15 March 2013

Committee Secretary
Senate Standing Committees on Community Affairs
PO Box 6100
Parliament House
Canberra ACT 2600

Via email: community.affairs.sen@aph.gov.au@aph.gov.au

Re: Senate Committees Review - The impacts on health of air quality in Australia

Dear Sir/Madam,

The Minerals Council of Australia welcomes the opportunity to provide a submission to the Senate Committee Review into the impacts on health of air quality in Australia.

As you are aware, the Minerals Council of Australia (MCA) represents over 85% of minerals production in Australia. The MCA's strategic objective is to advocate public policy and operational practice for a world class industry that is safe, profitable, innovative, environmentally responsible and attuned to community needs and expectations.

MCA members have a long standing commitment to *Enduring Value - the Australian Minerals Industry Framework for Sustainable Development.* Part of this commitment includes responsible product stewardship and the continual improvement of health, safety and environmental performance.

The minerals industry is fully committed to its social license to operate. Management of air quality and its potential impacts on communities is fundamental to this commitment. Accordingly, the industry has and continues to invest in improved scientific understanding of air quality, industry impacts and in the development of leading practice approaches to the management of air emissions.

While the focus is of the enquiry is on particulate matter, the stated scope of the enquiry is broad. Accordingly, in this submission, the MCA provides a general overview of air emissions/air quality issues as they pertain to industry emissions of particulate matter. These include:

- Contextualising sources and exposure risks associated with airborne particulates.
- Providing an overview of Australian particulate air quality in the national and international context.
- Providing an overview of the status of air quality monitoring, with a focus on mining regions.
- Contextualising exposure risks from air quality issues and their intersection with the minerals industry.
- Providing key considerations for the development of an evidence based management response to air quality issues.
- Providing national and international comparison of air quality standards, regulation, and the application of the National Environmental Protection Measure.
- Providing clear examples of minerals industry commitment to continuous improvement in the assessment and management risks arising from air quality issues.

Given the specialised nature of air quality science, the MCA has sought expert independent review from Pacific Environment Limited. This advice, which forms part of the MCA submission, is provided in Attachment A.

Summary of Outcomes of Pacific Environmental Limited Review:

Key findings of the Pacific Environment Limited review include:

Particulate Matter, Sources and Effects

Characteristics and Composition of particulates are key to understanding risks and effects:

- The distinction between the composition and source of particulate matter (PM) is important when considering PM emissions (and subsequent potential health impacts).
- There is substantial evidence to suggest that fine ($PM_{2.5}$, PM_1) and ultra fine particles ($PM_{0.1}$), and specifically 'secondary PM' related to combustion processes and conversion of organic aerosols, are more damaging to human health than coarser, thoracic particles ($PM_{2.5-10}$) derived from suspension of soil or road dust. PM associated with mining is generally associated with the larger (course) PM size fraction, due to its generation via mechanical (as opposed to combustion) processes.
- It is acknowledged that the while the minerals industry is a significant contributor to emissions of PM, high PM emissions do not necessarily equate to equivalent PM impacts at sensitive receptor locations. This will be a function of particle size and composition, the proximity of sources to populated areas / receptors, as well as the potential for transportation of those emissions (e.g. meteorology).
- Particle speciation studies within urban and mining areas have shown that airborne fine particle concentrations comprise 'primary PM' released directly from natural and anthropogenic sources in addition to a significant proportion of 'secondary PM' formed in the atmosphere from the chemical conversion of gaseous emissions.
- Industry emissions should be considered in relation to overall population exposure to PM from different sources, and the toxicity of different PM components.

Standards, Monitoring and Regulation

Internationally, Australia has the most or one of the most stringent air quality standards in the world:

- Whereas Australia has set ambient air quality standards for PM_{10}, no national air quality standard has yet been set for $PM_{2.5}$, with only an advisory reporting standard for $PM_{2.5}$ currently in place. The intention of this advisory reporting standard was to gather sufficient $PM_{2.5}$ monitoring data to facilitate the review and revision of the NEPM-AAQ. In the absence of national air quality standards for $PM_{2.5}$, the advisory reporting standard has been increasingly referenced as a compliance measure.
- When compared with international standards Australia's annual advisory reporting standard for $PM_{2.5}$ (8 $\mu g/m^3$) is more stringent than the recently revised US standard (12 $\mu g/m^3$), World Health Organisation (WHO) interim targets (15-35 $\mu g/m^3$) and the WHO guideline (10 $\mu g/m^3$).
- The national 24-hour PM_{10} standard is set at an equivalent concentration to the WHO guideline and EU standard (50 $\mu g/m^3$), with marginally lower restrictions on the number of exceedances compared to the WHO guideline (5 days/year compared to the WHO's 3 days/year).
- The EU permits up to 35 days/year above 24-hour PM_{10} standard. However it is acknowledged that the monitoring locations where these are assessed include major roadways, etc.
- In the recent revision of its standards the US set more stringent standards for $PM_{2.5}$ but retained its existing 24-hour PM_{10} standard of 150 $\mu g/m^3$ to address the lower health risks related to coarser PM.

- Regulation at state level, for existing and proposed industry, often makes reference to compliance with NEPM standards. However, this is inconsistent with the purpose if the NEPM. The intent of the AAQ NEPM standards is that they are applied at monitoring locations that are not influenced by a particular pollution source (e.g. heavy industry, heavily trafficked road or coal mine).
- The setting and application of air quality standards and exposure reduction targets should be based on robust scientific research and health advice, taking into account relative health impacts of particle size (PM_{10} versus $PM_{2.5}$), composition and source (crustal dust versus combustion derived PM) and context (urban versus rural).
- Ongoing monitoring and research is recommended to better understand PM (composition, size) emitted by the minerals industry, as well as further knowledge of dust control. This will facilitate more robust evaluations of the cost-effectiveness of control measures versus their respective contribution to nuisance and health outcomes.
- Measurement and monitoring techniques need to be consistent and appropriate for Australian conditions. This includes the unique Australian environment and the contemporary operation of Australian Industry.
- There are currently more sites measuring PM_{10} than $PM_{2.5,}$ in spite of recent evidence which indicates that exposure to smaller particles ($PM_{2.5}$) presents a higher risk to human health than exposure to larger particles (PM_{10} and TSP).

Exposure Risk and Management by the Mining Industry

There is demonstrable evidence of continual improvement in terms of PM management and control:

- The minerals industry has a programme of measures to reduce emissions of PM and exposure to ambient air pollution.
- Air quality management within the mining industry is subject to continual improvement, with techniques that were previously deemed leading practice becoming standard industry practice.

The Importance of Context when evaluating Health Related Air Quality Impacts

In this submission, the MCA does not attempt to draw conclusions on the impacts on human health of air quality. This is an evolving field and will require further independent scientific assessment in the Australian context by suitably qualified specialists.

Highlighted during the 2010-11 review of the National Environment Protection (Ambient Air Quality) Measure (NEPM-AAQ), there are significant challenges in drawing parallels to international studies on air quality exposure risks, human health and the management of industrial emissions. It is important that conclusions from international studies are not simplistically applied in the Australian environment without context around:

- Regional specific demographics and human health risk factors.
- Source and composition of particulate matter.
- Historical record of exposure.
- Account for way contemporary Australian industry operates and manages particulate emissions.

Government response should be based in sound science

Particulate emissions and air quality can be the cause of considerable community concern. These serious concerns can in turn result in considerable pressure on government to be seen to be 'doing something'. Where delivering a rapid response is the key driver for government/regulators, this may result in a range of inappropriate, impractical and/or inefficient regulation. This 'policy on the run' may take the form of draconian conditioning on industry, moratoriums on activity or increased regulatory

burden, all of which may come at significant cost, but without any commensurate improvement in air quality or a reduction in potential health impacts.

Air quality is an important public health issue and accordingly, concerns raised by communities around air quality must be taken seriously. However, government/regulator response to these concerns should always be measured, based on sound science and be developed through an engaged process with all stakeholders, including the minerals industry.

Communication and risk perception

Risk perception and communication of actual risk are key considerations in developing initiatives to building community confidence in air quality monitoring and management. The vacuum created by poor communication of science and contextualised risk increases uncertainty for the community and provides room for spurious claims to increase public concern. Accordingly, the MCA recommends that any response to air quality monitoring and management be accompanied by a comprehensive risk communication strategy to increase public confidence.

MCA member companies stand willing to participate in initiatives aimed at furthering scientific understanding of air quality and linkages to human health. It is however imperative that any such initiative be independent, scientifically robust and be undertaken in an open and transparent way to ensure confidence of all stakeholders.

The MCA would welcome the opportunity to discuss any of the above issues further and/or participate in further consultation in the Enquiry.

Yours sincerely

Chris McCombe
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