NSW EPA

Your reference: SSD 6300
Our reference: DOC15/503658, EF13/3519
Contact: Michael Howat (02) 4908 6819
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Department of Planning and Environment
GPO Box 39
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Attention: Mr Hamish Aiken

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Dear Mr Aiken

RIX'S CREEK MINE EXTENSION PROJECT, SSD 6300

EPA'S RECOMMENDED CONDITONS OF APPROVAL

I refer to your email to the Environment Protection Authority (EPA), dated 2 November 2015, seeking the EPA's comments on the Rix's Creek Mine Extension Project, SSD 6300 (the project). The EPA has reviewed the project as detailed in the report titled '*Rix's Creek Mine – Continuation of Mining Project, Environmental Impact Statement: 26 October 2015*' (EIS) Volumes 1 – 5, prepared by Aecom Australia Pty Ltd.

The project involves the following:

- extending open cut mining operations to recover an additional 32 million tonnes (Mt) of coal;
- extend the approved life of mine to 2038;
- increasing the extraction rate of run-of-mine (ROM) coal from 2.8 Mt/year to 4.5 Mt/year;
- extending the western boundary of the existing mining lease to establish new rejects emplacement and overburden stockpile areas;
- increasing the hours of operation of the coal handling and processing plant (CHPP) from 4.5 days a week to 7 days a week;
- transport up to 2.7 Mt/year of coal via rail to the Port of Newcastle;
- continued tailings disposal to existing emplacement areas; and
- construction and operation of a second New England Highway underpass.

The EPA has reviewed the information provided in the EIS and provides the comments below. The EPA's recommended conditions of approval are provided in **Attachment 1**.

Air Quality

The EPA reviewed the EIS for matters relating to air quality and impacts, and specifically Appendix L '*Air Quality and Greenhouse Gas Assessment Rix's Creek Continuation of Mining Project*' (AQIA), dated 26 August 2015 and prepared by Todoroski Air Sciences Pty Ltd.

The EPA has identified a number of issues that must be addressed before the EPA is able to provide recommended conditions of approval in relation to air quality.

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A summary of the EPA's key areas of concern are:

- Diesel engine particulate matter emission estimates. The EIS does not appear to have determined and reported changes to total emissions and resultant impacts, or specific measures to minimise emissions from this source.
- The EIS requires an assessment of potential impacts at all potentially affected properties in Maison Dieu, at Country Acres Caravan Park, and at Maitland Diesel service.
- The EIS does not appear to include estimates of dust emission from all bare areas in the emissions inventory.
- Further detail on the derivation of the emission rate of NO_2 from blasting is required, including the amount of explosive assumed and the emission flux, or equivalent information.

The EPA's detailed AQIA assessment comments are provided in **Attachment 2**.

Hunter River Salinity Trading Scheme

Section 15.3.5 of the EIS states that the mine is licensed for water discharge under current conditions of Environment Protection Licence (EPL) 3391.Section 15.3.5 further notes "*the mine holds salt credits that would facilitate release of water under the conditions of the Hunter River Salinity Trading Scheme, if a discharge point is found to be necessary in the future*".

Currently EPL 3391 does not permit any discharges form the site. The EPA notes the project does not propose the introduction of any licensed discharge points at the site. As such the EPA does have any recommended conditions of approval specifically relating to surface water discharges.

Any future proposal to discharge from the site, including under HRSTS conditions, would require amendments to the EPL and consent. This would require an assessment of potential impacts for any proposed discharge to waters.

Environment Protection Licence

If project approval is granted amendments will be required to the current EPL 3391 for the premises. The proponent will have to make a separate application to the EPA to amend the existing EPL 3391 prior to undertaking any on site works associated with the expansion.

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

Yours sincerely

10 DEC 2015

MARK HARTWELL
A/Head Regional Operations Unit – Hunter
Environment Protection Authority

Encl: Attachment 1 – Recommended Conditions of Approval: Rix's Creek Extension Project (SSD 6300)
Attachment 2 – EPA's Detailed Air Quality Assessment Review

Attachment 1

RECOMMENDED CONDITIONS OF APPROVAL
RIX'S CREEK EXTENSION PROJECT (SSD 6300)

As Environment Protection Licence (EPL) 3391 is already issued for the premises, the following recommended conditions of approval are only new or amended condition to those conditions already existing on EPL 3391. The EPA has not included an extensive list of all conditions currently in force in EPL 3391 that will remain if project approval is granted.

General

Works are to be undertaken in accordance with the information supplied to the EPA

1. Except as provided by these conditions of approval, the works and activities must be undertaken in accordance with the proposal contained in:

   (a) '*Rix's Creek Mine – Continuation of Mining Project, Environmental Impact Statement*' (Volumes 1 – 5), dated 26 October 2015, prepared by Aecom Australia Pty Ltd.

   Unless otherwise specified in these conditions of approval.

Premises or plant to which this licence applies

2. The licensee must provide the EPA with an updated premises description diagram/map prior to the commencement of any site works associated with the project. The diagram/map must be:
   (a) Titled and dated;
   (b) Prepared by a registered surveyor;
   (c) Clearly identify the boundary of the premises for which Rix's Creek Pty Limited is the occupier;
   (d) Illustrate location and GPS coordinates of all discharge and/or monitoring pints or sites; and
   (e) Be provided In size A1 hard copy format and in electronic format.

Noise

Noise Limits

3. Noise generated at the premises must not exceed the noise limits in the Table below. The Receiver locations have been taken from the *Rixs Creek Coal Mine Continuation of Mining Project Environmental Noise Assessment* prepared by Global Acoustics, which is Appendix M of the report titled '*Rix's Creek Mine – Continuation of Mining Project, Environmental Impact Statement: 26 October 2015*' Volumes 1 – 5, prepared by Aecom Australia Pty Ltd.

Location	NOISE LIMITS dB(A)			
	Day $L_{Aeq\ (15\ minute)}$	Evening $L_{Aeq\ (15\ minute)}$	Night $L_{Aeq\ (15\ minute)}$	Night $L_{A1\ (1\ minute)}$
Residents in Noise Assessment Groups A (Bridgman), B (Obanvale) and C (Wattle Ponds); (Residents 1 to 39)	42	42	42	47

Residents in Noise Assessment Groups D through to O; (Singleton Heights North, Hunterview, Singleton Heights South, McDougalls Hill, Gowrie, Long Point, Belmadar /MDIE, Maison Dieu East, Mason Dieu West, Camberwell South, Camberwell, Glennies Creek).	40	40	40	47
Any privately owned residential sensitive receiver not included above and not subject to a private negotiated agreement	35	35	35	45

4. For the purpose of the noise limits in the table above;
   - Day is defined as the period from 7am to 6pm Monday to Saturday and 8am to 6pm Sunday and Public Holidays.
   - Evening is defined as the period 6pm to 10pm.
   - Night is defined as the period from 10pm to 7am Monday to Saturday and 10pm to 8am Sunday and Public Holidays.

5. The noise limits set out in the table above apply under all meteorological conditions except for the following:
   a) Wind speeds greater than 3 metres/second at 10 metres above ground level.
   b) Stability category F temperature inversion conditions and wind speeds greater than 2 metres/second at 10 metres above ground level; or
   c) Stability category G temperature inversion conditions.

6. For the purposes of condition 5:
   a) Data recorded by a meteorological station installed on site must be used to determine meteorological conditions; and
   b) Temperature inversion conditions (stability category) are to be determined by the sigma-theta method referred to in Part E4 of Appendix E to the NSW Industrial Noise Policy.

7. To determine compliance:
   a) with the $L_{eq(15\ minute)}$ noise limits in the table above, the noise measurement equipment must be located:
      - approximately on the property boundary, where any dwelling is situated 30 metres or less from the property boundary closest to the premises; or
      - within 30 metres of a dwelling façade, but not closer than 3m, where any dwelling on the property is situated more than 30 metres from the property boundary closest to the premises; or, where applicable
      - within approximately 50 metres of the boundary of a National Park or a Nature Reserve.
   b) with the $L_{A1(1\ minute)}$ noise limits in the table above, the noise measurement equipment must be located within 1 metre of a dwelling façade.
   c) with the noise limits in the table above, the noise measurement equipment must be located:
      - at the most affected point at a location where there is no dwelling at the location; or
      - at the most affected point within an area at a location prescribed by conditions 7(a) or 7(b).

8. A non-compliance of the noise limits in the table above will still occur where noise generated from the premises in excess of the appropriate limit is measured:

- at a location other than an area prescribed by conditions 7(a) and 7(b); and/or
- at a point other than the most affected point at a location.

Noise Monitoring Requirements

Note: This condition can be varied and must be negotiated by the Consent Authority and/or the EPA with the proponent before being finalised in any project approval.

9. To assess compliance with the noise limit table above, attended noise monitoring must be undertaken in accordance with condition 7 above and:
   a) at each one of the locations listed in Condition 3;
   b) occur annually in a reporting period;
   c) occur during each day, evening and night period as defined in the NSW Industrial Noise Policy for a minimum of:
      - 1.5 hours during the day;
      - 30 minutes during the evening; and
      - 1 hour during the night.
   d) occur for three consecutive operating days.

Noise Reporting

Note: This condition can be varied and must be negotiated with the proponent before being finalised in any project approval

10. A noise compliance assessment report must be submitted to the EPA within 30 days of the completion of the yearly monitoring. The assessment must be prepared by a suitably qualified and experienced acoustical consultant and include:
    a) an assessment of compliance with noise limits presented in Condition 3 above; and
    b) an outline of any management actions taken within the monitoring period to address any exceedences of the limits contained in Condition 3 above.

Definition of Terms

- NSW Industrial Noise Policy - the document entitled "New South Wales Industrial Noise Policy published by the Environment Protection Authority in January 2000."

- Noise – 'sound pressure levels' for the purposes of conditions 3 to 10 above.

Attachment 2

EPA'S DETAILED AIR QUALITY ASSESSMENT REVIEW

The EPA has undertaken a review of the EIS and Appendix L *'Air Quality and Greenhouse Gas Assessment Rix's Creek Continuation of Mining Project'* (AQIA), dated 26 August 2015 and prepared by Todoroski Air Sciences Pty Ltd.

The AQIA has been conducted generally in accordance with EPA's guidance in the *'Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales'*, however there are still a number of issues that must be addressed before the EPA is able to provide recommended conditions or approval in relation to air quality matters. These matters are discussed below.

Estimation of emissions from diesel engines

The estimation of emissions from diesel engines has been done explicitly to assess contribution to potential impacts on nitrogen dioxide (NO_2) concentrations as shown in Section 10 of the AQIA. Emissions of particulate matter have been included in the estimation of emissions from the movement of materials, as shown in Table 5-1 and in Appendix D.

Section 5.1.1 of the AQIA states the estimated dust emissions "reflect the application of best practice dust mitigation currently being implemented at the site". This includes use of water suppression to reduce dust emissions, listed as providing 85% control for hauling on unsealed roads. Water suppression is not applied to emissions from diesel engines.

This approach leads to underestimation of emissions of particulate matter from diesel engines. As noted in Section 10 of the AQIA, there are substantial quantities of diesel used by the proposed operations, which in the EPA's experience can contribute to a significant proportion of total $PM_{2.5}$ emissions from mine sites.

Based on the above emissions of particulate matter from diesel engines have not been adequately estimated, and the assessment does not appear to nominate controls for particle emissions from diesel engines. The EPA requires the proponent determine and report the change to total emissions and resultant impacts, and specify measures to minimise emissions from this source.

Impacts of proposal

The assessment predicts exceedences of the air quality criteria as summarised in the tables provided in Section 9 of the AQIA.

Impacts above criteria were found for fifteen receptors not owned by the mine. Nine of these are assessed as having impacts from the mine greater than air quality criteria, while the other six are assessed by the cumulative assessment to experience additional exceedences of the 24-hour criterion for PM_{10}.

The Executive Summary comments that of the nine directly impacted receptors, one has an existing negotiated agreement with the project, while the other eight are included in the acquisition zone of other existing approved projects.

The cumulative assessment finding that six non-mine receptors are expected to experience additional days above the 24-hour PM_{10} criterion should be included in the summary in section 16 and the Executive Summary.

Receptors assessed, including Maison Dieu

The EPA previously queried whether the receptors used in the assessment adequately represented Maison Dieu. In the letter dated 15th October 2015, Todoroski Air Sciences, as consultants for the proponent, respond that there are a number of receptors closer to the active mine and near this estate, providing a conservative estimate at this receptor.

Maison Dieu lies behind an arc from receptor R140 and M18. In this sense R140 is closer to the proposed extension. However, both R140 and M18 are assessed as exceeding air quality criteria. It is therefore possible that other receptors in the area could also exceed, especially given the prevalence of wind from the west-north-west. The EPA requires assessment of additional receptors in this area to identify all potentially affected properties.

Country Acres Caravan Park at 58 Maison Dieu Road lies to the south-west of the proposed pit expansion and within 500 metres. It does not appear to have been assessed as a receptor. Maitland Diesel Service is located on Rix's Creek Lane and also does not appear to have been assessed as a receptor. The EPA requires the potential impacts at these receptors to be assessed.

Emissions from wind erosion – stabilised areas

The EPA has previously queried the estimates of particulate matter arising from wind erosion as the areas set out in the revised AQIA are considerably smaller than previous estimates. Todoroski Air Sciences advised the EPA that work conducted as part of the Pollution Reduction Program (PRP) for Environment Protection Licence (EPL) 3391 shows that much of the area has been "stabilised". This is listed as a reason for excluding it from further consideration.

The EPA notes the measurements taken at the mine and presented in PRP report titled '*Coal Mine Particulate Matter Control Best Practice Final Licence Variation Notice – Exposed Area Assessment*', provided by the licensee for EPL 3391. Stabilised areas are still recognised in this report as a source of dust and should be included.

The EPA further notes that the Exposed Area Assessment acknowledges that the level of stability achieved across the site was due to recent heavy rainfall and inactivity on the stability test areas due to the Christmas shutdown period.

Based on the above, all bare areas across the site are subject to wind erosion and should be included in the emissions inventory for the proposal. Active maintenance is needed to maintain stabilisation.

Estimation of nitrogen dioxide from blasting

In the Todoroski Air Sciences letter to the EPA dated 15th October 2015, the consultant refers to work conducted by CSIRO stating that the maximum NO_2 in the plume is 63.3 kg. This is scaled by a factor of 1.5 to account for conversion of NO to NO_2 and generates an emission rate based on the blast lasting for five minutes. The approach taken is sound, but the derivation of 63.3 kg as an estimate of the maximum NO_2 released from blasting is not clear.

The CSIRO report – '*NO_x Emissions from Blasting Operations in Open Cut Coal Mining in the Hunter Valley*' (ACARP Project C14054) provides estimates of NO_2 by blasting as a ratio to tonne of explosive used. The report uses an average of 0.06 kg NO_2 per tonne of explosive with a range of 0.002 to 0.32. The blasts sampled in that report used from 60 tonnes of explosive to 565 tonnes of explosive. The report does not indicate whether the maximum represents worst case.

It is not clear how the proponent has derived the value of 63.3 kg. The noted high uncertainty suggests that to conservatively estimate emissions, the greatest proposed explosive charge should be multiplied by an estimate of the maximum emission flux.

The EPA requests the proponent provide further details on the derivation of the emission rate of NO_2 from blasting, including the amount of explosive assumed and the emission flux or equivalent information.