

6 March 2020

Paul Freeman
Email: paul.freeman@planning.nsw.gov.au

Dear Mr Freeman

Re: Dendrobium Mine Extension Project (SSD 8194) – Response to Submissions

I refer to your email dated 19 February 2020 inviting WaterNSW to provide comments on the Response to Submissions (RTS) document for the Dendrobium Mine Extension Project (the project). WaterNSW appreciates this opportunity and has undertaken a detailed review of the RTS.

Overview

WaterNSW remains strongly opposed to this project in its current form as none of its key concerns have been adequately addressed through the RTS.

Further, the RTS has not adequately considered or addressed the findings and recommendations from the Final Report of the Independent Expert Panel for Mining in the Catchment (IEPMC).

In responding to the issues raised by WaterNSW, the IEPMC and other agencies, the RTS places too much reliance on 'post-approval' management, rather than providing relevant information that would allow key issues to be properly assessed prior to a determination.

In summary, WaterNSW's key residual concerns are:

1. Project design: there has been insufficient consideration of a mine design that would prevent (or minimise) 'free drainage' from reaching the surface.
2. Surface water losses:
 - Depressurisation: the project would cause an unprecedented level of groundwater depressurisation, and the predicted surface water losses may be underestimated.
 - Stream fracturing: impacts on Avon and Cordeaux Rivers could adversely affect WaterNSW's ability to supply high quality water to its customers.
3. Water quality: WaterNSW remains unconvinced that the project can meet a Neutral or Beneficial Effect (NorBE) test for water quality both during mining and post-mining.
4. WaterNSW infrastructure: the RTS has not adequately addressed concerns raised by WaterNSW regarding existing (i.e. dam walls) and proposed infrastructure.

1. Project Design

One of the IEPMC's key findings is *"that it would be wise to adopt a precautionary approach and base mine design on preventing the height of free drainage in the Special Areas from extending to the surface or interacting with surface fracture networks"*.

This supports WaterNSW's previous requests that South32 provide information about alternative mine designs that would avoid or reduce environmental impacts.

WaterNSW notes that the RTS makes an unsubstantiated statement that adverse environmental impacts are still anticipated for reduced longwall widths down to approximately 150 metres. No reports or data are provided to support this claim.

South32 should be required to provide detailed information on the environmental risk profile from increasing incremental widths of longwalls (e.g. 100 metres, 150 metres, 200 metres and 250 metres). This information is critical to understand the implications of reduced longwall widths on depressurisation and predicted surface water losses from Sydney's drinking water catchment.

In addition, it appears that with minor adjustments to the mine layout, it is possible to avoid mining directly under second and third order watercourses, for example:

- shifting the western end of LW509 by approximately 150 m to the east,
- shifting the western end of LW516 by approximately 100 m to the east, and
- shifting the northern end of LW510 by approximately 400 m to the south.

2. Surface water losses

Depressurisation

The IEPMC estimates that surface water losses from existing mines in the Special Areas of the catchment is approximately 8 megalitres (ML)/day, including up to 5 ML/day from existing operations at the Dendrobium Mine.

The IEPMC's findings confirm that the existing surface water losses in the catchment are far greater than predicted when the mining was proposed and approved. In fact, the water licensing regime does not provide any mechanism for the mining companies to acquire entitlements for these surface water losses. In that context, WaterNSW considers that any additional surface water losses must be avoided or minimised.

However, based on the mining company's predictions, the additional surface water losses from this project would be up to 5.2 ML/day i.e. even more than the existing losses from the mine. Further, WaterNSW is concerned that these predictions may be underestimating the full extent of surface water losses from the catchment.

Importantly, the IEPMC estimates that the surface water component of mine inflows could be in the order of 40-50%. However, the groundwater model for this project assumes that surface water accounts for an average of only 15 to 25% of mine inflows.

Stream fracturing

WaterNSW remains concerned about the sheer number of streams that are predicted to experience fracturing and potential water losses, including nine major watercourses (3rd order or above) and approximately 100 smaller tributaries.

WaterNSW is particularly concerned about the potential impacts of fracturing in the Avon and Cordeaux Rivers as these rivers are downstream of the reservoirs and feed into Pheasants Nest Weir, which is a major component of the water supply system. Potential loss of water to these rivers from fracturing could affect WaterNSW's ability to supply its customers.

3. Water quality

The information provided in the RTS has not adequately demonstrated that the project will achieve a NorBE on water quality.

During mining, WaterNSW remains concerned about the potential water quality impacts from the extensive stream fracturing that is predicted. In particular, any fracturing of streams that occurs downstream of the reservoirs (e.g. in Avon and Cordeaux Rivers) would increase the risk of water quality issues in the water supply, as there would be less dilution in the Pheasants Nest Weir pool than the reservoirs.

Post-mining, WaterNSW is also concerned that the project may not have a NorBE on water quality as groundwater pressure recovers. The IEPMC's Final Report specifically identified this emerging risk of deterioration in the quality of water flowing into the catchment in the long-term (i.e. following mine closure), which has the potential to affect water availability and/or costs of water treatment.

The IEPMC noted that this matter needs increased attention in mining proposals, especially in the Special Areas where the cumulative impacts could have serious negative consequences for reservoir water quality. The RTS does not comprehensively address this issue.

4. Infrastructure Impacts

WaterNSW reiterates its position that the project could potentially affect its ability to construct and operate proposed infrastructure projects, such as the Lower Cordeaux Dam and Avon Deep Water Access projects. Such projects must not be compromised by mining activities and WaterNSW requests that South32 continue to consult with it on such matters.

WaterNSW also reiterates its position that the setbacks from the two dam walls should be increased to at least 1,500 metres due to potential far-field differential movements. Should any impacts occur to these dams, there is the potential that the risks and consequences could be extreme. This is an area that warrants further careful consideration.

Recommendations

WaterNSW reiterates the recommendations from its previous submission that the Department:

- Requests the mining company provide detailed information about alternative mine designs that have been considered that would avoid or reduce environmental impacts.
- Refers the project to the IEPMC or a similar technical panel of experts (including a mine subsidence expert, groundwater expert, surface water expert and dams engineer) for advice on the mine design and potential impacts.

In relation to surface water licensing, WaterNSW recommends that there should be no allowance for "additional" surface water losses unless:

- every effort is made to avoid or substantially reduce surface water losses
- a 'precautionary approach' is applied to mine design and surface water losses (as recommended by the IEPMC)
- independent expert advice (both scientific and economic) supports the case, and
- any residual surface water losses are fully offset, so there is a net environmental benefit.

WaterNSW requests that it continues to be included as stakeholder in the assessment of this project. If you would like to discuss any of the matters above, please contact me on 9865 2515.

Yours sincerely

A handwritten signature in black ink that reads "Clay Preshaw". The signature is written in a cursive, flowing style.

Clay Preshaw
Manager Catchment Protection