

Bathurst Coal Ltd hearing - Presentation Notes of Ian Jenkins

The Evidence of Paul Weber addresses many of the comments raised in my review letter (attachment 3 of the Section 42 report) as follows.

I also provide comment to specific areas where you have asked for comment.

Section 3.1 Mine Closure Management Plan

The revised TARP version 2.1 addresses these concerns in Section 3.1 of my report with the introduction of a yellow trigger level, triggered at concentrations below the consent limits to enable investigations to be completed. The revised TARP (v2.1) is also more concise defining what constitutes a trigger level exceedance.

Section 3.3 Appendix D Memorandum 1

The Mussel Shell Reactors are considered to offer an acceptable level of reliability, the applicant acknowledges the limitations and includes measures in the TARP's v2.1 around mass load to manage these. Monitoring and mitigation provides confidence that this performance is adequately managed on an ongoing basis.

Sections 3.4 to 3.6 Appendix D Memorandum 2, 3 and 4

- *Paul Weber notes treatment of the surface waters of the N02 pit pond is not expected based on the analogue model but options are available if this becomes acidic as set out in the TARP.*
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The approach of developing a water balance model as referred to in Paragraph 116 is good practice. The compliance limit in conditions sets the performance standard and adaptive management is the tool box to achieve this.

The comment in paragraph 156 that the technologies are “readily applied” is fair, but not “common” given this is referring to active treatment in a post closure phase. Dosing is the basis of two of the four options proposed for pH which presumes active involvement on site, for as long as is required. This is considered reasonable as TARP trigger due to low pH are relatively low risk for this site based on the modelling. In reality this dosing would assist with Mn and Zn compliance also .

The combined discharge point response for B is more challenging and alternatives of dilution, irrigation, wetlands and adsorption technologies. Dilution is a widely used approach to achieving compliance, but requires a robust water balance model, and is susceptible to a small increase in flow from the AMD source. A concept design for an alternative that can be implemented in a timely manner in response to trigger level exceedances in the post closure phase should be defined during the active phase of closure and required by the management plans.

- *Paul Weber also describes how PAF in the N02 footwall will be managed.*
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Paragraph 100 of Paul Weber’s evidence indicates 0.5m of topsoil will be used to cover PAF areas combined with monitoring to assess effectiveness in the No.2 Pit Pond. Covering the PAF areas will certainly mitigate the effects of the PAF areas, as to the robustness of 0.5m of topsoil cover, verification with monitoring in the pond will definitely be necessary. Control of erosion of topsoil will be key to ensuring a reliable long term outcome with this approach. In my experience a 1m is significantly more effective than a 0.5m cover.

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- **TARPS**
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Active closure TARPS are useful in that they will drive a post closure condition that is, as far as possible, based on passive treatment with minimal reliance on active treatment.

Trigger levels for N02 Pit pond (Active Closure Phase) , paragraphs 152 to 161:-

1. pH trigger is considered reasonable
2. Regarding EC, the increasing trend approach is considered reasonable but a threshold level should be defined as well as an increasing trend, as at low levels of EC “increasing EC” would happen seasonally i.e reword medium to “EC above XX mS/m and increasing”. It is also noted dosing will influence EC so sampling needs to consider this, the statement in paragraph 162(a) is therefore not necessarily the case.
3. Boron concentration triggers are considered reasonable. The ability to establish a correlation between EC and boron should not be assumed possible, so conditions should reflect that this is demonstrated to the satisfaction of council, or boron monitoring continued.

The combined discharge point TARPS for adopt >80% of the consent limit for the “yellow level” for B, Mn, Ni and Zn. While the specific action tied to the yellow level is to investigate MSR performance and at the Orange level (>90% of consent limit) increase the dilution and investigate the receiving environment effects and options for mitigation. Given these actions have a lead time to implement I’d suggest that a level set at 70% of the consent limit for yellow level and 85% of the consent limit for orange would more adequately allow actions to be implemented to ensure compliance.

The active closure phase trigger levels define a water quality that will be achieved and should definitely carry through to post closure phase, but subject to review by council. The intent being these trigger levels will be the minimum standard achieved post closure.

The technologies proposed are all feasible and readily implemented, with the fall back being more active treatment (dosing) which is undesirable as a long term post closure option.

Paragraph 168 of Paul Weber statement refers to oxidation cascades which are effective and at reducing Fe and to a lesser degree Mn.

Ian Jenkins