



Health

Population Health

Nepean Blue Mountains Local Health District  
Western Sydney Local Health District

29th May 2012

*Our Ref: Trim 12/7092*

*Your ref: Project Application no: 10\_0178*

Mining and Industry Projects,  
NSW Department of Planning and Infrastructure  
GPO Box 39,  
Sydney, NSW, 2001.

Dear Sir/Madam,

**re: Coalpac Consolidation Project (Project Application no: 10 0178) Exhibition of Environmental Assessment**

I am writing in regard to the development application currently on public exhibition for the consolidation and extension of the existing Cullen Valley Mine and Invincible Colliery operations owned by Coalpac Pty Ltd located on Castlereagh Highway, Cullen Bullen, NSW 2790. Officers from the Public Health Unit have reviewed the documents available on your website with regard to the development proposal and provide the following comments for your consideration. We have a number of concerns, particularly in relation to the long-term health effects from dust, emissions from blasting and the noise effects.

**Air quality issues due to mining activities**

Health impacts from coarse particulate matter emissions associated with mining operations are of concern to NSW Health. As mine impacted populations are generally small compared to populations subject to urban air pollution it has been difficult to conduct robust health studies of mine affected communities. Nevertheless there is a growing body of evidence that populations subjected to elevated coarse particulate matter emissions from mines have an increased risk of adverse health outcomes, particularly on the respiratory system.<sup>1,2</sup> Preliminary investigations by NSW Health in the Hunter Valley have also found an indication that mine emission affected communities may also be subject to increased rates of cardiovascular disease, a concern which is undergoing further investigation.

The annual average background levels for PM<sub>10</sub> and dust deposition used in the Air Quality Assessment were derived from monitors that are in close proximity to the township of Cullen Bullen and were established as:

- Annual average PM<sub>10</sub> = 12.8µg/m<sup>3</sup>, and
- Annual average dust deposition = 0.9µg/m<sup>2</sup>/month

The annual average TSP was estimated from PM<sub>10</sub> concentrations to be 31.9 µg/m<sup>3</sup>. These values include existing mining operations in the area and reflect the generally good level of air quality currently enjoyed by this community.

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We note that several residences within the boundary of the project (195, 196, 197, 198 and 199) are predicted to be subject to particulate matter impacts from the project that exceed DECCW assessment criteria and are already under Agreement, or under negotiation toward an Agreement. Due to the predicted high level particulate matter impacts from mining these properties should not be leased or otherwise occupied during the period they are subject to mine emissions.

Beyond the project boundary there is also concern for long-term cumulative particulate matter exposure on the town of Cullen Bullen. For each of the years modelled (years 2, 8, 14 and 20), there is a predicted incremental annual average PM<sub>10</sub> in Cullen Bullen of 30 – 100%. This represents up to a doubling of the exposure to dust particles in the township and its community and thus an increase in the risk of residents experiencing respiratory problems known to be associated with coarse particulate matter exposure such as asthma. The World Health Organization guidelines indicate that an incremental exposure to PM<sub>10</sub> of this magnitude could be associated with an increase mortality risk of 3%.

We are concerned that the proposed “real-time management system” to reduce peak particulate matter emissions will have no impact on reducing the overall increase in long-term exposure to particulate matter for local residents. We recommend that Coalpac conduct further evaluation into measures to prevent or minimise dust impact. This may involve a change to the staging of the project so that the intensity of particulate matter impacts on the Cullen Bullen residents is reduced. We note that Coalpac also proposes to discuss with the other mines in the area ways to develop management measures when elevated dust levels are identified. However, there is no evidence or explanation within the proposal of how Coalpac and the other mines will conduct their operations if elevated dust levels are recorded and environmental conditions are unstable.

**Recommendations:**

That measures are required to minimise the increment in annual average PM<sub>10</sub> in Cullen Bullen as far as feasible;

That residences where predicted air quality impacts exceed DECCW criteria are not occupied.

**Air quality issues due to blasting**

The Environmental Assessment does not include any local evaluation of the impact of blasting on air quality for the township of Cullen Bullen. With the expansion of the mine operations there will be a very significant increase in the number of major blasts (up to 20 per month), and more frequent smaller blasts. Blasting for coal mining in the Hunter Valley is of great concern to that community. Several incidents have occurred where people have reported acute health effects in relation to mine blasts.

Due to the close proximity of Cullen Bullen including the public school to much of the proposed mining activity we recommend that a thorough site-specific health risk assessment of blast emissions is undertaken and that systems are in place to receive and respond to community concerns in relation to blast emissions.

**Recommendations:**

That a detailed health risk assessment of the potential impacts of blasting on Cullen Bullen is undertaken;  
That measures to minimise exposure of local residents to blast emissions are implemented.

## **Noise and Vibration**

We are concerned that the predicted mining noise levels as reported in the Acoustics Impact Assessment (Appendix H) will significantly affect the community of Cullen Bullen, especially the local school and the private residences that are predicted to have noise impact above the intrusive criteria. These noise assessments include normal mining activity, coal handling and processing, train loading, idling locomotives and operation of the product conveyor to Mt Piper Power station.

Two residences are expected to experience mild noise impact during the daytime, while this increases to 13 and 14 residences during the day/evening and evening. A higher number of residences are affected when measuring noise impact over 25% of property area. Eighteen properties reportedly may experience moderate noise impact above the intrusive criteria at night, and 4 residences may experience significant noise impact. This increases to 9 residences that may experience significant noise impact when assessing noise impacts over 25% of the property area.

The amenity criteria  $L_{Aeq}$  in Table 15 Adopted Operational Noise Criteria has been calculated based on the INP for rural residential as the type of receiver. No assessment appears to have been made for the Cullen Bullen Public School (Receiver 272) located within the township of Cullen Bullen. The INP, in Table 2.1 Recommended  $L_{Aeq}$  Noise Levels from Industrial Noise Sources, suggests that acceptable noise levels in a school classroom (internal) at the noisiest time of day should not exceed 35 dBA  $L_{Aeq}$  (1hour) with a recommended maximum of 40 dBA  $L_{Aeq}$  (1hour). These suggested acceptable criteria would be exceeded if the 50 dBA  $L_{Aeq}$  during the day amenity criteria is adopted (taking into account the reduction in noise level of approximately 10 dBA  $L_{Aeq}$  for inside the classroom).

There is increasing evidence internationally that environmental noise exposure may cause risk to public health, and is recognised by international bodies such as World Health Organisation (WHO) and the US Centre for Disease Control (CDC). There is some suggestion of the long-term effects of environmental exposure to noise on annoyance, sleep disturbance, children's performance at school, hypertension and ischemic heart disease.<sup>3</sup>

We recommend further evaluation of the proposed noise control measures and recognition of the importance of short- and long-term monitoring of noise impact at the project boundary and surrounding areas, with a commitment to further mitigate the impact of noise on the community.

The Acoustics Impact Assessment states that on some occasions up to 40 blast events per week or 10 events per day may be required for limited time periods.

The ANZECC Guidelines, Technical Basis for Guidelines to Minimise Annoyance due to Blasting Overpressure and Ground Vibration (1990), recommends that blasting should only occur from 9am to 5pm, Monday to Saturday, excluding public holidays and that blasting should generally take place no more than once per day. (This requirement would not apply to minor blasts such as for clearing crushers, feed chutes, etc.).

The proposed Blast Management Plan should take into account the operational hours of the local primary school and avoid multiple blasts during school hours.

Furthermore with the mine operations increasing to 24-hrs, for 7 days a week, and with the proposal for increasing the number of blasts, Coalpac has not indicated how it plans to mitigate such impacts on community living and quality of life in the township of Cullen Bullen.

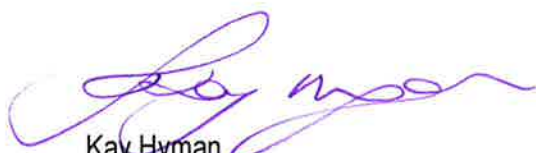
**Recommendations:**

That noise and blasting impacts on occupied homes and Cullen Bullen Primary School are reduced as far as feasible.

The health status of people living in the Lithgow LGA is on many measures worse than in other parts of NSW. Communities such as Cullen Bullen already have high levels of relative disadvantage, making them more susceptible to additional health impacts from environmental stressors such as air and noise pollution.

If Planning Officers would like assistance in further assessing the potential health risks related to the proposal or would like to discuss any of the above comments further please contact Dr Shopna Bag, Registrar, or Helen Ptolemy, Environmental Health Officer on (02) 9840 3603.

Yours sincerely,



Kay Hyman  
**Chief Executive**  
**Nepean Blue Mountains Local Health District**

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<sup>1</sup> Brunekreef B, Forsberg B. Epidemiological evidence of effects of coarse airborne particles on health. *European Respiratory Journal*.26(2):309-18, 2005.

<sup>2</sup> Sheppeard V, Puntsag O, Capon A. Health Effects of Coarse Particles. Proceedings of the 14th International Union of Air Pollution Prevention and Environmental Protection Associations (IUAPPA) World Congress, 9-13 September 2007, Brisbane.

<sup>3</sup> Carroll, A. for the EnHealth Council. The health effects of environmental noise – other than hearing loss. EnHealth Population Health Division, Australian Department of Health and Ageing 2004