DOC19/826671

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Dear Ms Evans

**Dendrobium Mine Extension Project - SSD 8194**

The Environment Protection Authority (EPA) refers to your email of 18 August 2019 requesting comments on the Environmental Impact Statement (EIS) for the Dendrobium Mine Extension Project.

The EPA has reviewed the EIS and provides comments on Noise (Attachment A), Air (Attachment B), and Water (Attachment C) Impact Assessments in the attachments to this letter.

The comments highlight areas where the EPA recommends more information and clarification be provided to assist the Department of Planning, Industry and Environment in the assessment of the proposal.

If you have questions regarding the above, please phone Andrew Couldridge on (02) 4224 4100.

Yours sincerely

20/09/19

**PETER BLOEM**
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Attachments A, B and C

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## Attachment A

# EPA Comments on the Noise Impact Assessment for the Dendrobium Mine Extension Project

## Key issues

The EPA has reviewed the following documents regarding the Dendrobium Mine Extension Project:

- *DENDROBIUM MINE - PLAN FOR THE FUTURE: COAL FOR STEELMAKING Noise and Blasting Assessment, dated 10 July 2019, Renzo Tonin and Associates, Report Version 11, reference: TJ476-01F02 Report (r11).docx* (noise report)
- Project Approval Number DA 60-03-2001, July 2018 (existing Project Approval)

The proponent has assessed the potential noise and vibration impacts from operations, construction, road and rail for the proposed project. However, there appears to be several items which require additional justification and information to be provided to assist with the assessment of the application. The key items are:

- inconsistency between the existing Project Approval noise limits, Project Noise Trigger Levels and the predicted outcomes at some receivers.
- the selection and justification of reasonable and feasible mitigation; and
- the validity of the operational noise model and the sound power levels used.

The following matters should be addressed.

### 1) Background noise monitoring

a) Section 4 of the noise report states that noise from the existing mine can be included in the background noise measurements. Section A1 of the Noise Policy for Industry (NPfI) (EPA, 2017) allows noise from an existing premises to be included in the background noise measurements subject to conditions. One of those conditions is:

"*the development must be operating in accordance with noise limits and requirements imposed in a consent or licence and/or be applying best practice.*"

In order for the exception in A1 to be allowed for, the proponent should provide justification that the site is applying best practice and operating within consent or licence conditions. This is especially pertinent for receivers whose background noise levels were determined from Location L2, where the derived PNTLs are notably higher than those in the Project Approval.

b) Table F1 and F2 of the noise report identify different PNTLs for receiver D0125 than other receivers identified as being in the same background noise catchment e.g. D0006. The reason for this discrepancy needs to be identified and explained. There also appears to be significant differences in predicted noise levels for receiver D0124 and D0125 when compared to predicted noise levels for nearby D0006. The predicted noise levels in Table F1 and F2 need to be reviewed for accuracy, and/or the significant differences in predicted noise levels explained.

### 2) Project Noise Trigger Levels

a) The noise report has derived Project Noise Trigger Levels (PNTL) using the NPfI. In some cases, the PNTLs vary from the noise limits in the existing Project Approval. Most notably, the PNTLs at R39a are 5 dB higher than the Project Approval limits during the night. When assessing an existing premises with existing noise limits, the implementation and transitional arrangements for the Noise Policy for Industry (2017) (EPA, 2017) should be considered. The notes to item 6 in the Transitional Arrangements states:

*Where an application is made to vary requirements using the new policy, the NSW Environment Protection Authority (EPA) will take into account existing commitments and requirements, and performance against those requirements, as evidence of the ability of the proponent/licensee to implement reasonable and feasible measures to mitigate noise. That is, where a licence holder meets current noise limits or can do so, this will be considered evidence that practical measures can be implemented to mitigate pollution for the purposes of s45(d) of the Protection of the Environment Operations Act 1997 when the EPA makes a licensing decision.*

Whilst there are no noise limits on the EPL at present, the EPA has considered this provision when assessing the project with reference to noise limits in the Project Approval. This provision is pertinent in this case because it appears operations are not significantly changing for receivers near to the Dendrobium Pit top and the Kemira Valley Coal Loading Facility (KVCLF). The EPA expects a strong justification be provided for varying (and indeed predicting noise levels above) the existing Project Approval noise limits. The proponent appears to have provided insufficient information to explain why essentially existing operations are resulting in predicted noise levels above the existing Project Approval limits. The proponent should either review the reasonable and feasible mitigation applied to the project (to ensure that all measures have been identified to reduce noise levels to meet the Project Approval) or provide a strong justification why they cannot be met.

b) The EPA considers use of the industrial interface appropriate for receivers in Cringila potentially affected by the Dendrobium Coal Preparation Plant (CPP). There are no noise limits assigned to these receivers in either the EPL or the Project Approval. If any noise limits are to be assigned to these receivers in a licence or approval conditions, the industrial interface provisions should be taken into consideration.

## 3) Construction Noise

a) The proponent has proposed to undertake construction activities outside of the standard working hours. A strong justification is required for the proponent to undertake works outside of standard hours. The noise report or EIS does not appear to contain a sufficient justification in keeping with the Interim Construction Noise Guidelines (ICNG) (DECC,2009). Therefore, it is recommended that construction work is restricted to standard hours (7am to 6pm Monday to Friday and 8am to 1pm Saturdays), unless sufficient justification can be provided.

b) NPfI Fact Sheet C modifying factors are not applicable to construction noise. However, the corrections for activities with potentially annoying characteristics listed in Section 4.5 of the (ICNG) are applicable and should be considered by the proponent.

## 4) Blasting

a) The proponent has referenced the superseded Environmental Noise Control Manual (ENCM) in its blasting assessment. The ENCM is no longer in use by the EPA. The proponent should assess blasting according to ANZEC *Technical Basis for Guidelines to Minimise Annoyance Due to Blasting Overpressure and Ground Vibration*. The time periods presented in Table 6.10 are not consistent with the permitted time periods for blasting in the ANZEC guidelines. The blasting assessment should be revised to use the ANZEC guidelines, including the recommended times for blasting.

b) The recommended maximum air blast limit in the paragraph under Table 6.10 appears to be a typographical error and should be corrected.

c) *Advisory note only*: It is recommended that DPIE require the proponent confirm that it has considered all relevant infrastructure in the assessment of blasting impacts, including the Cordeaux dam wall.

## 5) Noise Modelling

a) The EPA does not recommend or endorse any particular noise prediction method or software. The proponent is responsible for demonstrating the method they have used is suitable.

b) The calculation method used by the proponent to generate noise levels should be detailed and justified in the report.

c) The premises is an existing noise source. The EPA would expect the proponent to provide a demonstration that the noise model is representative of existing noise emissions by providing a comparison of predicted levels with measured levels at reference points. This is especially relevant because of the discrepancy between the predicted noise levels, the Project Approval noise limits, and results of compliance monitoring not being consistent for receiver R39a.
d) The proponent should provide references for the sound power levels used in the noise modelling. Since many of the items of plant and equipment in the assessment are existing and currently operating, the EPA expects the proponent to use SWLs derived from measurements of the existing equipment where possible.

## 6) Operational Noise

a) This issue expands on issue 2a above. The proponent has derived a project noise trigger level (PNTL) for receivers potentially affected by the KVCLF using receiver R39a from recent background noise monitoring. The PNTL used in the noise report is higher than the Leq,15min dB(A) noise limits in Schedule 4 Condition 1 of the existing Project Approval by 3 dB during the day and 5 dB during the night.

   The highest predicted noise level for R39a in the noise report is 40 dBA at night, which is 5 dB above the Project Approval noise limits and equal to the Project Approval acquisition criteria. However, according to Chapter 3.4 of the EIS, there are no significant changes proposed to the Kemira Valley Coal Loading Facility (KVCLF).

   It is not clear why the predicted noise levels are higher than the existing Project Approval limits where there are no significant changes occurring at the KVCLF. Furthermore, as per the NPfI Transitional Arrangements, this also appears to indicate that the proponent does have the ability to implement reasonable and feasible mitigation to reduce this noise level as the existing operation currently meets the Project Approval limits.

   As a result, the proponent should:

   - provide a justification for why the premises noise levels have increased at the receivers above the existing Project Approval noise limits without there appearing to be a change of operations.
   - provide a justification for why the existing Project Approval limits cannot be met.
   - review and confirm all reasonable and feasible mitigation has been applied to the project.

b) The proponent has identified exceedances of the PNTLs. Section 4 of the NPfI states that residual exceedances should only be assessed after the consideration of all reasonable and feasible mitigation. The proponent does not appear to have provided sufficient detail on the reasonable and feasible mitigation that has been applied to the project. The proponent should provide this information to allow the EPA to assess the proposed mitigation and exceedances of the PNTLs.
c) One receiver (R6a) is predicted to have noise levels more than 2 dB above the PNTL and qualifies for the marginal mitigation category under the Department of Planning, Industry and Environment (DPIE) Voluntary Land Acquisition and Mitigation Policy 2018 (VLAMP). According to Table 1 of VLAMP, the receiver would be entitled to voluntary mitigation. The proponent has stated that the predicted noise level is below the existing Project Approval limit for evening however, the night time noise levels are 3 dB above both the PNTL and the existing Project Approval limit. It is not clear in the noise report what commitment the proponent is making to investigate reasonable and feasible mitigation for this receiver.

## 7) Road Traffic Noise

The proponent should provide details on how the road noise levels were calculated.

## 8) Rail Noise

a) There are legacy noise issues related to the Kemira Valley Rail Line (KVRL) that have been the subject of multiple programs to reduce noise. The noise report shows that the most recent program (Environmental Improvement Program 1) has been successful in reducing noise levels and certain features of the noise emission such as wheel/brake squeal.

   The noise report states that when assessed using the Rail Infrastructure Noise Guideline (RING) (EPA, 2013), several receivers appear to be impacted above the guideline level. However, the provisions of the Voluntary Land Acquisition and Mitigation Policy (VLAMP) mean that mitigation or acquisition rights may not be applicable to receivers affected by the KVRL. This is because the rail line is a legacy noise issue and the modification appears to have a negligible impact (compared to existing impacts) as no changes are proposed. The proponent has undertaken a number of mitigation programs which have successfully reduced noise levels and annoying characteristics. Recent reductions in rail noise could be used to lower the noise limits in any project approval issued, however any change in the noise limits would need to be based on achievable noise levels considering reasonable and feasible mitigation.

b) The existing provisions for continuous improvement in the existing Project Approval Schedule 4 Conditions 4 and 5 are recommended to be replicated in any new project approval issued.

## 9) Approval Conditions

Once the above issues have been resolved, the EPA can consider providing recommendations for project approval/environment protection licence conditions. This includes recommendations for noise limits for certain operations and receivers, as required.

## Attachment B

# EPA Comments on the Air Quality Impact Assessment for the Dendrobium Mine Extension Project

## Key issues

The EPA has reviewed the Air Quality Impact Assessment (AQIA), *Air Quality and Greenhouse Gas Assessment, Dendrobium Mine – Plan for the Future: Coal for steel making, Ramboll, March 2019.* The AQIA was generally prepared in accordance with the *Approved Methods for the Modelling and Assessment of Air Pollutants in NSW (Approved Methods).*

The following matters should be addressed.

### 1) No additional controls for expected large increments at specific receptors are specified

Whilst the AQIA predicts no additional exceedances, modelling results predict large increments (project only contribution) at certain receptors. For 24-hr $PM_{10}$ concentrations at receptors D0007 and D0117, the expected project contributions are 9.8 $\mu g/m^3$ and 16.9 $\mu g/m^3$ respectively. These increments represent approximately 20% and 34% of the EPA criterion (50 $\mu g/m^3$). In terms of expected 24-hr $PM_{2.5}$ concentrations at the same receptors, the incremental results represent approximately 10% and 14% of the EPA criterion (25 $\mu g/m^3$).

As these results could be higher if a worst-case scenario based on daily peak activities was to be modelled and there is an existent history of complaints, the EPA recommends:

a) The AQIA should present bars charts showing contemporaneous predictions and backgrounds concentrations at these receptors.
b) The proponent should revise the AQIA to include a worst-case scenario. This scenario should be based on expected maximum daily operations, including maximum peak daily material handled.
c) Further investigation is suggested to understand what activity/activities are driving the predicted large increments. Given the receptors proximity to the railway line and the loading zone, a better understanding of the source will help identify additional control measures.
d) The proponent should present detailed information regarding the implementation of control strategies to address predicted large increments, including both proactive and reactive management measures.

### 2) Unclear calculations and assumptions to establish wind erosion emissions

The AQIA does not appear to provide detailed discussion of the methodology used to calculate the emissions for wind erosion from stockpiles. Although Table A5-2 presents the equations used for the calculations, there is no detailed discussion of the adopted parameters. The AQIA does not provide detailed information regarding the friction velocity and threshold friction velocity values used in the assessment.

Whilst wind erosion from exposed areas emissions may vary based on project-specific characteristics (i.e. area), they are normally one the largest sources (after hauling and dozer activities). This is not the case for the emissions presented in Table 6-1 in the AQIA, where emissions from wind erosion of ROM stockpile for the KVCLF area are expected to be less than 0.5% of the total emissions for this facility.

As the larger 24-hr $PM_{10}$ and $PM_{2.5}$ increments are expected at receptors close to this facility, the EPA recommends:

a) *The AQIA should include the friction velocity and threshold values as well as detailed justification as to why were they adopted and how representative they are of existing operations.*
b) *The AQIA should be revised to nominate and commit to best practice emission controls for wind-blown emissions from ROM stockpiles. This will ensure the low level of emission assumed in the AQIA occurs, should the project proceed.*

## Attachment C

# EPA Comments on Surface Facility Water Management for the Dendrobium Mine Extension Project

## Key issues

The key changes to water management are associated with:

- an increase in predicted groundwater inflows to underground workings, which are required to be managed as part of the Project water management system.
- management of surface runoff associated with new ventilation shafts in Areas 5 and 6; and
- duplication of the existing EPA Licensed Discharge Point (LDP) 5 pipeline to accommodate the predicted increase in discharge rate.

The EPA's advice on the potential impacts on surface waters of the key changes are set out below.

### Increase in Predicted Groundwater Inflows

An estimated 5,330 ML/year (on average) is proposed to be discharged to LDP5 over the Project life. The daily discharge rate to LDP5, based on median climatic conditions, is predicted to peak at 27.6 ML/d in December 2035. This compares with an average recorded 6.5 ML/d (with a peak of 9.2 ML/d) discharge rate for the period from May 2014 to September 2018.

The Secretary Environment Assessment Requirements (SEARs) includes the preparation of a water balance for the mine to:

- *"determine any change in the quantity and character of groundwater discharged through Licensed Discharge Point (LDP) 5 to Allan's Creek, Port Kembla; and*
- *"Any significant deterioration as a consequence of changes in the discharge should be modelled (dilution and mixing zone model) and would require an ambient monitoring program to confirm that concentrations remain below appropriate ANZECC 2000 trigger values in Allan's Creek."*

The EIS states that "*Table 27 illustrates that the monitored water quality at LDP5 has been within the licence limits for all parameters. The groundwater quality estimates for Area 5 and Area 6 are within the range of existing concentrations measured at LDP5 for arsenic, copper, nickel, zinc and pH. Therefore, it is unlikely that the proposed increase in discharge to LDP5 will result in a noticeable difference in water quality.*"

The information does not appear to provide an adequate assessment against the SEARs, as the volume of discharge and loads and concentrations of metals are proposed to increase. The potential impacts of those increases and associated potential mitigation measures do not appear to have been assessed. There is also a range of other potential pollutants currently not on the EPL that could have increased in concentration or loads due to the new areas being dewatered. This may have associated risks due to the increased volumes of discharge, including cumulative or bioaccumulation risks.

The EIS also states that Illawarra Coal is investigating options for the beneficial reuse of the increased excess groundwater, however the EIS does not assess these potential reuse options as a basis for mitigating potential risks at LDP5.

There may be a range of potential mitigation measures that do not appear to have been considered. The EIS claims that "the increase in discharge to LDP5 is unlikely to result in an exceedance of the EPL water quality limits or impacts on Allans Creek". The SEARs, however, require an assessment against ANZECC 2000 trigger values for the full range of potential non-trivial risks (not just current licence pollutants).

Subject to a recommended revised impact assessment, mitigation measures may include increased reuse, further treatment or changing the discharge location (e.g. running the pipe further down Allans Creek).

**Existing licence pollutants**

While the concentrations of metals in the discharge remain below current EPA licence limits, the assessment must consider the potential discharge impacts against the NSW Water Quality Objectives, considering the change in concentration and volumes of the discharge. It also should not be assumed that it is acceptable to pollute up to the EPA licence limits which are not based on the project proposal.

Table 27 of the EIS, Appendix C shows LDP5 Water Quality and Predicted Area 5 and Area 6 groundwater quality including for arsenic, copper, nickel and zinc. These data indicate potential increased average and significantly increased maximum concentrations for nickel and zinc in predicted groundwater quality compared to monitored Water Quality at LDP5. Copper levels are predicted to slightly increase.

The potential concentrations at the point of discharge or in any mixing zone are not predicted.
It should also be noted that the values presented in the EIS for current LDP5 water quality do not align with levels in the current annual return for arsenic, nickel and zinc, with average and maximum values higher in the annual return data than the predicted groundwater quality.

Conductivity is a required monitoring analyte for LDP5. The EIS does not adequately assess how the current discharge of relatively saline water (4400 µS/cm) will be affected by the proposal, including due to any changes in concentrations of salinity or loads of salt in groundwater; or as a result of changed brine contributions or management.

**Other potential pollutants**

There may be a range of other potential pollutants that have not been assessed in groundwater; including a wider range of metals (including, in particular, barium, iron, selenium, cadmium, lead, molybdenum, chromium, and mercury) and the full range of other analytes typically associated with coal (including dissolved solids (sodium, bicarbonates), silica, radium, dissolved organic constituents and hydrocarbons).

The EIS notes that some sediment ponds are periodically dosed with flocculant. The potential levels of any settling agents in discharges should also be assessed to ensure that are at trivial levels.

**Recommendation**

It is recommended that an impact assessment in accordance with the SEARs is conducted for the LDP5 discharge including any potential chronic or acute toxicity to aquatic life, bioaccumulative or cumulative impacts of metals or other analytes. A full range of potential mitigation measures to achieve or maintain the NSW Water Quality Objectives in Allans Creek should be assessed and where feasible implemented including, for example, reuse, further treatment, and/or changing the discharge location and monitoring.

## Runoff from the New Ventilation Shafts

The EIS states that construction of the Area 5 and Area 6 ventilation shafts will comprise clearing of land and construction of ventilation shafts within the cleared area. The sediment basins will drain relatively 'clean' catchments, i.e. no proposed coal stockpiling areas or direct contact between runoff and coal will occur within the catchment.

**Recommendation**

It is recommended that:

- erosion and sediment controls are developed and implemented in accordance with Managing Urban Stormwater: Soils and construction - Volume 2E, Mines and quarries; and
- all practical measures should be considered and where practical implemented to provide greater protection in drinking water catchments of surface waters than provided for under Managing Urban Stormwater: Soils and construction - Volume 2E, Mines and quarries.

## Duplication of the LDP 5 Pipeline

Standard erosion and sediment controls for this type of work should be developed and implemented including reference to *Managing Urban Stormwater: Soils and construction - Volume 1* and, where relevant, *Managing Urban Stormwater: Soils and construction - Volume 2A, Installation of services*