

# Singleton Shire Healthy Environment Group

## “Mine Pollution Dispersion & Minimisation”



*A community-based group looking to address Environmental issues affecting Singleton Shire residents*

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We seek identification as to what is making our Children and Community Sick so they can be mitigated by OH&S Compliance Orders.

### **SSHEG Focus on Health**

SSHEG is Not Anti Mining or Anti Power Stations

**11 November 2019**

NSW Minerals Council  
Mining Dialogue Emissions & Health  
Email: [cmilton@nswmining.com.au](mailto:cmilton@nswmining.com.au)

## **“Mining Dialogue Workshop Exhibit – Pollution Dispersion”**

*“Ten years of SSHEG Hunter Valley Air Pollution Research and Dialogue; three years with NSW Health; five years examination with the Upper Hunter Mining Dialogue has been unable to move Institutional Air Pollution practices. By Oct 2013 the World Health Organisation however emphatically declared the Disease associations and life shortening impact of all levels of Airborne Pollution”.*

### **NSW Health summary for Air Quality was detailed on 3 Dec 2015: -**

*“There is no evidence of a threshold below which exposure to particulate matter (PM) is not associated with health effects. Therefore, it is important that all reasonable and feasible measures are taken to minimise human exposure to PM, even where assessment criteria are met”.*

SSHEG Community Healthy Living focuses upon Mine Pollution Disease Impacts on Residents - breath by breath; insisting that mines Mitigate Pollution by “Minimising to World Health Organisation ongoing identified Guidelines” over each 15 Minute period, of Cumulative Locality readings for PM10 & PM10-2.5 & PM2.5: **That is the Healthy Air we Breathe criteria!**

Since 2013 SSHEG has called for a Culture Change to “*Minimise Mine Air Pollution Emissions at their every source*”, and referencing 15 Minute PM10 and PM2.5 Real Time Monitoring at specific Resident Localities for “*Progressive Mine Operations Shutdown Pollution Mitigation*”.

NSW Health (**Fig 1**) in their reviews, comments and submissions on NSW Government Department of Planning, Industry & Environment Major Projects Mine Assessments in recent years have detailed their particular concerns relating to Air Quality and impacts on Residents, including having to continually restate their concerns in the hope they will be heeded.

**Finally, Hunter Valley Air Quality Mine Assessment Agreement was reached on 15 August 2019 between NSW Health, Independent Planning Commission and Department of Planning, Industry and Environment; agreement to IPC Recommendation R1- Air Pollution - Fig 2: -**

**“R1- That the...Mine... demonstrate how its operational procedures will incorporate continual improvement to further reduce the generation and dispersion of particulate matter”.**

**And with Meeting wording; -** “*The summary of the response is that ...Mine .. has committed to continually revise and update its air quality, mitigation and management measures to reflect operational changes and advancements in technology, and to document these improvements to air quality and greenhouse gas management plan. The department...(DPIE).. is satisfied with this approach, and has recommended conditions to ensure that ...Mine... continues to implement best practice over the life of the mine and document these measures in that plan.*”

**NSW Health agreement response: -** “*As a general principle that they should be continually improving their approaches to air pollution, and particularly particulate matter – it’s a very good idea. And I think – yes. This process that’s proposed where they have to continually assess and describe how they’re achieving best practice makes – yes. I think that makes a lot of sense*”.

**This is the IPC decision process in action, and the full extent of NSW Health discussions of what is the major Singleton Shire Community Mine Approval concern: And, SSHEG Questions; has this IPC R1 detailing of NSW Health concerns since 2015 translated into Mine Approval “Conditions of Consent” for Pollution Mitigation Controls?**

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Hunter New England Population Health  
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## Figure 1 NSW Health Concerns

3 December 2015

Mr Hamish Aiken  
Planning Officer Mining Projects  
Department of Planning & Environment  
GPO Box 39  
Sydney NSW 2001

Dear Mr Aiken

### RIX'S CREEK COAL MINE CONTINUATION OF MINING PROJECT SSD 6300

I refer to the Environmental Impact Statement (EIS) exhibited on the NSW Department of Planning & Environment web site in relation to the Rix's Creek Coal Mine Continuation of Mining Project (the project).

The Rix's Creek Coal Mine is an open cut mine located in the Hunter Valley approximately 5 kilometres north-west of Singleton. The project aims to extend the mine in a north-westerly direction and increase production from current production of 2.5 million tonnes per annum (Mtpa) run of mine (ROM) coal per year to 4.5 Mtpa ROM coal. The project seeks to extend the life of the mine until approximately 2037.

Hunter New England Population Health has reviewed the EIS report paying particular attention to the management of air quality, noise, water and issues which may have an impact on public health. The following points are discussed and should be considered in the approval process for this project.

#### Air Quality

There is no evidence of a threshold below which exposure to particulate matter (PM) is not associated with health effects. Therefore, it is important that all reasonable and feasible measures are taken to minimise human exposure to PM, even where assessment criteria are met.

During a consultation with the team developing Rix's Creek Mine Continuation Project we advised of the importance of considering that air quality goals will not remain static during the proposed life of the mine. It is important that the EIS should address the likely future air quality standard for annual average  $PM_{10}$  of between 20 and 25  $\mu g/m^3$  and annual average  $PM_{2.5}$  of 8  $\mu g/m^3$  as flagged in the Proposed variation to the Ambient Air Quality NEPM. While the EIS states (on page 102) that the "Air quality impacts were assessed having regard to the World Health Organisation (WHO) Air Quality Guidelines (2005) for particulate matter", the EIS did not use the annual goal of 20  $\mu g/m^3$  recommended by WHO in the document. Our focus in this review is on average annual particulate levels because this measure is most predictive of health impacts and  $PM_{2.5}$  is considered to have more significant health impacts than  $PM_{10}$ .

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The village of Camberwell is inside the contours for modelled worst case annual  $PM_{2.5}$  and  $PM_{10}$  goals (using  $30 \mu g/m^3$  as the goal) (Figures 11.7, 11.8, 11.9, 11.10). Figures 11.9 and 11.10 depicting modelled worst case annual average  $PM_{10}$  only provide a  $30 \mu g/m^3$  contour. Displaying a  $20 \mu g/m^3$  and  $25 \mu g/m^3$  contour (as relevant to the goal promoted in the variation to the Australian NEPM) would be of great use in assessing the impact on the nearby settlements such as McDougalls Hill and Singleton Heights. While the Rix's Creek project may only contribute a small (but not insignificant) proportion of particulate emission to the local communities, it is the total impact that is important from a cumulative impact assessment perspective. The intensive mining in this area will likely exceed current and particularly future air quality goals making it difficult to argue that increased particulate emissions are acceptable from a cumulative impact perspective. There are multiple and significant impacts on receptors 170 – 177. The EIS appears to dismiss these impacts because the properties are eligible for acquisition, however, rights to acquisition do not diminish or negate the cumulative impact to these communities (page 111).

### Noise and Blasting

Environmental noise can have negative impacts on human health and well-being and trigger ongoing community complaints about annoyance, sleep disturbance and stress. Evidence concerning the adverse health effects of environmental noise is detailed in a number of publications, for example, the *World Health Organization Night Noise Guidelines for Europe* (2009) and the *WHO Guidelines for Community Noise* (1999). To protect public health, it is prudent to take all reasonable and feasible measures to minimise public exposure to mine-related noise, irrespective of compliance with the relevant noise policies.

Data presented in Table 19-6 Impacts on Social Amenities indicate that 37% of all complaints between 2001 and 2015 relate to noise impacts, mostly from operational noise from the Mine, but also noise from coal trains passing residential areas. A further 29% of complaints related to overpressure levels and vibration from blasting (shaking of houses, windows or sheds). These complaints arose even though the airblast and ground vibration from current blasting operations complies with the regulatory limits at all sensitive sites.

Under the *NSW Industrial Noise Policy* (EPA 2000), a development is considered to cause a noise impact if the predicted noise level at the receiver exceeds the project specific noise levels (PSNL) for the project. This Policy also details the response and mitigation measures required when noise trigger levels are met or exceeded.

The noise modelling in the EIS shows the potential for some significant exceedences of PSNL in all Noise Assessment Groups (NAG) during worst case scenarios. It has been explained in the EIS that, in accordance with the above policy, as this is an existing development with noise legacy issues, where the modification would have beneficial or negligible noise impacts, that the consent authority cannot grant voluntary mitigation and acquisition rights. The EIS also explained the noise mitigation measures being implemented to address these legacy noise issues. However, it would be preferable for the affected sensitive receivers if these measures were implemented sooner and that very strict controls were placed on operations during conditions that would lead to the noise levels predicted in Table 4.7: 90<sup>th</sup> Percentile Operational Predictions –  $L_{Aeq, 15 \text{ minute}}$  dB.

Effective community consultation is required throughout the project to facilitate public involvement and to allow for the community to participate in the mitigation selection process.

In February the NSW Environment Protection Authority (EPA) announced the introduction of new conditions for open cut coal mines in NSW prohibiting the emission of blast fumes that are likely to cause offence to members of the public. The new licence condition states: “offensive blast fume must not be emitted from the premises”. We emphasise the need to ensure strict control of blast conditions to protect the public from blast fume emissions.

### Surface Water

There is a health risk from direct human exposure to contaminated surface water or if contaminated surface water enters a drinking water supply. The main drinking water supply for



3

Singleton, Glennies Creek Dam, is significantly upstream of Rix's Creek Mine and will not be impacted by the Project.

The EIS mentions one other licensed water user on Rix's Creek, and one other on the Un-named Tributary, that could be impacted by the reduction in catchment flows caused by the Project. However, Rix's Creek is an ephemeral stream with a flow rate of zero for 44% of the time. Presumably these two other water users are not using this water as a drinking water supply.

The EIS states that, to date, there have been no observable impacts from Rix's Creek Mine operations on the water quality in Rix's Creek, and provided existing management systems are maintained and measures recommended in Section 15.5 are adopted, there is a low risk of impacts on water quality in the surrounding catchment due to ongoing mining operations.

It is important that any private water users downstream have easy access to and can understand monitoring data. It is also important that, in the event that the water becomes unsuitable for use by private water users that an alternative water source of the same standard, quantity and quality is offered.

#### **Groundwater**

The EIS states that the review of licensed bores indicates that all but one are located more than 4.5km from the centre of the Rix's Creek Mine lease area, and they are relatively shallow bores targeting alluvial aquifers which do not extend into the mined area and are considered hydraulically isolated from the Mine target coal seams. The closest bore is 2.38km east of the Mine and is deeper; however, the EIS states that the target of this bore is also hydraulically disconnected from the Mine target coal seams. The EIS therefore concluded that there are no identified groundwater users which could be potentially impacted by the Project.

#### **Rainwater Tanks**

The EIS does not mention issues associated with water quality from rainwater tanks at residences without a reticulated water supply. It is recommended that the applicant address the issue of potential impacts on rainwater quality that may be caused by dust from mining construction and operations.

The peak reference document in Australia for information in relation to rainwater tanks is enHealth's *Guidance on use of rainwater tanks* (2010). It would be appropriate to utilise this document and apply its recommendations and standards to rainwater tank systems within the vicinity of the development.

The above document states that "tanks should be inspected every 2-3 years for the presence of accumulated sediment. If the bottom of the tank is covered with sediment the tank should be cleaned". In addition, consideration should be given to the installation of first flush diverters to rainwater tanks to reduce the amount of sediment entering the tanks.

A management system of taking complaints and rectifying issues identified should be considered.

If you require any further information please feel free to contact Carolyn Herlihy, Environmental Health Officer on (02) 4924 6477.

Yours Sincerely



Professor David Durrheim  
Director – Health Protection  
Hunter New England Population Health

40 PROF O’KANE: - - - I just wanted to check that Health is indeed comfortable with where things have landed in the assessment report, which I can share with you if you need it, and with the proposed conditions.

45 DR BROOME: Thanks. So Richard Broome. I’m Director of Environment Health Branch at New South Wales Health. Yes. So I think by way of background, the first letter dated 29 June 2018 highlighted issues related to some predictions that the level

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**Figure 2** Extracts from IPC Meeting 15 August 2019  
re NSW Health Concerns

of PM10 might be higher than 25 micrograms at some residences, and I think that concern continued following the 21 December letter, but the conditions that we have seen say that the proponent has got to achieve a level of below 25 micrograms at any private residence. So I think that ties off the concern.

5 PROF O’KANE: Right. Good. So that’s there. I’d then like to go, unless Tony  
- - -

MR T. PEARSON: No. That’s - - -

10 PROF O’KANE: Yes. I then wanted to go to the fact that when the commission did the review in the review phase of this project, we had mentioned a couple of recommendations relating to air quality, and I’m just turning them up, which is why the noise on the tape, and the two relevant ones were – the first one was the applicant demonstrate how its operational procedures will incorporate continual improvement to further reduce the generation and dispersion of particulate matter, and the answer really is that – well, I suppose it’s better to read it. The summary of the response is that Bloomfield has committed to continually revise and update its air quality, mitigation and management measures to reflect operational changes and  
20 advancements in technology, and to document these improvements to air quality and greenhouse gas management plan. The department is satisfied with this approach, and has recommended conditions to ensure that Bloomfield continues to implement best practice over the life of the mine and document these measures in that plan. Are you comfortable with what’s proposed there, or would you - - -

25 DR BROOME: I think so. May I have a - - -

PROF O’KANE: Of course. Yes.

30 DR BROOME: - - - slightly closer look?

PROF O’KANE: Look. Of course. So it’s there and just over the page. Yes.

35 DR BROOME: I think as a general principle that they should be continually improving their approaches to air pollution, and particularly particulate matter – it’s a very good idea. And I think – yes. This process that’s proposed where they have to continually assess and describe how they’re achieving best practice makes – yes. I think that makes a lot of sense.

40 PROF O’KANE: Good. Okay. Well, thank you. Then, the next one was – the next

## Subsequent translation of this agreement into Conditions of Consent is now under scrutiny and for Mining Dialogue Discussion !

### How have NSW Health issues been addressed???

#### Air Quality and Greenhouse Gas Management Plan

- B26. The Applicant must prepare an Air Quality and Greenhouse Gas Management Plan for the development to the satisfaction of the Planning Secretary. This plan must:
- (a) be prepared by a suitably qualified and experienced person/s;
  - (b) be prepared in consultation with the EPA;
  - (c) be submitted to the Planning Secretary for approval within six months of commencing development under this consent;
  - (d) describe the measures to be implemented to ensure:
    - (i) compliance with the air quality criteria and operating conditions of this consent;
    - (ii) best practice management is being employed (including in respect of minimisation of greenhouse gas emissions from the site and energy efficiency); and
    - (iii) the air quality impacts of the development are minimised during adverse meteorological conditions and extraordinary events;
  - (e) describe the air quality management system in detail; and
  - (f) include an air quality monitoring program, undertaken in accordance with the *Approved Methods for Sampling and Analysis of Air Pollutants in New South Wales* (DEC, 2007), that:
    - (i) uses monitors to evaluate the performance of the development against the air quality criteria in this consent and to guide day to day planning of mining operations;
    - (ii) adequately supports the air quality management system; and
    - (iii) includes a protocol for identifying any air quality-related exceedance, incident or non-compliance and for notifying the Department and relevant stakeholders of these events.
- B27. The Applicant must implement the Air Quality and Greenhouse Gas Management Plan as approved by the Planning Secretary.

#### Air Quality Criteria

- B22. The Applicant must ensure that all reasonable and feasible avoidance and mitigation measures are employed so that particulate matter emissions generated by the development do not cause exceedances of the criteria listed in Table 3 at any residence on privately-owned land, excluding the air quality-affected land referred to in Table 7.

NSW Government  
Department of Planning, Industry and Environment

14

Rix's Creek South Continuation of Mining Project  
(SSD 6300)

**Table 3:** Air quality criteria

Pollutant	Averaging period	Criterion
Particulate matter < 10 µm (PM <sub>10</sub> )	Annual	<sup>a, c</sup> 25 µg/m <sup>3</sup>
	24 hour	<sup>b</sup> 50 µg/m <sup>3</sup>
Particulate matter < 2.5 µm (PM <sub>2.5</sub> )	Annual	<sup>a, c</sup> 8 µg/m <sup>3</sup>
	24 hour	<sup>b</sup> 25 µg/m <sup>3</sup>
Total suspended particulate (TSP) matter	Annual	<sup>a, c</sup> 90 µg/m <sup>3</sup>

**Notes:**

<sup>a</sup> Total impact (i.e. incremental increase in concentrations due to the development plus background concentrations due to all other sources).

<sup>b</sup> Incremental impact (i.e. incremental increase in concentrations due to the development on its own).

<sup>c</sup> Excludes extraordinary events such as bushfires, prescribed burning, dust storms, fire incidents or any other activity agreed by the Planning Secretary.

- B23. The air quality criteria in Table 3 do not apply if the Applicant has an agreement with the owner/s of the relevant residence or land to exceed the air quality criteria, and the Applicant has advised the Department in writing of the terms of this agreement.

## DPE RESPONSE TO RIX’S CREEK IPCN QUESTIONS

26 June 2018 Arising from IPC Briefing held 25 May 2018

### ***Table 1: NSW Health Comments re: EIS***

*“It is important that the EIS should address the likely future air quality standard for annual average PM10 of between 20 and 25  $\mu\text{g}/\text{m}^3$  and annual average PM2.5 of 8  $\mu\text{g}/\text{m}^3$*

*While the EIS states (on page 102) that the “Air quality impacts were assessed having regard to the World Health Organisation (WHO) Air Quality Guidelines (2005) for particulate matter”, the EIS did not use the annual goal of 20  $\mu\text{g}/\text{m}^3$  recommended by WHO in the document. Our focus in this review is on average annual particulate levels because this measure is most predictive of health impacts and PM2.5 is considered to have more significant health impacts than PM10.*

*Displaying a 20  $\mu\text{g}/\text{m}^3$  and 25  $\mu\text{g}/\text{m}^3$  contour (as relevant to the goal promoted in the variation to the Australian NEPM) would be of great use in assessing the impact on the nearby settlements such as McDougalls Hill and Singleton Heights.*

*The intensive mining in this area will likely exceed current and particularly future air quality goals making it difficult to argue that increase particulate emissions are acceptable from a cumulative impact perspective.*

*There are multiple and significant impacts on receptors 170 – 177. The EIS appears to dismiss these impacts because the properties are eligible for acquisition, however, rights to acquisition do not diminish or negate the cumulative impact to these communities (page 111)”.*

**Figure 3** NSW Health Concerns 3<sup>rd</sup> December 2015 as outlined by DPE 26 June 2018



In the Hunter Valley the “*Corridors of Mine Air Pollution*” are observed to generally Drift across the Valley floor on the NNW-SE and SSE Corridors, as well as into Microvalleys pockets adjoining the Escapements.

Our SSHEG Upper Mining Dialogue Project Proposal entitled “*Coordinated Coal Mining Air Pollution Mitigation Controls, Options as WHO & NEPM Standards lower in the Hunter*” aims by 2030 to see “*Modern Dispersion Visualisation Displays and Dispersion Parameter Studies in Real Time proposed here would reintroduce the Data Intelligence to the Movement of Mine Pollution from Sources to Dispersion. i.e. Actual Measurements compared to Modelling!!!*”.

It is no wonder that NSW Health would not water down its objections to the guidelines to Mine Approvals, rightly reminding the Authorities, as is also the SSHEG opinion, that lower Mine Pollution well below the “Industry Status Quo” are now overdue. **That is “*Minimisation of Mine Pollution At all times*”.**

*Thanking you in anticipation of your acknowledgement.*

Dr Neville Hodkinson PhD

**Singleton Shire Healthy Environment Group**