DOC20/585219-7

Department of Planning, Industry and Environment
Returned via the Major Projects Portal

Attention: Joe Fittell

5 August 2020

Dear Mr Fittell,

Planning Referral – Advice on Assessment
Rix's Creek Mine – Landform and Blasting Frequency Modification (MP08_0102_Mod-9)

I refer to your email to the Environment Protection Authority (EPA) on 20 July 2020 seeking advice in relation to the modification application for the Rix's Creek North Open Cut Project located in the Singleton Council local government area.

The proposed modification seeks to:

- Increase the overall height of the approved overburden emplacement area with the Camberwell Pit;
- Increase the approved maximum blasting frequency from two to three blasts per day; and
- Undertake exploration activities within existing mining tenements

The EPA has reviewed the *Rix's Creek North Mine Landform Amendment, Exploration and Blasting Frequency Modification Statement of Environmental Effects* prepared by Hansen Bailey and dated June 2020 and has determined it requires additional information to properly assess the proposal. The EPA's additional information requirements are provided at **Attachment A** to this letter.

If you have any questions about this matter, please contact Jenny Rushton on 02 6883 5301 or by email to hunter.region@epa.nsw.gov.au

Yours sincerely

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Attachment A: Further Information Required by the EPA

AIR QUALITY

The EPA requires additional information prior to considering whether to recommend conditions of approval.

1) Predicted dust impacts on privately-owned land

Consideration of all reasonable and feasible mitigation measures until compliance with the EPA's impact assessment criterion is demonstrated.

For the 2020 scenario, one additional day above the cumulative 24-hour average PM10 criteria is predicted to occur at N187. For the 2023 scenario, it is predicted between 1 to 3 additional days above the cumulative 24-hour average PM10 criteria would occur.

Table 6-4: NSW EPA contemporaneous assessment - maximum number of additional days in a year above 24-hour average criterion depending on background level at monitoring sites

Receptor ID	$PM_{2.5}$ analysis		PM_{10} analysis	
	2020	2023	2020	2023
N180 (1)	0	0	0	3
N181(2)	0	0	0	1
N23	0	0	0	0
N18	0	0	0	1
Receptor 9	0	0	0	0
N187	0	0	1	1

(1) Community hall / not a place of residence

(2) Rural Fire Service Shed / not a place of residence

As required by the Approved Methods, if the EPA's impact assessment criteria are exceeded, the dispersion modelling must be revised to include various pollution control strategies until compliance is achieved. Further, significant incremental impacts of PM10 are also predicted to occur for both modelled years, 7.9 ug/m3 (N187 in 2020) and 11.2 ug/m3 (N18 in 2023) suggesting more mitigation measures may be required to prevent and minimise dust emissions from the premises.

Table 6-1 of the Air Quality Impact Assessment (TAS, 2020) (AQIA) provides a summary of the privately-owned and community receptor locations where impacts are predicted to exceed the assessment criteria. It is noted that the table does not include a summary of the total impact (cumulative) results for PM10 and PM2.5 (24 hour averages). Additionally, the preceding text to the table which states "*all other privately owned receptors [other than N180] are predicted to experience levels below the relevant criteria*" is inconsistent with the results presented in Table 6-4. Section 7.1.3 of the EIS, states "*No receptors (additional to those within an existing air quality acquisition zone) are predicted to exceed the cumulative PM2.5 and PM10 criteria",* this is inconsistent with the results in Table 6-4.

The assessment indicates that two landholdings are predicted to exceed the NSW Government's Voluntary Land Acquisition and Mitigation Policy (VLAMP) acquisition criteria (N240 and N34-239). As required by the VLAMP, the potential impacts due to the Project have been evaluated using the predicted pollutant dispersion contours. The curves extend over more than 25% of two privately-owned properties.

The modelling predictions for the Zone of Acquisition (ZOA) receptors indicate that up to 16 ZOA receptors are predicted to exceed the PM10 criterion in 2021 and up to 19 ZOA receptors in 2024.

2) Adopted ambient air monitoring data is not appropriate

All available continuous ambient air monitoring data, collected at locations nearby the premises should be included. A detailed discussion of the methodology used to calculate the background concentrations for each pollutant must also be included. Negative values in the modelling (either as corrected incremental or corrected background) should not be used.

A contemporaneous assessment of 24-hour average PM2.5 and PM10 concentrations for privately owned and community receptors was undertaken using data from 2012. For the receptors to the north, PM10 data from the Mt Owen Complex (TEOM3) monitor have been adopted and for the receptors to the east and southeast, PM10 data from the Rix's Creek High-Volume air sampler (HV1) monitor have been adopted. PM2.5 data was sourced from the Camberwell Department of Planning, Industry and Environment (DPIE) monitoring station for the cumulative assessment.

The 70th percentile of the monitoring dataset has been applied to substitute for any gaps in the datasets. The HV1 collects 24-hour averaged PM10 data every 6 days. As such, over 86% of the PM10 data adopted in the assessment is based on a 70th percentile value derived from 24-hour average data. This approach is not considered appropriate where continuous monitoring data is available.

Rix Creek Mine has 3 continuous PM10 (TEOM) monitors located to the North west, North East and South East of the premises, these monitors have been operating since 2017. There is also a robust network of monitoring stations nearby to Rix's Creek which are operated by DPIE. These monitors form part of the Upper Hunter Air Quality Monitoring Network (UHAQMN). The stations at Singleton and Camberwell report on PM10, PM2.5 as well as wind speed and direction.

As required by the Approved Methods, the existing background concentrations of particles should be established using one year of continuous ambient monitoring data, collected in the vicinity of the premises. Where there is continuous background data available, it should be used. As such, the background and meteorological data for the years when background data is available should be assessed to choose the most representative year for modelling purposes.

The 2012 background and meteorological data adopted in the AQIA is not considered appropriate for this assessment, as the data is approximately 8 years old and is unlikely to account for changed activities around the mine that have occurred since 2012. These changes are noted in Section 5.6 of the AQIA (TAS, 2020). More contemporary data is expected to be more representative of the current air quality around the premises.

The EPA notes that, due to a correction for double counting of impacts from existing mines in the measured background data, a significant number of negative incremental values are predicted, as low as -9.6 ug/m^3. These negative values result in a total cumulative value which is less than the measured background. It is unlikely that the proposed modification will result in decreased ambient background particle levels. It is possible that the negative values are a result of the 70th percentile background data being under-representative of the true background.

3) Blasting has not been adequately assessed

Provide a robust justification for the values adopted for estimating emissions from blasting activities including the number of blasts per year and the adopted emission factors. Where these values vary significantly from the adopted 2015 values, it must be adequately justified.

The *Noise and Blasting Impact Assessment* (Global Acoustics 2019) (NBIA) includes a qualitative discussion on the impacts of increasing daily blast events. MOD9 will increase blasts events at Rix's Creek North from two to three per day, with the approved blast events per week remaining at ten. The EIS states that there will be no change to the magnitude of impacts, only the distribution of blast events within a weekly period. However, the predicted emissions from blasting have reduced by almost half from what was predicted in the 2015 AQIA, as shown below;

AQIA	Activity	TSP Emissions (kg/yr)	Intensity		Emission Factor		Comments	
2020*	OB - Blasting	59,180	269	blasts/ year	220	kg/blast	10,000	Area of blast m²
2015**	OB - Blasting	110,407	273	blasts/year	404	kg/blast	15,000	Area of blast m²

* *Table B-3: Emission inventory – 2023* (Todoroski, 2020)

** *Table D-3: Emission inventory – 2023* (Todoroski, 2015)

The reduction in estimated emissions and the number of blasts modelled in the 2023 scenario have not been discussed or justified.

There has also been no discussion or assessment of nitrogen dioxide emissions (NO2). Where the blasting frequency, size or intensity is proposed to change, the effect of the change on NO2 emissions should be discussed. Where a significant change is expected, it should be adequately assessed.

4) Changed approach to modelling emissions has not been justified.

Provide suitable justification for all estimated emission rates and adopted emission factors. Where a significant discrepancy is found between the 2015 AQIA and the 2020 assessment, this should be adequately discussed and supported.

In Section 5 of the AQIA, it is stated that: *The air dispersion model was setup using the same methodology and modelled meteorological year applied to the Air Quality and Greenhouse Gas Assessment Rix's Creek South Continuation of Mining Project (Rix's Creek South Assessment) (Todoroski Air Sciences, 2015*).

On review of the 2015 assessment (TAS, 2015), the EPA has identified a number of inconsistencies in the application of emission factors, which have not been discussed or adequately justified.

The following activities have had notable reductions in emission factors, as shown in the Table below;

- WE - Overburden emplacement areas and Open Pit- 75%
- OB – Blasting – 46%
- OB - Hauling to emplacement area -6%

AQIA	Activity	TSP emission (kg/y)	Intensity	Emission Factor
2020	WE - Overburden emplacement areas	151,986	173.5 ha	**876** kg/ha/year
	WE - Open pit	41,855	47.8 ha	**876** kg/ha/year
2015	WE - Overburden emplacement areas	330,778	94.4 ha	3504 kg/ha/year
	WE - Open pit	133,502	38.1 ha	3504 kg/ha/year
2020	OB – Blasting	59,180	269 blasts/ year	**220** kg/blast
2015	OB – Blasting	110,407	273 blasts/year	404 kg/blast
2020	OB - Hauling to emplacement area	509,008		**3** kg/VKT
2015	OB - Hauling to emplacement area	690,505		3.2 kg/VKT