

Noise Impacts from Mining in Rural Areas

An epidemic of sleep disturbance



24 hr coal washery and heavy machinery in Hunter



24 hr coal handling and processing plant (CHPP) Maules Creek



24 hr large diesel machinery operations Mudgee region

EXECUTIVE SUMMARY

People living in quiet rural areas of NSW are being subject to major impacts of industrial noise from large mining operations, particularly from the expanding coal industry.

A review of the Industrial Noise Policy has been conducted by the NSW Environment Protection Authority (EPA) and a proposed new Policy for Industrial Noise is currently before State Government for adoption.

The review failed to assess the existing impacts of mine noise in rural NSW and has based all assumptions of impact on overseas studies bearing no resemblance to conditions in NSW.

Actions outlined in the Upper Hunter and New England Strategic Regional Land Use Plans in regard to the review of industrial noise impacts and cumulative impacts from coal mining have not been met.

Current Government policy assessing and managing mine noise does not protect rural communities and farming families from suffering regular loss of sleep and resulting health and social impacts.

The proposed changes to the Industrial Noise Policy will make this situation even worse.

“Even if it can be accepted that the mines are operating within the noise limits required under the existing consents or proposed under the new conditions, I am satisfied, based on the evidence of the residents which was supported by the available monitoring data, that the noise levels of the present operations of the mine are at a level sufficient to impact on amenity, including sleep disruption.”¹

Chief Judge Preston NSW Land and Environment Court on noise from Warkworth Mine

Recommendations:

- 1. No decision to be made on changes to the Industrial Noise Policy until research into the impacts of mine noise in rural NSW has been completed**
- 2. Independent research into noise impacts and management of large mining operations in rural NSW be conducted as a matter of urgency**
- 3. Actions identified in the Upper Hunter and New England Strategic Regional Land Use Plans be undertaken in regard to the assessment of cumulative impact**
- 4. The assessment of noise impact of coal mining to be made against existing background noise levels in the locality where the mine is proposed and include thorough assessment of low-frequency noise**
- 5. People suffering from noise effects of existing mining operations be compensated through acquisition rights or changes to mining activities**

¹ Bulga Milbrodale Progress Association Inc vs Minister for Planning and Infrastructure & Warkworth Mining Ltd

Key Issues

The impact of industrial noise from large coal mines in quiet rural areas of NSW has ramped up significantly with expansion of open cut coal mining and has not been properly researched to inform technical decisions on noise assessment or management.

The current NSW Industrial Noise Policy (INP) imposes an artificial background noise level that does not reflect the true quiet nature of rural areas. (ie 30 dB rather than under 20dB in some areas).

Sleep disturbance triggers are too high and do not protect community health.

A review of the INP undertaken by the NSW EPA relies on research conducted in areas of Europe and America that do not reflect conditions in rural NSW.

The proposed changes to the INP will further impact farming communities and rural villages by:

- Increasing the allowable daytime noise level of mines
- Changing the assessment methodology for low frequency noise
- Changing the management of mine noise so that project specific noise levels are no longer a compliance measure
- Removing the objective to protect community and preserve amenity.

The auditing of mine noise for compliance is based on monthly 15 minute monitoring periods. Real-time 24hr noise monitoring is not used as a legal compliance measure for consent conditions even though this is available.

Rural communities currently impacted by mine noise include Bulga, Wollar, Ulan, Camberwell, Maison Dieu, Wybong and Maules Creek. Residents in these localities experience sleep-deprivation, anxiety and ill-health as a result of mine-noise and have little to no recourse for help from the Government or mining companies.

Rural communities threatened by noise from mine proposals are Bylong, Gloucester, Craven, Stratford, Aberdeen and Boggabri. Current planning frameworks are not up to the job of preventing these communities from suffering the same fate as those listed above.

The objective of the Upper Hunter and New England North West Strategic Regional Land Use Plans (2012) in regard to community health and amenity is to:

'Ensure that the growth of the mining and coal seam gas industries does not significantly impact on community health and amenity.'

Actions to achieve this objective include:

Action 7.1 : Develop a cumulative impact assessment methodology to manage the cumulative health and amenity impacts of mining and coal seam gas proposals. This methodology will consider whether cumulative impact thresholds or tipping points can be adequately described and predicted. It will also address cumulative impacts on agricultural lands and water resources.

Action 7.5 : Commence review of the Industrial Noise Policy, including consultation with all key stakeholders, and consider a wide range of options for addressing noise impacts from emerging mining precincts within rural areas.

These actions have not been implemented and community health and amenity is being significantly affected.

Urgent and effective action is needed from the NSW Government to protect the health and amenity of NSW rural communities that are affected by mine noise.

Background

Open cut coal mines in “green fields” rural areas

A “green fields” area is one that has never been the subject of industrial development. In such areas, the whisper quiet background that was once punctuated only by insects and birds at night, mooing cows, baaing sheep, an occasional pump or during harvest a tractor, is severely and alarmingly broken when coal mine noise is introduced.

In rural NSW noise can travel vast distances - up to 20km from the noise source.

Since the impact of noise is a function of the degree of change or intrusion, the quietness in some country areas - where the background noise drops to under 20dB after nightfall, is important context for understanding the significance of the impact of noise from open cut coal mining.

What does coal mine noise sound like?

Typical noise disturbance from open cut coal mining includes loud bangs from huge rocks being dumped into trucks, the tracks of bulldozers, multiple large diesel engines, tooting from reversing vehicles, the train loader which could be dumping 20 tonnes of crushed coal into 80 or more steel wagons, the coal crusher which uses large steel balls dropped repeatedly on the coal to break it down into smaller chunks, and the coal washery which emits a disturbing noise often described as pulsing and whirring.

Typically mine noises are audible throughout the night, many kilometres away from the mine as mines generally operate 24 hours a day.

So why is sustained overnight mine noise in rural areas unacceptable?

If you live in a rural, low noise area and are having trouble falling asleep because the rumbling and whirring of the coal washery, or are awoken by a loud bang then unable to return to sleep because of the noise, you will understand why.

The coal washery, which sometimes sounds like an approaching car that never arrives, is just one of the sounds that drives people out of rural communities, often with disastrous family and economic consequences. At the lower frequencies, people commonly report pain or pressure in the ears and head, sleep disturbance, pressure in the chest cavity, body vibration and nausea.

No one in these communities wants their children, their parents, their neighbours or themselves living like this, or wants a new rule that will mean the noise increases.

Because of the constant waking from intrusive noises, residents are sleep deprived and have no control over their sleeping patterns and this is set to continue for the next 30 years - or more.

For anyone, long term, broken sleep is exhausting and cruel and causes stress-related health conditions.

Whole rural communities and families should not be subjected to living, going to school and working with accumulated tiredness caused by unwanted mine noise.

Rural communities - with clear night air living alongside greenfield mines have no other background noise to mask the impacts of mine noise.

CASE STUDY 1

The community of Bulga in the mid Hunter Valley has been subject to noise from four large mining operations. The most recent expansion of the Warkworth Mine, closer to Bulga Village, will increase the noise impacts with no recognition of the existing problems. The expansion deemed only 2 properties would be impacted to the point of acquisition. Since the mine was approved in 2015, around 30 properties have been acquired by the mine. People have been suffering from severe stress from sleep loss for many years. This problem has been ignored by Government decisions.

Not all noises are equal

Noises differ in tone and volume, and there is no doubt that some noises are more harmful and intrusive. For example, coal washeries are known to be highly disturbing to their affected neighbours. It is no secret to the mining industry and the NSW EPA that the 16-25 Hz “signature” of coal washeries is a significant part of the mine noise problem. Noise generated by fleets of large diesel machines has a different impact on neighbours to the noises of animals, birds and insects.

Sleep disturbance divides families and kills communities

The body of scientific knowledge on sleep disturbance has grown immensely in recent years, and this mounting evidence shows that sleep disturbance is not a public health matter that can be ignored.

There is a growing body of medical knowledge that proves sleep disturbance can have a dangerous deleterious effect on people’s health in addition to chronic tiredness, sometimes leading to blood pressure problems, depression, heart attack or stroke.

‘Noise-induced sleep disturbances are regarded as most deleterious as undisturbed sleep of sufficient length is undoubtedly essential for performance, for well-being and health’ (World Health Organisation 2009, 2011).

In coal mine affected rural communities sleep disturbance from mine noise can occur many kilometres away from the noise source. Mine noise is generated from a variety of operations that continue over a 24 hour period, 7 days per week.

In rural communities experience has shown that married couples are not always affected by noise to the same extent. It’s hard when you’re a farmer and your home is also your source of income. A farmer can’t just move house like a city person. Marriages break up due to stress.

The NSW Voluntary Land Acquisition and Mitigation Policy, supposed to provide a framework for fair acquisition of farmland by coal mines, is an oppressive tool that favours the incoming mines by giving them unfair bargaining power and fuelling division within farming communities. Fear of being left the last man standing with an unsaleable property in the midst of coal landholdings can lead to marriage and family breakdowns while some hold out for fairer price, others are desperate to leave before it’s too late.

Noise is the number 1 trigger of community pain. It might be invisible, but it is very effective in fostering stress and community distress.

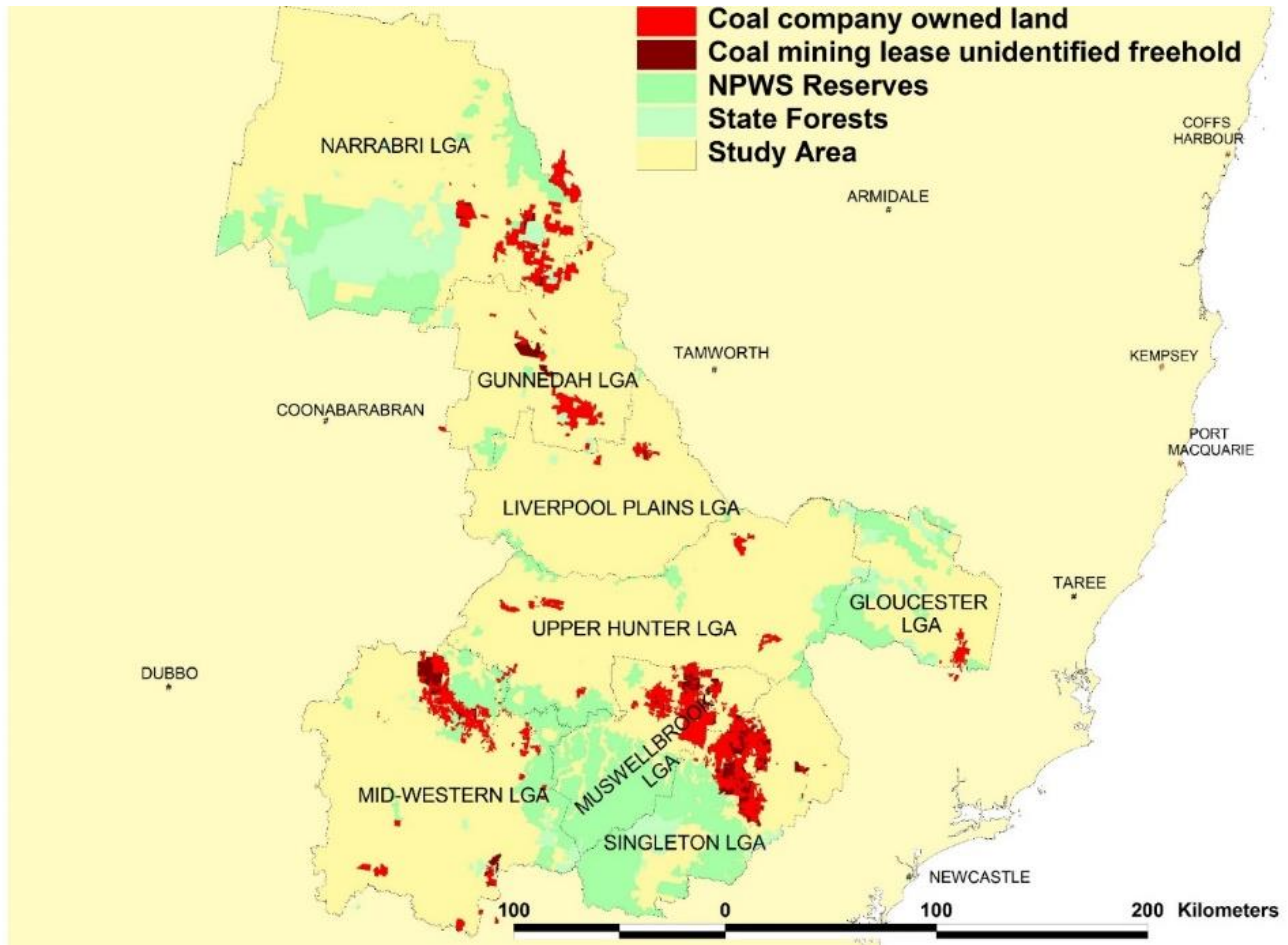
Impacts of current mine approvals on communities

Research on land titles conducted in 2015² found that mining companies own more than 702,000 ha of freehold land in the Hunter Valley and Namoi regions. Much of this land acquisition, which has destroyed entire communities, has been a mitigation measure against mine noise and dust impacts.

However, because of poor noise modelling predictions many more rural people are impacted by mine noise and are not given acquisition rights in mine approvals. They can be left with stranded assets and no viable community.

² http://www.lockthegate.org.au/flogging_the_farm

Map 1: Land owned by mining companies (2015)



CASE STUDY 2

The Wollar community near Mudgee has lost over 90% of private property and nearly all community members mainly because of the noise impacts of the Wilpinjong mine operations. Only 18 properties were identified through noise assessment and conditions of approval to be impacted by noise. Many more properties had higher than predicted noise levels. The majority of properties purchased since the mine commenced have been acquired to meet compliance with noise conditions.

Proposed changes to INP

New Policy for Industrial Noise

The new proposed **Policy for Industrial Noise**, developed by the NSW EPA, will lead to harmful social effects, through diminution of public health, economic dislocation, uncertainty and loss by many farmers and communities. It is a severe and retrograde step in NSW environmental history and threatens decades of legislative reform implementing environmental justice.

The current **NSW Industrial Noise Policy** was an element of that same successful push for environmental legislative reform that produced the *Environmental Planning & Assessment Act* and the *Protection of the Environment Operations Act*. With its method of factoring in low frequency noise, and recognising the sleep disturbing, intrusive, impulsive sounds associated with some industrial activities, the INP provided a framework and formulae for regulating the loss of amenity caused by excessive industrial noise.

Given the **Industrial Noise Policy** has been around since the early 1990's and predates the spread of open cut mega mines in green fields rural areas, it is unsurprising that there would be calls for its overhaul. For example, it replaces the *true background noise* with an imagined one, and this is a serious environmental injustice that should be abolished. The proposed changes to the INP are not based on real-world science, such as field studies into how the noise travels across rural valleys in green fields areas, and what kind of impulsive bursts or low frequency noise can penetrate peoples' homes at night.

Unfortunately, the NSW Government decided *not* to conduct its own studies but to adopt a modified version of UK noise regulations, established by the Department of Environment, Food and Regional Affairs (DEFRA). The system borrowed from the UK Government includes the scale of weighting the noise across a range of frequencies, called the One Third Octave low frequency noise criteria.

The trouble is, the DEFRA system is based on **indoor** noise measurement in **totally different industrial and geographic scenarios, NOT 24-hr mega coal mining and handling operations as we have in NSW.**

On the contrary, DEFRA research focused on impacts of industrial noise sources such as gas turbines, rail shunting yards, windfarms, and small quarries. The DEFRA standards were developed with populated urban communities in mind, not remote farm communities with almost no audible background noise.

Supposedly based on DEFRA methodology, the new proposed **Policy for Industrial Noise** will affect many communities by making it almost impossible/impossible to have complaints about coal mine noise dealt with, no matter how badly it affects you.

Unscientific use of the DEFRA methodology

The EPA have used an unresearched approach to modify the DEFRA one third octave low frequency noise thresholds for **outdoor measurement.**

DEFRA research found that 65% of respondents could hear the offensive noise generally *inside the home*. **So why does the NSW Government insist on measuring the noise impacts *outside* the home?**

Throughout Europe, the measuring of noise intrusiveness and exceedance of approved noise levels is done inside the house, not outside as mandated by the **NSW Industrial Noise Policy** and also the proposed new **Policy for Industrial Noise.**

It is well-known that noise at lower frequencies especially can be heard more in the house, and certain rooms can be more affected than others.

So why is the NSW Government overlooking known science on this issues, and continuing the practice of measuring noise exceedances up to 30metres from a residence rather than where people live and sleep?

Other noise policy changes also worse for rural communities

The EPA is proposing to increase the artificial daytime background noise level. Mines will be allowed to make more noise during the day, seven days a week. This will further destroy the peacefulness and amenity of rural areas.

The project specific noise levels that appear in conditions of approval will no longer be a mandatory noise level that cannot be exceeded. These levels are proposed to become a trigger for noise management protocols and will be less binding.

The sleep disturbance trigger is many times greater than real background noise levels and does not reflect the real time experience of rural communities. Sleep disturbance is occurring at much lower noise levels than proposed.

Noise Monitoring Issues

Why does NSW Dept of Planning insist on secrecy of mine noise information?

The Dept of Planning has consistently approved coal mines with no requirements that they reveal how noisy they really are (see Case Studies 2 and 3) and mostly allows the mine companies to retain secrecy over their real-time noise monitors.

Even if you agree to have one of these monitors on your own property, in most cases you will never have access to the data they hold.

The real-time monitoring of noise levels is conducted by the polluters themselves, but often not regarded as reportable to the public. There is no consistency across the industry or mining regions in the management, reporting and use of real-time data. It is not used for compliance purposes.

There are requirements to publicly report the noise levels taken under specific conditions, at specific times at each mine for compliance purposes. This monitoring is organised and paid for by the mining company that knows exactly when and where monitoring will take place. It's no surprise there is little reportable noise on these occasions. Are the regulators complicit with the mines? Or simply naïve?

Communities forced to buy expensive acoustic equipment

Time after time, open cut coal mines are being approved by the NSW Department of Planning on the basis of false and misleading acoustic modelling which understates the maximum noise impacts that might be inflicted on the region.

Contrary to the predictions of the mine proponents and their experts, coal mining operations are often unable to comply with the Project Approval conditions, and if the Department had done its job properly it would have known it.

Despite having the legal power to bring proceedings – even criminal proceedings – against anyone who provides false and misleading information, the Dept of Planning does nothing.

This is where communities have been forced to invest in expensive equipment that might finally prove that the noise levels are excessive. An entry level Class 1 acoustic monitor could be between \$6-9,000, not including annual calibration in a NATA-certified laboratory.

Even then, communities are frustrated by additional hurdles placed in their way. There have been cases with community science noise monitoring projects where mining company security guards have followed and harassed participants.

Case Study 3

Community monitoring – “citizen science” - near the Maules Creek Mine has demonstrated that original noise assessment for the mine approval was incorrect. This was corroborated by NSW EPA monitoring which found 100 exceedances at one neighbouring property that had not been self-reported by the Whitehaven Coal company. The NSW EPA then ordered a Mandatory Noise Audit be conducted which further showed that the original modelling provided to the NSW Government in the Environmental Assessment was dramatically understated. The Mandatory Noise Audit concluded that a 10 properties were wrongly modelled by Whitehaven Coal. Community research suggests the number is much higher and the noise affectation zone of the mine should extend many kilometres further than predicted. The audit also found that a very large number of plant items were underestimated in their noise levels. Instead of penalising the Whitehaven company, the NSW EPA concluded that the mine was being run in a good fashion.

CONCLUSION

The NSW Government's commitment to protect community health and amenity from the impacts of mine noise has not been met through the review of the Industrial Noise Policy.

The problems caused by noise impacts from emerging mining precincts within rural areas have not been addressed through the proposed changes to assessment and management of mine noise.

KEY RECOMMENDATIONS

- 1. *No decision to be made* on changes to the Industrial Noise Policy until research into the impacts of mine noise in rural NSW has been completed**
- 2. Independent research into noise impacts and management of large mining operations in rural NSW be conducted as a matter of urgency**
- 3. Actions identified in the Upper Hunter and New England Strategic Regional Land Use Plans be undertaken in regard to the assessment of cumulative impact**
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