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By Email & Express Post

Senate Inquiry into the Impact on Health of Air Quality in Australia
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Canberra ACT 2600

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Inquiry into the Impacts on Health of Air Quality in Australia

Thank you for the opportunity to provide this submission with our views of the health impacts that air pollution is having on the residents of the Hunter Valley area.

Who we are

The Hunter Valley Protection Alliance was founded in 2004 by residents in the Hunter Valley who were concerned with the impacts that coal extraction and coal seam gas exploration were having the unique Broke Fordwich wine region and on the viticultural industries and on the health of residents and life styles. We are committed to safeguarding the Hunter Valley, Australia's oldest and most visited wine producing region - for future generations.

Our problem

In the Hunter Valley, we see the greatest current danger to residents' health is dust and pollution produced by open cut coal mines and coal fired power stations. The large number and enormous area of open cut pits surrounding residential areas in the Hunter Valley is producing thousands of tonnes of dust and pollution each year which we believe is not only affecting our health but also the health of farm animals, horses on the numerous stud farms and quality of grape used in the production of Hunter Valley wines.

The mining companies are unable to control the dust and there appears to be little policing by the government departments in minimising dust impact on residents.

To understand the magnitude of the problem, we have included below the data from the National Pollution Inventory for the year 2008. This table below shows the large volume of pollutants that fell on the Singleton local government area having a large number of open cut mines compared to very low or nil deposits in other similar country areas having no open cut mines. As coal mines have increased production since 2008 it must be assumed that the pollutant results will have also increased (figures stated are kilograms).

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Pollutant	Singleton-M'brook	Armidale	Dubbo	Merriwa
Sulphur dioxide	132,730,000	19	270	430
Nitrogen oxides	62,640,000	25,000	4,700	3,200
PM10	55,160,000	1,800	660	4,500
Carbon monoxide	11,860,000	5,700	15,000	17,000

Pollutant	Singleton-M'brook	Armidale	Dubbo	Merriwa
Hydrochloric acid	2,190,000	NR	NR	Trace
PM2.5	1,520,000	200	1,000	NR
Sulphuric acid	1,450,000	NR	NR	NR
Ammonia	3,810	Nil	110,000	NR

Specific health risks

Of particular concern to Hunter Valley residents is the large quantity of PM2.5 produced by open cut methods of coal extraction and coal fired power stations.

A study carried out by the State Pollution Control Commission in 1986 established that the distribution of particles produced by open cut coal mines in the Hunter Valley was as follows

- PM2.5 is 4.68% of total suspended particulate (TSP)
- PM2.5-10 is 34.4% of TSP
- PM10-30 is 60.92% of TSP

The particle size distribution has been validated since that 1986 study and is currently used by the industry consultants for dust forecast modelling.

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We refer you to a report produced by the World Health Organisation. This report is titled *“World Health Organisation report on effect of dust on health updated Sept 2011 headed Air Quality and Health Fact sheet no. 313”* In this report it states *“As no threshold for PM has been identified below which no damage to health is observed,.....”* . Clearly as there is no safe level for dust, the implications of the WHO report is of great concern to residents who are subject to mine dust on a daily basis.

A copy of the relevant sections of this WHO report is attached to this submission

The Upper Hunter Air Quality Monitoring Network. (UPAQMN)

This network was established as a result of strong pressure from the community. As reports will show, there are many exceedences above the maximum allowable under the regulations but there appears to be no processes or programs that are able to stop the dust emissions. The Government monitors the coal mines which have maximum levels of dust production that they are required to keep within. However the WHO report states that there are no safe levels for dust and that the PM 2.5s are particularly dangerous to health. According to the Government's 1986 report it is accepted that Hunter Valley residents are experiencing PM2.5 dust which is detrimental to our health.

In addition, the massive consumption of diesel in the open cut mines extraction process (approx. 1 litre per tonne of coal produced) adds to the cocktail of health harming particulates in the atmosphere surrounding villages and towns close to open cut mines. A large open cut mine close to villages in the Hunter Valley produces 12 million tonnes of coal per annum and thus burns and releases into our local atmosphere approx. 12 million litres of diesel. The WHO has stated that diesel fumes are carcinogenic.

Since the 6th September 2012 the EPA has issued 96 health warnings for the Singleton region. Despite numerous requests to the mining companies and a number of Government departments, the community is not aware of any action being taken to minimise or remove the impacts.

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Dust incidents in the Hunter Valley

The photos taken below show the dust storm in Sept 2012 as a result of lack of rehabilitation and excessive clearing for open cut mining.

View photographed from the Putty Road at Mount Thorley on a clear day at Warkworth Open cut mine in Sept 2012 looking North West.



View during dust storm in Sept 2012. Dust blowing south towards the township of Broke obliterating the ridge behind the open cut.



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Source of dust

The source of the dust is evident in the aerial photo shown here. The vast areas of bare overburden stockpiles which have not been rehabilitated produce enormous amounts of dust as will be seen in the photos above. In strong winds the windblown dust leaves the mine sites and is carried for long distances covering houses, people, vineyards, horse studs etc. It appears impossible for the mines or the government agencies such as the EPA to control such large dust events adding to the normal everyday dust that the residents of the Hunter Valley are suffering

Aerial view of Warkworth open cut mine showing vast areas of dust producing non-rehabilitated overburden heaps



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Grazing land against a backdrop of dust producing overburden stockpiles at the Bulga open cut mine.



Dust creation in an open cut mine. Wind takes this dust and distributes it throughout the Hunter Valley.



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Effect on health currently observed in our area.

A local General Medical Practitioner of Singleton has over the past two years carried out surveys of young people and infants who have asthma or similar respiratory illnesses. The results of research by this medical practitioner show that that the younger generations in the Singleton Shire area have greater percentage of illness compared with other areas of the state. There are examples of residents moving from this area to escape the harm the dust may cause to their babies.

A rural area such as the Hunter Valley should not be subject to the horrendous levels of dust currently experienced.

The photo below shows the dust haze which is an everyday occurrence in the middle to upper Hunter Valley region. This dust is a result of open cut mining at the Mount Thorley pit close to the villages of Bulga and Broke. The PM2.5 particles travel far beyond the site boundaries of the open cut mine and in our view have a detrimental effect on neighbouring residents.



The fact remains that neighbouring communities to the open cut mine sites are being exposed to unhealthy levels of dust that pose real threats to human health.

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The mining companies cannot prevent the dust pollution of towns in the Hunter Valley and yet the State Government is continuing to approve new mines and extensions to existing mines.

Local manufacturing industries are disadvantaged due to the lack of action taken by mining companies and the controlling authorities to minimise the dust pollution from the mine sites. Coping with dust adds to the cost of manufacturing.

This dust is also exposing employees at mine sites and its neighbouring communities to dangerous levels of dust pollution. This fact is well documented by the NSW Governments EPA health warnings that are regularly posted on their own web site.

The OH&S laws are very clear and Government Departments are normally quick to react to any safety or environmental breaches by private companies; however in this instance the EPA appear to be turning a blind eye to a situation they themselves monitor and have identified as a threat to human health. When approached the EPA as to what action should be taken in relation to their health warnings we are told to seek advice from another government department, NSW Health.

Effects from blasting and associated toxins in the air and dust

Blasting is a daily event in the Hunter Valley mines. These blasts cause enormous plumes of toxic gases and dust which often travel outside of the mine sites and into local residences.

Photo below shows the Ammonium Nitrate Blast Fume produced by a blast at the Mount Thorley open cut mine. Fumes such as this have been recorded travelling in a westward direction and covering the village of Bulga



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There have been various incidents that have directly affected the wellbeing of passing motorists. We refer to the incident on Friday 2 March 2012 where a resident of Bulga was driving past a blast area. The resident of Bulga was caught in an orange fume cloud from a blast and suffered breathing difficulties and severe increase in blood pressure. She was taken to hospital and after observation was required to rest over the weekend before reporting back to the hospital for further tests.

Residents are all too familiar with blast fume clouds. Stories are told where a driver got caught in a red fume on the Putty Road. Another resident had an orange cloud envelope his property.

There is also the story of the truck driver who got caught in a red cloud near Muswellbrook. The driver passed out and just managed to get his truck off the road. No mine ever admitted liability and he was given the 'run around' until he got an anonymous phone call from the Dept. of the Environment warning him to seek urgent medical attention.

Whenever a complaint is made to the mine responsible the response is that 'the cloud has not left the site'.

Conclusion

Dust and associated pollution and its effect on health is an enormous problem in the Hunter Valley. While incidents are reported almost daily very little appears to be happening to reduce the problem. Meanwhile our children continue to be treated for asthma and similar diseases while the government and the mine continue extracting mineral resources and committees etc. discuss the problem.

It is essential that action is taken on the air pollution in Australia and we trust this submission will assist in delivering to the Senate Committee the severity of the impact that dust and pollution has on residents in the Hunter Valley.

Yours faithfully,
Hunter Valley Protection Alliance Inc.

Stewart Ewen OAM
Chair

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**World Health Organisation report on effect of dust on health updated Sept 2011
headed Air Quality and Health. Fact sheet no. 313**

Key facts

- Air pollution is a major environmental risk to health. By reducing air pollution levels, we can help countries reduce the global burden of disease from respiratory infections, heart disease, and lung cancer.
- The lower the levels of air pollution in a city, the better respiratory (both long- and short-term), and cardiovascular health of the population will be.
- Indoor air pollution is estimated to cause approximately 2 million premature deaths mostly in developing countries. Almost half of these deaths are due to pneumonia in children under 5 years of age.
- Urban outdoor air pollution is estimated to cause 1.3 million deaths worldwide per year. Those living in middle-income countries disproportionately experience this burden.
- Exposure to air pollutants is largely beyond the control of individuals and requires action by public authorities at the national, regional and even international levels
- The *WHO Air quality guidelines* represent the most widely agreed and up-to-date assessment of health effects of air pollution, recommending targets for air quality at which the health risks are significantly reduced. The Guidelines indicate that by reducing particulate matter (PM₁₀) pollution from 70 to 20 micrograms per cubic metre, we can cut air quality related deaths by around 15%.

Background

Air pollution, both indoors and outdoors, is a major environmental health problem affecting everyone in developed and developing countries alike. The 2005 *WHO Air quality guidelines* (AQGs) are designed to offer global guidance on reducing the health impacts of air pollution. The guidelines first produced in 1987¹ and updated in 1997² had a European scope. The new (2005) guidelines apply worldwide and are based on expert evaluation of current scientific evidence. They recommend revised limits for the concentration of selected air pollutants: particulate matter (PM), ozone (O₃), nitrogen dioxide (NO₂) and sulfur dioxide (SO₂), applicable across all WHO regions.

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Key findings in 2005 Air Quality Guidelines are as follows.

- There are serious risks to health from exposure to PM and O₃ in many cities of developed and developing countries. It is possible to derive a quantitative relationship between the pollution levels and specific health outcomes (increased mortality or morbidity). This allows invaluable insights into the health improvements that could be expected if air pollution is reduced.
- Even relatively low concentrations of air pollutants have been related to a range of adverse health effects.
- Poor indoor air quality may pose a risk to the health of over half of the world's population. In homes where biomass fuels and coal are used for cooking and heating, PM levels may be 10–50 times higher than the guideline values.
- Significant reduction of exposure to air pollution can be achieved through lowering the concentrations of several of the most common air pollutants emitted during the combustion of fossil fuels. Such measures will also reduce greenhouse gases and contribute to the mitigation of global warming.

In addition to guideline values, the AQGs give interim targets related to outdoor air pollution, for each air pollutant, aimed at promoting a gradual shift from high to lower concentrations. If these targets were to be achieved, significant reductions in risks for acute and chronic health effects from air pollution can be expected. Progress towards the guideline values, however, should be the ultimate objective.

Particulate matter

Guideline values

PM_{2.5}

10 µg/m³ annual mean

25 µg/m³ 24-hour mean

PM₁₀

20 µg/m³ annual mean

50 µg/m³ 24-hour mean

The 2005 AQG set for the first time a guideline value for particulate matter (PM). The aim is to achieve the lowest concentrations possible. As no threshold for PM has been identified below which no damage to health is observed, the recommended value should represent an acceptable and achievable objective to minimize health effects in the context of local constraints, capabilities and public health priorities.

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Definition and principle sources

PM affects more people than any other pollutant. The major components of PM are sulfate, nitrates, ammonia, sodium chloride, carbon, mineral dust and water. It consists of a complex mixture of solid and liquid particles of organic and inorganic substances suspended in the air. The particles are identified according to their aerodynamic diameter, as either PM₁₀ (particles with an aerodynamic diameter smaller than 10 µm) or PM_{2.5} (aerodynamic diameter smaller than 2.5 µm). The latter are more dangerous since, when inhaled,

they may reach the peripheral regions of the bronchioles, and interfere with gas exchange inside the lungs.

Health effects

The effects of PM on health occur at levels of exposure currently being experienced by most urban and rural populations in both developed and developing countries. Chronic exposure to particles contributes to the risk of developing cardiovascular and respiratory diseases, as well as of lung cancer. In developing countries, exposure to pollutants from indoor combustion of solid fuels on open fires or traditional stoves increases the risk of acute lower respiratory infections and associated mortality among young children; indoor air pollution from solid fuel use is also a major risk factor for chronic obstructive pulmonary disease and lung cancer among adults. The mortality in cities with high levels of pollution exceeds that observed in relatively cleaner cities by 15–20%. Even in the EU, average life expectancy is 8.6 months lower due to exposure to PM_{2.5} produced by human activities.

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