



Your reference: SSD 5850
Our reference: DOC15/331528, EF15/979
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NSW Department of Planning and Environment
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Attention: Mr Matthew Sprott

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Dear Mr Sprott

**MOUNT OWEN CONTINUED OPERATIONS PROJECT – SSD 5850
RESPONSE TO SUBMISSIONS REPORT**

Reference is made to your email to the Environment Protection Authority (EPA), dated 6 August 2015, seeking comments from the EPA in regard to the Response to Submissions (RTS report) for the Mount Owen Continued Operations Project, SSD 5850.

The EPA has reviewed the RTS report, specifically in relation to the responses to the EPA's previous comments based on the report titled '*Mount Owen Continued Operations Project – Environmental Impact Statement*' (EIS), Volumes 1 – 10, dated January 2015, prepared by Umwelt (Australia) Pty Limited.

Air Quality

The EPA has reviewed the RTS report in relation to air quality matters previously raised. A number of matters raised by the EPA have been adequately addressed in the RTS report however there are still some issues requiring further investigation or review. The EPA's detailed comments are provided in **Attachment A**.

Blast Fume Emissions

In regard to the EPA's previous comments on blast fume emissions, specifically the potential impacts to private residences R114 and R116, the RTS report notes that if the project is approved both R114 and R116 will be afforded acquisition rights due to predicted air quality (PM₁₀) exceedances. While these properties may be subject to acquisition rights based on PM₁₀ criteria, this does not appear to provide any further protections or response actions in response to blast fume emissions, i.e. oxides of nitrogen (NO_x).

The proponent states that blast fume emission exceedances at off-site receptors are predicted to be unlikely to occur and can be appropriately managed through the site's various management plans, e.g. a Blast Fume Management Plan.

If project approval is granted the resulting Environment Protection Licence for the site will include conditions making it an offence to emit offensive blast fume from the premises and as such, the onus is on the licensee to ensure that blast fume emissions do not leave the premises. If offensive blast fumes are emitted from the premises the EPA may take regulatory action, including penalty notices and/or prosecution.

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Noise Assessment

The RTS report does address some of the noise matters raised in the EPA's response to the EIS, however there are still some matters remaining that has resulted in the EPA being unable to adequately provide licence limits in relation to noise.

The EPA's review of the EIS, dated 6 March 2015, noted additional information was required in relation to:

1. Explanation of the difference in A-weighted predictions between Table 6.1, and Appendix J, of the Noise Impact Assessment (NIA) which is Appendix 7 of the EIS;
2. Clarification of which predicted levels should be considered in determining licence limits; and
3. $L_{Ceq}(15 \text{ minute})$ results that correspond with the results in Table 6.1 of the Noise Impact Assessment.

The RTS reports states that no low frequency modifying factors were required to be applied and that the predicted noise levels in Table 6.1 of the NIA are to be used to determine licence limits.

Table 6.1 of the NIA appears to show a number of sites that will have operational noise levels ≥ 5 dB above the project specific noise level. For example, sites R021, R022, R023 and R093 within Area 4 shown in Figure 4.2 of the NIA.

As previously noted, where noise levels are predicted to be above the project specific noise levels determined for a project, the Department of Planning and Environment is best positioned to review the benefits of the proposal against the potential adverse noise impacts and determine if noise limits above the project specific noise levels are justified.

If the project is approved the EPA intends on setting noise limits on the Environment Protection Licence based on the information provided in the EIS, RTS report and development consent conditions.

Surface Water

The EPA understands any proposed discharges from the premises will be pursued by the proponent, if required, separately to this project. As such, the issue of potential surface water discharges will not be addressed further by the EPA as part of this project application.

If you require any further information regarding this matter please contact Michael Howat on 4908 6819.

Yours sincerely



ROSS BRYLYNSKY
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Environment Protection Authority

Encl: **Attachment A** – EPA's Air Quality Response to Submission Comments

26-8-2015

ATTACHMENT A

EPA'S DETAILED AIR QUALITY RESPONSE TO SUBMISSION COMMENTS MOUNT OWEN CONTINUED OPERATIONS PROJECT, SSD 5850

The EPA has reviewed the air quality components of the RTS report, which comprises three relevant parts in relation to air quality:

1. RTS report – Chapter 4.1, Air quality
2. RTS report – Appendix B, Pacific Environment Limited EPA response (PEL, June 2015)
3. RTS report – Appendix C, Peer review of response to submissions on air quality (Jacobs, June 2015)

The RTS report partly addresses issues raised by the EPA during the exhibition of the Environmental Impact Statement (EIS) for the project. The EPA's key issues and recommendations are summarised below.

Predicted exceedances of criteria (PM10 and PM2.5)

The project is predicted to result in exceedances of applicable particulate matter (PM) criteria for both PM_{2.5} and PM₁₀.

Existing ambient PM_{2.5} concentrations measured at Camberwell, including contributions from nearby mine activity, are observed at levels close to the relevant project adopted criteria of 8 µg/m³ (annual average).

The EIS predicted numerous exceedances of the PM_{2.5} criteria, which the proponent has attributed to a conservatively high background concentration being adopted in the EIS. The RTS report has refined the methodology for defining PM_{2.5} background concentrations, to avoid double counting of modelled and measured PM_{2.5} from existing mining operations. The resulting PM_{2.5} background has been revised down from 7.1 µg/m³ to 5.3 µg/m³.

Table 4.2 of the RTS report shows that additional exceedances of the PM10 24-hour criteria are predicted to result from the project including:

- i) project contributions up to 48 µg/m³ (96% of the relevant cumulative criteria); and
- ii) when observed (background) concentrations would have otherwise been relatively low, 11 µg/m³ (22% of the relevant cumulative criteria).

Recommendation

If the project is approved, all reasonable and feasible measures to minimise the emission of PM₁₀ and PM_{2.5} should be implemented by the proponent. Measures should include both proactive and reactive management, for all emission sources (crustal and combustion) to ensure that impacts from the project are minimised to the maximum extent achievable.

Omission of diesel particles as a discrete emission source

The proponent advises that the emission factors adopted include PM from both mechanical processes (crustal material) and diesel exhaust and that the emission factors do not distinguish between these two sources. The proponent therefore concludes that to add diesel exhaust would include some measure of double counting of emissions. The proponent further advises that combustion technology has improved since the time the emission factors were derived, leading to a highly conservative estimate of emissions.

The proponent has not provided any analysis of the diesel plant and equipment proposed for use, including factors such as, fleet composition emission performance, engine size, fuel consumption and efficiency to support claims relating to the conservative nature of the assessment.

Appendix B of the RTS report discusses the precautionary principle and advises that if there is inherent uncertainty in the impact assessment, a more conservative and precautionary approach should be applied.

Section 4.1 of the RTS report advises that all reasonable and feasible air quality controls have been included in the mine design and management commitments. However, neither the EIS nor the RTS report have included commitments to control diesel PM through, for example commitment to procure emission certified non-road diesel equipment or retrofit using diesel particle filters. Additionally, the proponent has not quantitatively estimated diesel PM emissions to assess the significance of the emission source.

EIS modelled emissions from hauling coal and overburden, based on the emission factors discussed above, include a control factor (85% reduction) predominantly achieved by controlling the moisture content of the haul road (water application). The control factor is applied to all haulage emissions, including any diesel emissions as asserted by the proponent, however in reality no reduction would be achieved for diesel PM via watering. On this basis, the air assessment may have under predicted haulage PM emissions.

The EPA's position is that the matter of diesel particulate emissions has not been adequately addressed.

Recommendation

Prior to any determination being made on the project, the proponent should:

- a) quantitatively assess diesel PM emissions from the proposed development; and
- b) nominate and commit to diesel PM controls consistent with the claim that all reasonable and feasible air quality controls have been included in the mine design and management commitments.

Annual average 'background' PM10 concentration adopted in the assessment of cumulative PM10 impacts

The RTS report provides additional information to support the EIS adopted 'background' concentration for annual average PM10. The RTS report also includes a sensitivity analysis to demonstrate that there is negligible difference in the conclusion of the assessment if the mean ($14.9 \mu\text{g}/\text{m}^3$) rather than median value ($13.2 \mu\text{g}/\text{m}^3$) is adopted.

In addition to the adopted background value, modelled contributions from neighbouring mines were included in the cumulative assessment.

The EPA's position is that this issue has been satisfactorily addressed in the RTS report.

Model calibration and uncertainty

Appendix B of the RTS report advises that calibration is applied to other mines to adjust for some of the overly conservative assumptions that need to be made when modelling these operations. The model over-predicts at all monitoring stations to varying degrees. The uncalibrated model performs worst where there are multiple emission sources (mines) in close proximity to one another and close to the particle monitor. The model performs better in the area east of the project where the majority of residences are located.

Model results for the project (Mt Owen Mine) are added in full, uncalibrated, which retains some measure of conservativeness in the predicted impact from the proposal.

Tables 1 and 3 of Appendix B in the RTS report clearly show that without some measure to adjust the assessment methodology (or model results), unrealistic impacts will be predicted, e.g. annual average PM₁₀ concentrations greater than $90 \mu\text{g}/\text{m}^3$, which have not been observed in the monitoring record.

The calibration factor applied to the model results for nearby mines, to some extent, accounts for day to day variability of operations and on-site management practices that would not otherwise be included in the assessment.

The EPA's position is that this issue has been adequately addressed in the RTS report. The model performance highlights the inherent challenges associated with accurate cumulative modelling of multiple sources of fugitive PM emissions.

Recommendation

To help manage any risks associated with assessment uncertainty, should the project proceed, all reasonable and feasible measures to minimise the emission of PM₁₀ and PM_{2.5} should be implemented by the proponent. Measures should include both proactive and reactive management for all emission sources (crustal and combustion) to ensure that impacts from the project are minimised to the maximum extent achievable.

Applicability of the Monte Carlo method for assessing cumulative PM10 given the assumed concurrent dependence and independence of modelled increments and measured background

This issue of methodological validity has only been addressed in terms of discussing possible conservative aspects of the assessment rather than transparently addressing the apparent underlying methodological contradiction. The EPA previously expressed concern that the method assumes both dependence and independence of model predictions and measured background.

Chapter 4.1 of the RTS report includes a comparative analysis of results adopting an abridged version of contemporaneous assessment methodology contained in the *Approved Methods for the Modelling and Assessment of Air Pollutants in NSW* (Approved Methods Modelling). The RTS report asserts that applying the Approved Methods Modelling methodology results in fewer predicted exceedances at the selected residences and therefore the EIS predictions are conservative. However, the RTS report contemporaneous assessment only includes analysis for 20 days (ten highest increment days and ten highest background days) out of total of 365 days per year.

Based on the above, a complete and transparent comparative analysis has not been included in the RTS report, and the EPA's position is that the assessment has been partially addressed.

Recommendation

Prior to any determination on the project, the proponent should either:

- a) provide a comparative analysis of the probabilistic methodology with a complete level 2 assessment as required in the Approved Methods Modelling, including all days of the year; or
- b) address the apparent methodological contradiction of assuming both dependence and independence of modelled and monitored values.

