



Your reference :  
Our reference : SF18/70168; DOC18/687469  
Contact : Helen Smith, 02 6883 5374

Rose-Anne Hawkeswood  
Resource and Energy Assessments – Planning Services  
Department of Planning and Environment  
GPO Box 39  
SYDNEY NSW 2001

26 September 2018

Dear Ms Hawkeswood

**RE: Tritton Mine (DA 41/98 Mod 6) – Environmental Assessment Exhibition**

I refer to your email dated 7 September 2018 to the Environment Protection Authority (EPA) requesting comment on the publicly exhibited Environmental Assessment (EA) for the proposed modification to the Tritton Copper Mine known as Modification 6 (the proposal).

The EPA has considered the EA for the proposal in terms of the potential impact to air quality, noise emissions, surface water and waste management. The EPA's response is contained in Attachment A.

The EPA recommends that the Department of Planning and Environment (DPE) seek further information and clarification in respect to the matters raised in Attachment A prior to finalising its assessment of the potential impacts of the proposal.

The EPA notes that a request for Secretary's Environmental Assessment Requirements (SEARs) was not submitted to the EPA regarding the proposal despite the proponent submitting a request to DPE in February 2018 (refer to EA pp12). The EPA encourages DPE to involve the EPA early in the planning process as several of the issues raised and requests for further information contained in Attachment A could have been addressed through the EPA's SEARs for the proposal, thereby reducing delays in the planning process.

If you have any questions, or wish to discuss this matter further please contact Helen Smith at the EPA's Central West Dubbo office by telephoning 02 6883 5374 or by email at [central.west@epa.nsw.gov.au](mailto:central.west@epa.nsw.gov.au).

Yours sincerely

A handwritten signature in black ink, appearing to read 'Sheridan Ledger'.

**SHERIDAN LEDGER**  
**A/Head Central West**  
**Environment Protection Authority**

## **Attachment A**

### **Tritton Copper Mine – Modification 6 EPA comment**

The EPA understands that Mod 6 proposes the excavation of tailings from the tailings storage facility, temporary drying of the excavated tailings in a stockpile on the TSF before being transported off-site to the Murrawombie Mine paste fill plant facility. The EPA understands that the transport, stockpiling and re-use of tailings for the paste fill plant at the Murrawombie Mine is being assessed in a separate development application to Bogan Shire Council. The EPA notes that Mod 6 only focuses on the excavation and storing of the tailings.

The EPA supports and encourages the reuse of waste materials such as tailings.

#### **Air Quality**

##### *Background*

The EA identified potential sources of air quality impacts as including generation of dust from the excavation, stacking, drying and loading of tailings material. The EA also identified the proposal “would be unlikely to result in significant additional dust emissions from the mine site”.

The EPA notes that there are two depositional dust gauges to the north of the TSF. In section 4.1.3.5 of the EA, the prevailing winds throughout the year are from the south but also prevail from a variety of directions depending on the season.

##### *EPA comment*

The dust monitoring data provided in Table 12 (p39) presents only annual average insoluble solids monitoring results without providing the range of results (minimum and maximum) as well as does not specify the units of measure used. It is also concerning that the dust monitoring data provided in Table 12 does not align with the air quality data provided in the proponents latest Annual Environmental Management Report (AEMR for the year ending 31 December 2017 (refer to 2017 AEMR Table 13, p23).

The EPA notes that Figure 9 (location of dust monitoring) referred to in section 4.3.3 has not been included in the EA.

The EPA notes that there are two existing dust gauges located to the north of the TSF as per Table 12. Section 4.3.7 of the EA outlines that the current air monitoring program would continue. However, there is an absence of dust gauges on the southern and eastern perimeter of the TSF where the excavation works are proposed to occur. The EPA is concerned about the lack of dust gauges on the eastern perimeter of the TSF and how the proposal is going to adequately assess the ongoing air quality impacts of the proposal to excavate tailings material.

The EPA understands from Section 4.3.5 of the EA that a number of air quality mitigation measures are proposed to be implemented. However, there is a lack of detail clearly defining what are “windy conditions” to justify use of a water cart as well as what level of “high winds” would be considered to limit operations.

The EPA is concerned about the potential for truck movements on the surface of the TSF surface to generate dust. The EPA notes that a water cart is proposed to be used on the excavation area and stockpile area however the EA does not consider limiting the number and movements of trucks on the surface of the TSF as a dust mitigation measure.



The EPA understands that the tailings material is to be excavated then stockpiled in a designated area on the TSF for at least two days to reach a moisture content of less than 12% prior to transport off-site (as per section 4.3.5). The EPA notes that the stockpiles are to have slopes of no more than 1:3 (V:H) to improve stability however the dimensions of the stockpile as well as the potential for wind erosion and dust generation from the stockpiles is not assessed and no mitigation measures are proposed to reduce the impact of wind erosion. However, the EPA notes that in the Executive Summary of the EA on page vii there is mention of shaping drying stockpiles to limit wind erosion.

The EPA considers that the EA does not adequately assess the potential for elevated level of dust emissions or outline adequate ongoing monitoring of air quality or outline adequate dust mitigation measures.

#### *Further Information Requested*

The EPA recommends DPE request the following from the proponent:

- Clarification of the monthly data for the deposition of dust for the 2014-2017 period outlined in Table 12;
- Justification of the adequacy of the proposed dust monitoring system to adequately assess dust impacts of the proposal and to allow for real management of dust. For example, consideration should be given to whether dust gauges to the east of the TSF are required as identified in Figure in the EA and the installation of HVAS or TEOMs;
- Definitions of high winds or windy conditions which will be used to warrant limiting operations or using a water cart including the development of a Trigger Action Response Plan (TARP) for the proposal;
- Clarification regarding the shaping and dimensions of stockpiles and how this will minimise wind erosion; and
- Commitment to the installation of a meteorological station at the premises should one not be already installed.

## **Water**

### *Background*

The EA identified the potential for surface water and groundwater contamination from the “damage to the TSF perimeter embankments or lining from excavation of tailings material”. Mitigation controls include maintaining a maximum depth of excavation to protect the TSF liner as well as maintaining minimum distances between TSF embankment and the excavation area.

### *EPA comment*

The EA in section 4.2.2.1 refers to surface water management structures on the mine site including clean water diversion banks, sediment retention basins and containment dams. However, the EA does not include drawings or figures outlining how these surface water management structures relate to the proposal to excavate tailings from the TSF.

The EPA notes an inconsistency in the EA for operational controls of surface water as in section 4.2.4 the excavation area is to be located minimum of 35m from inner edge of the current Stage 5 embankment and 20m from inner edge of the final Stage 7 embankment whilst in the environmental risk assessment in Table 9 in section 3.2 states that a 50m offset from the final embankment wall of dam design will be maintained.

The EPA notes that in section 4.2.4 that the current tailings level is between 5.9m to 10.9m from the TSF floor and that the tailings material are only to be excavated to a maximum depth of 1.5m. The EPA

understands that the potential for damage to the TSF liner and for groundwater contamination is negligible due to buffer of at least 4.4m between the TSF floor and the potential excavated tailings.

Table 9 in section 3.2 identifies that an embankment wall failure is the proposal's greatest residual risk with a medium rating. The EPA is concerned that the operational controls and mitigation measures for surface water in section 4.2.4 and Appendix 1 whilst identifying the risk for water ponding against TSF embankment through minimum distances to the excavation areas does not address truck movements including the excavator trucks, dump trucks and haul trucks from TSF embankment onto the TSF surface as a potential source of impacts. The EPA is concerned about the impact of truck movements on the TSF embankment stability and potential for erosion and tailings leakage across the TSF embankment. The EPA is also concerned about the lack of operational controls for truck access points from the TSF embankment to the stockpile area and excavation areas which have not been addressed or justified.

#### *Further Information Requested*

The EPA recommends DPE request the following from the proponent:

- Drawings of surface water structures in relation to the TSF;
- Clarification of the distance from the TSF embankment wall to excavation area contained in Table 9; and
- Clarification and justification of truck access points from the TSF embankment onto TSF surface to access the stockpile area and excavation areas and their potential impacts and proposed mitigation measures.

### **Waste (tailings)**

#### *Background*

At present the Tritton Copper Mine discharges its tailings as a slurry material onto the surface of its TSF for waste disposal. The proposal requires excavating and handling dried tailings from the TSF surface.

#### *EPA comment*

The EPA supports and encourages the reuse of waste materials such as tailings in a sustainable and appropriately managed manner.

The EPA notes from EA section 2.4 (p19) that the tonnage of tailings material to be extracted from the TSF as approximately 265,000 tonnes per year whilst EA Appendix 1 (p59) states an average of around 200,000 to 400,000 tonnes per year. It is also unclear how the amount of tailing material to be excavated per year was calculated as well as the current composition of the tailing material.

In Figure 4 of the EA (p17) there is an indication of the area to be utilised as part of the drying stockpiling area on the TSF. However, it is unclear through the EA what the size of the stockpile area is as well as how tailings are going to be managed to prevent tailings slurry material entering the drying stockpile area.

#### *Further Information Requested*

The EPA recommends DPE request the following from the proponent:

- Tonnage of tailings material currently being generated per year at the Tritton Copper Mine;
- Tonnage of tailings material to be excavated and exported per year from the tailings storage facility;
- Justification of the calculation of the tonnage of tailings material per year to be excavated;



- Composition of the existing tailings material to be excavated; and
- Area to be utilised as drying stockpile area as well as further details on the dimensions of the tailings being stockpiled.

## **Noise**

### *Background*

The EA identified that the closest residence to the mine site are located over 4km away to the north as outlined in section 4.1.4.1 and that in Table 13 the existing noise mitigation measures are considered sufficient.

### *EPA comment*

The EPA notes that the distance between the nearest sensitive receptor to the proposed excavation activities in the TSF area are sufficient to minimise impact in combination with existing noise mitigation measures. The EPA can support the modification with no changes to the existing noise limits.

1. The first part of the paper is devoted to a general discussion of the problem of the existence of solutions of the system of equations (1) for arbitrary values of the parameters  $\alpha$  and  $\beta$ .

2. The second part of the paper is devoted to a detailed analysis of the case when the parameters  $\alpha$  and  $\beta$  are equal to zero.

3. The third part of the paper is devoted to a detailed analysis of the case when the parameters  $\alpha$  and  $\beta$  are equal to one.

4. The fourth part of the paper is devoted to a detailed analysis of the case when the parameters  $\alpha$  and  $\beta$  are equal to two.

5. The fifth part of the paper is devoted to a detailed analysis of the case when the parameters  $\alpha$  and  $\beta$  are equal to three.

6. The sixth part of the paper is devoted to a detailed analysis of the case when the parameters  $\alpha$  and  $\beta$  are equal to four.