



DOC18/222628-21

The Senior Environmental Assessment Officer  
Resource and Energy Assessments  
Department of Planning and Environment  
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By email: [Mandana.Mazaheri@planning.nsw.gov.au](mailto:Mandana.Mazaheri@planning.nsw.gov.au)

Dear Ms Mazaheri

**Re Proposed modification to the Cowal gold mine – DA 14/98 MOD 14**

I refer to the electronic mail of 12 April 2018 to the Environment Protection Authority (EPA) requesting our comments about the application received by the Department of Planning and Environment (DPE) proposing a modification to the Cowal gold mine (DA 14/98 MOD 14) at Lake Cowal.

We have reviewed the Environmental Assessment (EA) and supporting documents provided with the application and determined that we have no objections to the proposal, subject to the DPE incorporating the recommended conditions provided in Attachment 'A' into the development consent.

Attachment 'B' contains our assessment of the EA including justification for our recommended conditions of consent.

Please note that inclusion of our recommended conditions in any development consent granted by the DPE is important for our ongoing support of the proposal. It is expected that the EPA will be given an opportunity to review and comment on the DPE's draft conditions of consent for this proposal.

Where a modified development consent for the gold mine is granted by DPE a further application for a variation to Environment Protection Licence No 11912 will be required to be submitted to the EPA prior to any construction work or activities associated with the modification.

If you have any further enquiries about this matter please contact Jason Price by telephoning 02 6969 0700 or by electronic mail at [riverina.farwest@epa.nsw.gov.au](mailto:riverina.farwest@epa.nsw.gov.au).

Yours sincerely

A handwritten signature in blue ink, appearing to read 'Darren Wallett', followed by the date '4/5/18'.

**DARREN WALLETT**  
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**Environment Protection Authority**

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## ATTACHMENT 'A'

We recommend that the following conditions are included in any modified development consent for DA 14/98 (changes to existing conditions highlighted in bold).

### Schedule 2

#### 1. General

##### 1.2 Limits on Consent

(c) The Applicant shall comply with the following maximum heights:

- (i) Northern Rock Emplacement – 308 m AHD;
- (ii) Southern Rock Emplacement – 283 m AHD;
- (iii) Southern Tailings Storage Facility – **248 m AHD**;
- (iv) Northern Tailings Storage Facility – **240 m AHD**;
- (v) Perimeter Rock Emplacement – 233 m AHD; and
- (vi) Mineralised stockpile adjacent to the Northern Rock Emplacement – **320 m AHD**
- (vii) **Integrated Waste Landform – 245 m AHD**

#### 6. Air, Blast, Noise and Visual Impact Management

##### 6.4 Noise Management

(a) Acquisition upon request

Upon receiving a written request for property acquisition from the owner of any land listed in Table 7, the Applicant shall acquire the land in accordance with procedures in condition 8.3.

Table 7: Land subject to acquisition upon request

Westella
Westlea

*Note: To interpret the locations referenced in Table 7, see the map in Appendix 6.*

(b) Additional Noise Mitigation

Upon receiving a written request from the owner of the residences listed in Tables 7 and 7A, the Applicant shall implement additional noise mitigation measures (such as double-glazing, insulation, and/or air conditioning) at the residence in consultation with the landowner. These measures must be reasonable and feasible, and directed towards reducing the noise impacts of the development on the residence.

If within 3 months of receiving this request from the owner, the Applicant and the owner cannot agree on the measures to be implemented, or there is a dispute about the implementation of these measures, then either party may refer the matter to the Secretary for resolution.



Table 7A: Land subject to mitigation upon request

Lakeview III
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*Note: To interpret the locations referenced in Table 8, see the map in Appendix 6.*

(c) **Impact Assessment Criteria**

The Applicant shall ensure that the noise generated by the development does not exceed the noise impact assessment criteria in Table 8 at any residence on privately owned land.

Table 8: Noise Impact Assessment Criteria dB(A)  $L_{Aeq}$  (15 min)

Land	Day/Evening/Night
Lakeview III	38
All other privately-owned land	35

Noise generated by the development is to be measured in accordance with the relevant requirements of the *NSW Noise Policy for Industry* (as may be updated from time to time). Appendix 5 sets out the meteorological conditions under which this criteria apply, and the requirements for evaluating compliance with these criteria.

However, these criteria do not apply if the Applicant has an agreement with the owner/s of the relevant residence or land to generate higher noise levels, and the Applicant has advised the Department of the terms of this agreement.

(d) **Operating Conditions**

The Applicant shall:

- (i) implement best management practice, including all reasonable and feasible mitigation measures, to minimise the operational, low frequency, and road noise of the development, including mitigation measures to:
- (ii) minimise the noise impacts of the development during meteorological conditions when the noise limits in this consent do not apply (see Appendix 5); and
- (iii) carry out regular attended monitoring to determine whether the development is complying with the relevant conditions of this consent,

to the satisfaction of the Secretary.

(e) **Noise Management Plan**

The Applicant shall prepare and implement a Noise Management Plan for the development to the satisfaction of the Secretary. This plan must:

- (i) be prepared in consultation with the EPA, and submitted to the Secretary for approval prior to carrying out any development under this consent, unless the Secretary agrees otherwise;
- (ii) describe the measures that would be implemented to ensure compliance with the noise criteria and operating conditions in this consent; and

(iii) include a monitoring program that:

- evaluates and reports on:
  - compliance with the noise criteria in this consent; and
  - compliance with the noise operating conditions;
- defines what constitutes a noise incident, and includes a protocol for identifying and notifying the Department and relevant stakeholders of any noise incidents.

## ATTACHMENT 'B'

### Air Quality

The primary concern for this development in terms of air quality is the potential for impacts on sensitive receptors from dust and particulate matter generated from construction activities, wind erosion of the tailings storage facilities and waste rock emplacements and dust generated by the mobile fleet.

The methodology used in the Pacific Environment Limited report titled 'Air Quality and Greenhouse Gas Assessment' dated March 2018 has been completed generally in accordance with the "*Approved Methods for the Modelling and Assessment of Air Pollutants in NSW*" (EPA, 2016).

The TAPM and CALMET/CALPUFF worst case dispersion modelling results indicate predicted emissions at surrounding sensitive receptors from modified operations at the Cowal Gold Operations mine (CGO) comply with all relevant incremental, annual and 24 hour average (24 hr cumulative estimated due to no suitable data) criteria for particulate matter less than 10 micrometres, particulate matter less than 2.5 micrometers, total suspended particulates and dust deposition.

The air quality assessment predicts little change to existing impacts for sensitive receptors and the proposed modification does not identify any additional dust monitoring. The EPA acknowledges that based on results of the dispersion modelling, the existing air quality monitoring program may be sufficient, however post approval of the modification the EPA will initiate a review the current air quality monitoring program with a view to ensuring the monitoring is consistent with contemporary best practice.

### Noise

Renzo Tonin & Associates report titled 'Noise and Blasting Assessment' (NBA) dated March 2018 was completed generally in accordance with the "*New South Wales Industrial Noise Policy*" (EPA, 2000) consistent with transitional arrangements relevant to the New South Wales "*Noise Policy for Industry*" (EPA, 2017).

The ambient background noise level adopted in the absence of the CGO mine is 30dB(A) L90 (15 minute) which is consistent with pre-mine noise monitoring.

Under worst case scenario weather conditions the modelling from the NBA predicts noise impacts from plant and vehicle movements from this proposal will unreasonably exceed the project specific noise criteria of 35dB(A) LAeq (15 minute) at three (3) residential receptors not associated with the mine.

The NBA considered several mitigation measures including attenuation of noise by retro fitting vehicles with noise dampening articles and creating barriers between noisy vehicles and receptors. These mitigation measures were considered unreasonably expensive and not effective.

Based on there being no further feasible and reasonable measures that can be applied to mining activities the Applicant has proposed to continue to apply mitigation measures consistent with the NSW Government's *Voluntary Land Acquisition and Mitigation Policy*. Two (2) residents in the Noise Affection Zone have previously been assigned acquisition rights and this will continue to be applicable. One (1) resident remains in the Noise Management Zone and will continue to be offered acoustic mitigation measures at the receptors residence.

Four (4) residential premises have improved noise impacts from mine activities as a result of the proposed modification and have moved out of the Noise Management Zone.



## **Ground and Surface Water**

Relevant to this proposed modification a comprehensive review of existing geological and hydrogeological information and monitoring data was undertaken by Coffey Services Australia Pty Ltd and presented in a report titled 'Mine Site Hydrogeological Assessment' dated March 2018. This included an updated assessment of potential seepage from the modified tailings storage facility (Integrated Waste Landform - IWL) using analytical particle tracking.

The primary risk to the environment from the IWL is the contamination of groundwater with cyanide. Several seepage control measures have been incorporated into the design and operation of the IWL and current groundwater monitoring at the CGO mine indicate that there is no trend that suggests cyanide has leached from the existing tailings storage facilities (TSF's) into surrounding groundwater.

The potential for cyanide, other chemical compounds and heavy metals from the IWL to migrate beyond the CGO mining lease is unlikely due to low permeability soils and retardation from sorption processes. Contaminants associated with any seepage are modelled (and based on observed flows) to flow to the final pit void, which becomes a long term sink for all groundwater within the mining lease.

The lacustrine sediments that form the Lake Cowal bed have a very low vertical permeability and act as an aquitard between lake water and groundwater aquifers, preventing any groundwater movement between the pit void and the lake. Monitoring at the CGO mine during lake fill events in 2012 and 2016 provide evidence of the hydraulic separation of the mine and the lake.

Hydro Engineering & Consulting Pty Ltd prepared a report titled 'Surface Water Assessment' dated February 2018 and notes the modification would change the existing isolation system which includes surface water management measures based on up-catchment diversion around the mine and protecting Lake Cowal from mining activities through an internal catchment drainage system that includes a series of bunds, drains and contained water storages. Based on water balances and the isolation system no contaminated water from the mine site is modelled (or permitted by any approval) to be discharged or released off-site.

Whilst up-catchment diversion will have only minor changes the report nominates future staged re-constructions of the internal catchment drainage system which are required to respond to the changing features of the mine and maintain the integrity of the system which the EPA expects the Applicant to implement.

Groundwater and surface water impacts from potential mining activities are monitored through extensive water quality monitoring programmes.

## **Waste**

There is no change to the height of the waste rock emplacements, the mineralised stockpile adjacent to the northern waste emplacement will be increased to a maximum of 320m Australian Height Datum however this will be reduced by ongoing processing of the material.

The southern and northern TSF's will be reduced in maximum permitted height as a result of this modification and waste rock will be hauled to the TSF's to be incorporated as rock fill buttress cover for the merger of the TSF's into a single Integrated Waste Landform (IWL).

The EPA have no concerns in relation to the continued management and operation of these structures or the monitoring associated with them as detailed in the Environmental Assessment (EA). We have requested the proposed heights are capped to protect surrounding receptors from the noise impacts associated with their construction and movement of fleet around these structures. Noise modelling predictions presented in the EA are based on these maximum heights and related vehicle fleets.

Potential impacts and mitigation measures for the proposed IWL are discussed in the above Ground and Surface Water review. Detailed handling and management of other waste streams generated at CGO mine are documented in the Waste Management Plan prepared in consultation with the EPA and DPE and the modification does not propose to vary the handling and management of these wastes.