will also definitely be destroyed. The current offsets do not address the specific habitat requirements of the now EPBC listed Greater Glider and must be reviewed.

During the EES process Independence Group acquired the Spotted Bull property on McCallum Rd as part of the offsets for Large Old Trees. Independence Group has since sold that property. How have the LOT offsets been secured in perpetuity on that property and were they transferred at any financial cost to the current proponent?

4. Gippsland Environment Group considers that the role of the Independent Technical Reviewer/s at the various stages of mine design, work plan, operation, and post-closure design needs to be publicly clarified. The ITR must have the authority to stop the design at any stage necessary.

The role and extent of powers of the Independent Technical Reviewer(s) to oversight the dam design is not clearly detailed and there appears to be discrepancies between the EES Panel Inquiry recommendations and the Minister's Assessment. If the proponent persists with a design relying on HDPE liners which have a limited design life then clearly the design will not meet long-term seepage control requirement. An Independent Technical Reviewer(s) (ITR) should review all stages of the design before construction even begins. The ITR must have the capacity to stop the design if it is inadequate to meet performance criteria, such as long-term containment of tailings and supernatant water.

The EES Panel Inquiry report⁴ recommended the appointment of an Independent Technical Reviewer(s) before the Works Approval is issued; that an independent technical peer review and auditing process is established prior to commencement of construction to enable in principle demonstration of performance outcomes during the life of the mine; that an independent peer reviewed detailed monitoring program is designed and implemented before construction starts and should be included in the Work Plan. However, the ITR will not be an approved EPA auditor for the aspects of the design, construction and monitoring of the TSF. Then prior to completion of mining another ITR is to be appointed.

In contrast the Minister's Assessment refers to an ITR Panel that appears to persist throughout the life of the mine and post-closure but it seems to have only an advisory review

⁴ Stockman Base Metals Project EES Inquiry and Advisory Committee Report (2 September 2014) recommendations 1-5.

role without the capacity to stop the design process at any stage that the ITR deems the design inadequate.

The community will have no confidence in an ITR that has no authority to stop the design process and that only has an advisory role which can be disregarded by government authorities with a vested interest in delivering short-term financial and political outcomes.

5. The draft Work Plan and any variations are not public documents.

Copperchem has already made variations to the dam design to include a 300ML freshwater dam within the TSF footprint, and intends to store 100% of tailings in the TSF. This differs markedly from the plans publicly exhibited in Stockman Project EES. The EES identified that the project would require 2.5GL of freshwater and the water would be sourced from groundwater bore fields near Benambra. How can this project possibly go ahead in a manner at all like the publically exhibited plans when the company has so dramatically reduced its freshwater requirements? The construction of a freshwater dam within the tailings footprint raises major questions about how the company intends to source freshwater in later stages of the project when that area of the proposed freshwater dam will actually be required for the enlarged tailings dam at Stage 3 or 4. CopperChem also plans to store 100% of the mine tailings in the tailings dam which will dramatically increase the environment risks as discussed above. In light of the extreme environmental risks of this project the draft Work Plan and any variations must be public document and open for comment.

6. The Stockman Project Post Closure Deed has seriously underestimated the capital costs to manage and mitigate the environmental risks of the tailings dam for the next thousand years. The agreement signed between CopperChem and the State Government requires CopperChem to lodge a bank guarantee of only \$5.7 million (adjusted for CPI every five years). There is no way this bond will cover the cost of major mitigation works over the thousand year life of the tailings dam. The HDPE liners and concrete grout curtain have a limited life-span and will require significant remediation works to protect the downstream environment from contamination over the lifespan of the tailings dam. The post closure trust fund deed should reflect that requirement. A bank guarantee of \$5.7 mill is completely inadequate to deal with capital costs involved in remediating these control measures at such time as they inevitably fail.

7. The Stockman Project Post Closure Deed excludes residual risk⁵. How will residual risk be assessed and by whom? How will residual risk be identified post-closure separately from CopperChem's responsibility for constructing an expanded tailings dam on top of an already unviable one? The company will also be required to lodge a contribution of \$1million towards the cost of insuring the tailings storage facility for residual property and environmental risks post-closure⁶. Will the state government also make a contribution towards the tailings dam insurance, if so how much? This tailings dam has already cost the taxpayer almost \$5million to remediate. The taxpayer should not be required to contribute further to the cost of insuring this tailings dam when it is being expanded by CopperChem for private profit.

8. This mining infrastructure licence application must be rejected on financial grounds.

⁵ Stockman Project Post Closure Deed 29.1.2017 s6.1(d)(B)

⁶ Email: Erica Paddle ERR to Jeremy Schroeder, East Gippsland Advocacy Group, 5 Jan 2018.

The previous mining company Denehurst which operated the original Benambra mine from 1992 to 1996 paid no state mining royalties⁷ during the period of operations. The State Government contributed a total of \$13 million in project support and follow up mine site remediation. That mining operation has left an environmental disaster that threatens the ecosystem of the Tambo River and Gippsland Lakes and the communities that rely on the waterways for thousands of years. The original Benambra mine delivered a short term benefit of 50 jobs for 4 years which was far outweighed by the cleanup costs and intergenerational environmental risks. It is impossible to put a value on the ecosystems of the Tambo River and Gippsland Lakes. The threat of major environmental contamination occurring and the follow on social and economic costs of such a disaster must prohibit State Government support for the Stockman Project.

9. Gippsland Environment Group is concerned that the applicant may only be interested in pursuing a short-term mining project. The proponent has already shown it is determined to cut costs, e.g. it has avoided the cost of undertaking detailed design works required to store 45% of mine tailings in mine voids; it has avoided the cost of obtaining up to 2.5GL of bore water from groundwater near Benambra and the costs of piping it 16km to Stockman by proposing to construct a 300 ML freshwater storage dam within the TSF footprint which will destroy an additional area of rare Montane Swamp. The fact that the freshwater dam will be replaced by the tailings dam area at later stages of the Stockman Project would indicate that CopperChem does not intend to be around for that length of time.

What other project costs relative to the approved EES have also been cut? Will CopperChem construct the first stage of the dam expansion then walk away leaving another environmental mess for the taxpayer to remediate?

10. The rehabilitation bond will not be calculated until after the Work Plan is approved. The rehabilitation bond for the original Benambra mine was only \$375,000 and it cost the taxpayer almost \$7million to remediate the site. This project would be financially unviable if the rehabilitation bond was calculated at the real cost of remediating the expanded tailings dam to the extent it is no longer a threat to downstream ecosystems and the community for many generations. Any rehabilitation bond will be inadequate.

Gippsland Environment Group considers that the risks of this project are extreme and that it is in the best interests of the environment and the community that MIN006642 mining infrastructure licence is not granted.

Yours sincerely
Louise Crisp
Secretary
On behalf of Gippsland Environment Group Inc
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⁷ (Parliament of Victoria LA Question Number 30, 10/02/2015 Ellen Sandell Greens to the Hon Lily D'Ambrosio Minister for Energy and Resources, Answer Published Date 09/04/2015).