



DOC22/450699

Ms Gabrielle Allan
Department of Planning, Industry and Environment
4 Parramatta Square
PARRAMATTA NSW 2150

Email: gabrielle.allan@dpie.nsw.gov.au

Dear Ms Allan

**Dendrobium Mine Extension Project (SSI-33143123)
Advice on Environmental Impact Statement**

I am writing in response to the then Department of Planning and Environment's (DPE) request of 3 May 2022 to the Environment Protection Authority (EPA) to provide advice on the Environmental Impact Statement (EIS) for the above project.

Some of the activities incorporated in the proposal, if approved, will be undertaken under the existing Environment Protection Licence (number 3241) issued by the EPA; these include the Pit Top related activities and the water discharges.

The EPA has reviewed the EIS with consideration of the *Protection of the Environment Operations Act 1997* (POEO Act) and provides comments in the attachment to this letter. The comments highlight areas where the EPA requests the proponent provide further information and clarification to assist with the assessment of this proposal.

The EPA considers that the focus areas for further attention are:

- Water pollution – in particular a more comprehensive assessment of water quality at the licensed discharge points, improved design and more stringent classification of receiving environment for the proposed new vent shaft sediment pond, and more detail on proposed upgrades to the water management system.
- Noise impacts – including clarification on compliance with existing project approval limits, and further detail and justification on the noise modelling utilised in the assessment.

The proposal incorporates mining and related activities through 2039. The EPA encourages the proponent to consider ongoing and progressive improvements to environmental performance over time so these activities continue to achieve contemporary environmental standards over this extended operational period. This could include consideration of Green Offset schemes for current activities (as listed under section 295N of the *Protection of the Environment Operations Act 1997*) and routine reviews of ongoing environmental discharges against best practice standards.

The EPA may have further comments upon receipt and review of the additional information. The EPA can meet with DPIE and the proponent at a mutually convenient time to discuss our comments.

Phone 131 555
Phone 02 4224 4100
(from outside NSW)

Fax 02 4224 4110
TTY 131 677
ABN 43 692 285 758

PO Box 513
WOLLONGONG
NSW 2520

Level 3
84 Crown Street
WOLLONGONG
NSW 2500
AUSTRALIA

info@epa.nsw.gov.au
www.epa.nsw.gov.au

Should you require any further information please contact Carly Roder on (02) 4221 6904 or email carly.roder@epa.nsw.gov.au .

Yours sincerely



14/6/2022

SARAH THOMSON
Manager
Regulatory Operations Metro South

Attachment: EPA Submission re Dendrobium Mine Extension Project SSI-33143123

Review of surface water discharges for Dendrobium Mine extension EIS

Surface water quality impact assessment

The daily discharge rate to Licenced Discharge Point (LDP) 5, based on median rainfall, is predicted to increase on average by 9.5 ML/d from current discharge rates to an average 16 ML/d (around 70%). The implications of this increase on water quality concentrations, pollutant loads and cumulative impacts for LDP5 discharges are not adequately assessed in the EIS.

The SEARs require “An assessment of the impact of the licenced discharges in accordance with the ANZG 2018 and ANZECC & ARMCANZ 2000, Australian and New Zealand Guidelines for Fresh and Marine Water Quality”. The EIS has compared 7 licensed analytes against licence limits. The EIS does not adequately assess the potential impacts of the increased discharge via LDP5 of the full range of potential pollutants against relevant water quality guidelines, nor does the EIS assess implications of increased volumes of discharge on the loading or cumulative impacts of potential pollutants.

Furthermore, potential pollutants currently not on the EPL could have increased in concentrations or loads due to new areas being dewatered, change in target coal seam, increased volumes of discharge, cumulative impacts or bioaccumulation risks. The EIS does not consider these risks and should assess the full range of analytes that may be associated with coal seams including barium, iron, selenium, cadmium, lead, molybdenum, chromium, mercury, sodium, bicarbonates, silica, radium, dissolved organic constituents and hydrocarbons. A program of verification monitoring is likely to be required to confirm the EIS predictions that: “the groundwater quality estimates for Area 5 are expected to remain within the range of existing concentrations measured at LDP5 for arsenic, copper, nickel, zinc and pH.” Such a program should also fill any data gaps for potential other pollutants associated with coal seams.

The previous application’s Response to Submission referred the EPA to a geochemical assessment report (EGi, 2018), however the information from this report is not referred to in the current EIS. The EGi report uses some outdated default guideline values (DGVs) and refers to the 80% species protection levels. Discharges should also be compared to the 95% species protection level and the updated guideline values in ANZG (2018). It is noted that the metals bioavailability assessment indicated low bioavailability of the key metals for the site. A summary of the bioavailability assessment from the EGi report in relation to Dendrobium mine water should be included to present a more comprehensive assessment.

A number of wet-weather licensed discharge points are applied to EPL3241 (LDP22, 23, 26, 27) whereby excess water from sediment ponds and underground workings are released to the environment. Given the Project water will originate from a different coal seam and new area to the existing mine, the EPA intends to implement monitoring requirements during periods of discharge to better understand and manage any inherent risk associated with discharging this water to the environment.

A key issue for LDP5 is the contribution of brine from a licence transfer to LDP5 from Appin mine owned by the same company. The brine would have the greater impact on receiving waters via LDP5 but is not directly subject to this Dendrobium mine EIS water discharge assessment. The potential cumulative impacts and relative contribution of brine discharges at LDP5 are not adequately assessed. It is expected the proposed increase in mine water discharges would further dilute brine discharges, which is a current management strategy for LDP5.

Recommendation

It is recommended that the proponent provides further information on the implication for water quality due to increased volumes from new groundwater areas, including:

- an assessment of concentrations of all potential pollutants in coal seams groundwater water compared to relevant water quality guidelines (default guideline values from ANZG 2018);
- relevant information on Dendrobium mine water quality from the EGi modelling report to support the assessment or an equivalent assessment;
- consideration of cumulative impacts of mine water discharges and brine discharges, including potential pollutant load increases due to the increased volume of discharges, and/or changes to dilution levels with brine from Appin mine or implication for change managed practices or location for brine discharges; and
- a proposed verification monitoring program to confirm the predictions in the EIS and cover a full range of potential pollutants that may be associated with coal seams.

Runoff from the proposed new ventilation shafts

The EIS states that the surface water management system for this area has been designed such that the site will operate as a zero-surface water discharge site, however, this only relates to controlled or pumped discharges. Proposed basins will be designed in accordance with Landcom (2004) and Department of Environment and Climate Change (DECC 2008), which would result in managed overflows depending on the percentile rainfall event selected for management.

Furthermore, consideration of the projected impacts of climate change on the region should be included in the EIS. The Illawarra is predicted to have a 5% increase in annual rainfall in the short-term (AdaptNSW, 2014); the EPA expects this will be adequately addressed in the design capacity.

Recommendation

It is recommended that the Response to Submissions should consider (in consultation with all relevant agencies), the appropriate catchment sensitivity criteria for receiving environment ('standard' or 'sensitive') from Table 6.1 of DECC (2008) for any overflows.

Water Management System Upgrades

It is not clear in the EIS how the proponent intends to upgrade the existing water management system for the Project. The proponent's decision to either update, replace or duplicate the water management infrastructure should be clearly outlined. In addition, the EPA considers the water management infrastructure at the Pit Top to be dated and in need of upgrades, particularly in the face of contemporary standards, improvements in best-practice and the projected impacts of climate change over the life of the mine (20 years from now).

The EIS does not effectively consider the impacts of climate change on Dendrobium's water management system. The EPA is principally concerned with the potential increase of overflow discharges from Dendrobium's sediment ponds. AdaptNSW (2014) projects 5% increase in annual rainfall in the local area over the life of mine, which should be included in calculations when assessing cumulative impacts. The EPA recommends the proponent undertake a best practice assessment of Pit Top wastewater management and subsequently consider options for upgrading the Pit Top sediment dam, refuel/washdown bay and water treatment plant.

Recommendation

It is recommended:

- that 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.

- a best practice assessment be undertaken for the Pit Top water management system.

Noise and Blasting Assessment

The proponent has assessed the potential noise and vibration impacts from operations, construction, road and rail for the proposed project. There are a number of items which require further information or justification to enable the EPA to complete an assessment of the application. The key items are:

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

Detailed comments, questions, and information requested are as follows:

1. Background Noise Measurements

- a) Section 4 of the Proponent's Noise and Blasting Assessment (NBA) states that noise from the existing mine can be included in the background noise measurements. Section A1 of the EPA Noise Policy for Industry (NPfI) 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 NPfI A1 conditions to apply, the proponent should provide justification that the site is applying best practices and operating within consent or licence conditions. For example, background noise levels measured at Location L2, appear to result in Project Noise Trigger Levels (PNTLs) higher than those in the Project Approval.

- b) Table F1 and F2 of the NBA identify different PNTLs for receiver D0125 than other receivers in the same background noise catchment e.g. D0006. There also appears to be differences in predicted noise levels for receiver D0125 and D0126 when compared to predicted noise levels for nearby D0006.

The predicted noise levels in Table F1 and F2 should be reviewed for accuracy and an explanation provided for any differences in predicted noise levels.

2. Project Noise Trigger Levels

- a) The NBA has derived PNTLs 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 4 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 s.45(d) of the Protection of the Environment Operations Act 1997 when the EPA makes a licensing decision.'

The EPA has considered this provision when assessing the project against Project Approval noise limits. This provision is pertinent in this case because operations are not significantly changing for receivers near to the Dendrobium pit top and the Kemira Valley Coal Loading Facility (KVCLF). As such the EPA would expect that a justification would be required for varying (and indeed predicting noise levels) above the existing Project Approval noise limits.

The proponent has not provided sufficient information to explain why essentially existing operations are resulting in predicted noise levels above the existing Project Approval limits.

The proponent should review the reasonable and feasible mitigation applied to the project to ensure that all measures have been identified to reduce noise to meet the Project Approval levels or provide justification of why they are unable to be met.

3. Construction Noise

- a) Justification is required for the proponent's NBA proposal to undertake works outside of standard hours. This justification must include evidence of the need for out of hours works, and the extent and type of consultation with affected communities on the proposed approach. Further information should also be provided on whether any residential noise impacts are likely after applying all feasible and reasonable mitigation.
- b) NPfI Fact Sheet C modifying factors are applicable and should be considered for activities with potentially annoying characteristics listed in Section 4.5.

4. Blasting

- a) The proponent has referenced the superseded Environmental Noise Control Manual (ENCM) in the blasting assessment. The ENCM is no longer used 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 airblast limit in the paragraph under Table 6.10 appears to be a typographical error and should be corrected.

5. Noise modelling

- a) The calculation method used by the proponent to generate noise levels in the NBA should be detailed and justified in the report.
- b) The premises is an existing noise source. The EPA expects the proponent to demonstrate that the noise model is representative of existing noise emissions by comparing predicted levels with measured levels at reference points i.e. a model verification / calibration exercise. As an example, there are differences between the predicted noise levels, the Project Approval noise limits, and results of compliance monitoring for receiver R39a.
- c) The proponent should provide references for the sound power levels (SWLs) used in the noise modelling. Since many of the items of plant and equipment in the assessment are existing and currently operating, the EPA requests that the proponent use SWLs derived from measurements of the existing equipment or justify why this is not possible.

6. Operational noise

- a) This section expands on 2a) above. The proponent has derived a 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 the existing Project Approval, Schedule 4 Condition 1, by 3 dB during the day, 5 dB during the evening, and 4 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).

Therefore, it is unclear 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 NPfl Transitional Arrangements, this would also 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.

In consideration of the above, 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 any apparent change of operations;
- provide a justification for why the existing Project Approval limits cannot be met; and
- review and confirm all reasonable and feasible mitigation has been applied to the project.

Note: The matters outlined in 6.a) above should also be considered in the matters outlined in 1.a) above, that is the decision to include noise from the existing Dendrobium operations in the background noise measurements in the context of the provisions in the NPfl at Appendix A1.

- b) The proponent has identified exceedances of the PNTLs. Section 4 of the NPfl states that residual exceedances should only be assessed after the consideration of all reasonable and feasible mitigation. The proponent has not provided sufficient detail on the reasonable and feasible mitigation that has been applied to the project.

The proponent should provide the above information to allow the EPA to assess the proposed mitigation and exceedances of the PNTLs.

- c) Receiver R6a is predicted to have noise levels more than 2 dB above the PNTL and 2 dB above the night-time recommended amenity level, which qualifies for the moderate mitigation category under the 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 night time noise levels are 5 dB above both the PNTL and the existing Project Approval limit.

The noise report should clarify what commitment the proponent is making to investigate reasonable and feasible mitigation for receiver R6a.

- d) The noise report states that modifying factor adjustments have been considered for all proposed operational plant and equipment, however no quantitative evidence (e.g. frequency spectra) is provided to support this assertion.

The proponent should provide adequate quantitative evidence, in accordance with Fact Sheet C of the NPfl, to demonstrate that no modifying factor adjustments are applicable for all proposed plant and equipment.

- e) A qualitative discussion in the NBA of the measures to address potential sleep disturbance impacts from proposed operations is not sufficient. The proponent should provide further detail on the nature and effectiveness of self-imposed night time restrictions implemented to ensure that maximum LAFmax levels are no more than 5 dB higher than the predicted LAeq,15min

levels. These will limit the likelihood of sleep disturbance events and provide confirmation that proposed LAFmax events will satisfy the existing noise limits in the Project Approval.

7. Road Traffic Noise

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

Recommendation

It is recommended that the proponent provide further information and justification regarding its noise assessment in line with the comments provided above.