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Cc: [John Hanrahan](#); [Tim Kindred](#)
Subject: Clean TeQ Sunrise Project Modification 4 - DP&E Queries
Date: Friday, 31 August 2018 8:52:29 PM
Attachments: [image001.png](#)

Clay,

Please see below for additional information in relation to the Sunrise Project Modification 4 Environmental Assessment for the Department's consideration.

Tailings Storage Facility and Water Storage Dam

The tailings storage facility is required by Development Consent DA 374-11-00 to be designed to conform with the Dams Safety Committee's (DSC) *DSC3A Consequence Categories for Dams* (DSC, 2015) and *DSC3F Tailings Dams* (DSC, 2012).

The tailings storage facility conceptual design included in the Modification 4 Environmental Assessment has therefore been developed in consideration of these DSC requirements. In particular, the conceptual design has considered the requirements of the Australian National Committee of Large Dams' (ANCOLD) *Guidelines on Dam Safety Management – August 2003* and *Guidelines on Tailings Dams – May 2012*.

A consequence category assessment has been conducted for the tailings storage facility in accordance with the *DSC3A Consequence Categories for Dams* (DSC, 2015) and it was determined to be a 'High C' consequence category. The tailings storage facility has been designed to:

- allow capacity for a 1 in 100 year 72 hour rain event; and
- include a spillway that can manage the overflow generated by a 1 in 100,000 year rain event.

The Project tailings storage facility is expected to be a "prescribed dam" under the *Dams Safety Act 1978* and will therefore be subject to the oversight of the DSC. For new dams, like the Project tailings storage facility, the DSC's initial objective is to ensure that they are designed and constructed according to appropriate engineering standards and safety criteria. Accordingly, Clean TeQ will be required to provide the following detailed information during the design, construction and commissioning stage, to the DSC:

- Feasibility Investigation Report;
- Concept Design Report (details on such aspects as the location and type of dam, dam materials, design parameters, major dimensions and consequence category assessment);
- Detailed Design Report (including design details and a dam break study); and
- Construction Report (work-as executed drawings are required to be provided to the DSC with final details, including design variation reports, of dam construction for inclusion in the DSC's database).

After construction and commissioning, the DSC will require ongoing monitoring and management of the tailings storage facility.

It is noted that the water storage dam is also expected to be a "prescribed dam" under the *Dams*

Safety Act 1978 and will therefore be subject to DSC oversight similar to that outlined above.

Noise Criteria

The noise criteria in the current Development Consent DA 374-11-00 (Table 2) are based on noise level predictions from the Syerston Nickel Cobalt Project Noise and Vibration Assessment prepared by Richard Heggie Associates Pty Ltd in 2000 for the EIS. The Noise and Vibration Assessment was conducted in accordance with the relevant NSW Government guidelines and using modelling practices that were standard at the time of assessment.

The Modification 4 Noise and Vibration Assessment prepared by Renzo Tonin & Associates was prepared in accordance with the NSW *Industrial Noise Policy* (and associated Application Notes) and the *Voluntary Land Acquisition and Mitigation Policy* using contemporary modelling practices. The predicted noise levels from this assessment form the basis for the noise criteria in the draft modified Development Consent.

While the mine site general arrangement is not materially different to that assessed in the EIS, the predicted noise levels are different due to changes to model inputs and modelling approach adopted by Renzo Tonin & Associates including:

- Differences in the number and locations of sources modelled, including, but not limited to:
 - The modified tailings storage facility layout and elevation would change the distance between tailings storage facility construction fleet noise sources and sensitive receivers and the intervening topography compared to the EIS.
 - The modified processing plant location would change the distance between the processing plant noise sources and sensitive receivers and the intervening topography compared to the EIS.
 - The modified final operational scenario (Year 21) included four excavators and four dozers compared to the three excavators and three dozers in the EIS.
 - The modified operational scenarios also include drill rigs which were not modelled in the EIS.
- Differences in the sound power level (SWL) adopted:
 - The modified processing plant was modelled with a total SWL of approximately 124 dBA (with a source height of 6 m) compared to a SWL of 121 dBA (with a source height of 3 m) in the EIS. The processing plant SWL adopted for Modification 4 was based on contemporary SWL measurements from the operating Cowal Gold Mine processing plant (Renzo Tonin & Associates, 2016).
 - SWLs were previously converted from a maximum instantaneous level to a 15 minute average level using a single conversion factor, whereas contemporary SWLs are determined on a 15 minute average basis. Some SWLs modelled for Modification 4 are therefore higher than those modelled in 2000, with no change to the proposed equipment.
- The EIS modelling assessed night-time noise levels with a moderate temperature inversion and drainage flow from the south-east. Renzo Tonin & Associates reviewed the topography of the area and, given the majority of the mine site would not be significantly elevated in relation to sensitive receivers, a drainage flow was not modelled for Modification 4. The exclusion of the drainage flow would result in changes (increases and decreases) to predicted noise levels at sensitive receivers depending on

their location relative to the mine site and south-easterly wind (e.g. predicted noise levels to the south-east would be higher without the south-easterly wind and predicted noise levels to the north-west would be lower without the south-easterly wind).

As described in the Modification 4 Noise and Vibration Assessment, Clean TeQ has committed to additional mitigation measures based on a detailed assessment of reasonable and feasible mitigation measures in accordance with the *Voluntary Land Acquisition and Mitigation Policy*. The adopted mitigation measures would avoid exceedances of the Project Specific Noise Levels at Kelvin Grove and Milverton, and would materially reduce the noise levels experienced at Currajong Park, Glenburn, Brooklyn, Rosehill and Wanda Bye.

Clean TeQ considered the costs of adopting additional mitigation measures to avoid the modelled negligible exceedances at Glenburn, Brooklyn, Rosehill and Wanda Bye. To achieve this outcome changes to the entire haul fleet (i.e. either retrofitting the proposed haul trucks to achieve a reduction in SWL of approximately 2 dBA, or procuring extra quiet haul trucks) as well as significant treatment to the processing plant to reduce the SWL by approximately 3 dBA (e.g. through additional enclosure and/or use of acoustic linings). The estimated capital cost associated with attenuating the haul trucks would be approximately \$5M plus there would be ongoing increased operational costs associated with the maintenance requirements of the attenuated haul trucks. For the processing plant attenuation, the rough estimated capital cost associated with attenuating key components of the processing plant (e.g. mill) is approximately \$7M. It is important to note that Clean TeQ is yet to finalise the engineering and design components for the processing plant, and the inclusion of noise minimisation measures would be an integral component of this process.

The total capital (\$12M) and operating costs associated with adopting these additional mitigation measures is not considered reasonable given the very marginal gain in environmental outcome at a small number of sensitive receivers (i.e. the difference between 35 dBA and 36 or 37 dBA would not be discernible to the average listener).

The proposed noise criteria in the draft updated Development Consent 374-11-00 have been determined in accordance with the NSW *Industrial Noise Policy* and the *Voluntary Land Acquisition and Mitigation Policy*.

Kind regards,
Bron

Bronwyn Flynn
Environmental Superintendent
Clean TeQ Sunrise

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