

**REVIEW OF THE NATIONAL ENVIRONMENT PROTECTION
(AMBIENT AIR QUALITY) MEASURE
AIR QUALITY STANDARDS DISCUSSION PAPER**

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The headings below have been extracted from the discussion paper. **Chapter 5: Issues to be considered in evaluation of NEPM standards** (page 140 of *AAQNEPM Review Air Quality Standards Discussion Paper*) provides further discussion on these questions.

ISSUES TO BE CONSIDERED

Q1. Is there sufficient new health evidence to support a revised standard and if so, for which pollutants?

The health evidence presented at the NEPM briefings and in the Discussion Paper, would indicate that there are very compelling reasons to revise the air quality standards downward for all pollutants. Most notably, that the NEPM standards for the criteria pollutants are currently set at levels for which human health impacts can and do occur. Therefore there needs to be an adequate margin of safety incorporated (as a revised downward standard) to account for this fact. Air quality standards should be set so as to ensure that health is protected and not at levels where human health impacts can occur because then it is too late once there have been exceedences, as are allowed under the current NEPM framework. In general, in WA, the majority population do not live in the vicinity of the monitors that are used to "ensure" NEPM ambient air quality standards. ACE believes that measurement of ambient air quality should be made where air quality is more likely to be compromised or where air quality events are regularly occurring, ie near to industrial point sources of pollution or in a topography that contributes to air pollution traps. An example of this would be where in Bellevue (WA) the

background levels for PM10 were constantly above the NEPM criteria and this was only picked up through an unrelated air monitoring programme for the imminent clean up of a contaminated site. There are many other non NEPM related air quality studies that have identified background air levels above NEPM standards such as in Kwinana and at locations along major traffic routes etc. The absence of major pollution instances being picked up by the NEPM monitors is cause for concern as to the validity and reliability of the locations and effectiveness of the monitors.

The issue of multiple, cumulative and synergistic exposures to air pollutants does not appear to have been adequately addressed in this NEPM review. Despite being a difficult issue to address, nonetheless it is a major data gap in knowledge that must be accounted for. Some work by the EU has recently been undertaken and should provide some advice to the Australian regulators about this major data gap in knowledge that continues to undermine the regulation of pollution and chemicals.

The executive summary of this report states -

"This report details the finding of a project on mixture toxicology and ecotoxicology commissioned by the European Commission, DG Environment. It describes the scientific state of the art, in the field and gives an account of the regulatory state of the art for dealing with combined exposures in the European Union, in major competing economies, including the USA and Japan and international bodies." (State of the Art Report on Mixture Toxicity, Final Report, Executive Summary, 22 Dec 2009, School of Pharmacy, University of London)

Given that the information presented at the NEPM briefings highlighted the increased hospital admissions associated with the current NEPM standards for each particular pollutant it is even more timely to revise these standards down to account for the data gaps in knowledge about how these pollutants interact with each other and the thousands of other chemical pollutants released to the atmosphere for which little if any health and environment assessment data has been undertaken (ie 38 000 chems on the AICS), let alone considered in relation to these limited NEPM criteria pollutants.

Therefore, ACE believes that a review of the NPI to ascertain the most common and 'dangerous to health and environment' pollutants to air from industrial point sources should be undertaken to validate and enhance the NEPM framework. For example HCl, Mercury, Cadmium and Formaldehyde are all released in vast quantities to the Australian atmosphere and are well documented to be very harmful to health via inhalation. Similarly for dioxin, which in low levels can cause severe human health impacts and is increasingly emitted into the Australian atmosphere. Some harmonising with international regulatory trends and studies that are linked to the work for which Australia is a signatory should ensure that Australian standards are in line with similar global jurisdictions.

See attachment EU and USA comparison air quality standards. How do we compare?

The new health evidence presented would indicate that there are compelling reasons to revise the air quality standard downward for all pollutants. Of the information that was presented, all of the parameters of the AAQ NEPM (with the exception of lead) showed that there was no evidence for a threshold for effect. This would then indicate that the minimisation of concentrations of these parameters in ambient air is paramount to reducing adverse effects as a result of exposure. This would lead to the setting of lower ambient air quality standards and a change in the number of allowable exceedances of the air quality standards.

The proposed removal of lead from the AAQ NEPM is of particular concern. With international standards for acceptable lead levels in ambient air and blood levels being lowered, it would seem anomalous that the removal of lead would even be considered. It would appear that one of the criteria for removal lead from the AAQ NEPM is that the current monitoring data (which has not been performed since 2001 in WA, from 1 monitoring station in the CBD, high on a building rooftop, failing 4 of the 9 Station Site Compliance requirements) indicated that the levels found were lower than the current NEPM standard. There has been concerns over the adequacy of the monitoring program and the location of these monitors that would throw doubt over the validity of these results. Further doubt is cast over the validity of the results as of 2008 (the last WA NEPM Report that is accessible online, the WA DEC does not hold a NATA accreditation that would add scientific vigour to these results.

Since this discontinuation of monitoring, there have been at least three incidents where blood lead levels have been found to be high in persons exposed to lead as a result of high historical environmental lead levels or "incidents" that have caused the release of lead into the community.

Attached is a more thorough Discussion of the AAQ NEPM for Lead that should be considered as part of the ACE Submission.

Q2. Does the current approach, which allows for a number of exceedences of the standard, meet the requirement for adequate protection or are there alternative methods that could provide more consistency in the level of health protection associated with complying with the NEPM standards?

The exclusion of "natural events" should be approached with a great deal of caution. The definition of a "natural event" could effectively be used to hide adverse air quality impacts that were in fact anthropogenic. For instance, is a prescribed burn that has gone wrong classified as a natural event as it is a bushfire, or is a dust storm caused by meteorological conditions and poor farming practices a natural event.

Whether adverse air quality is a result of anthropogenic activity or a "natural event" does not diminish its effect on human and environmental health. Natural or exceptional events should not be excluded from the data, but in certain circumstances may be an explanation.

The allowance of a number of exceedances would suggest that the exposure of the population to harmful levels of pollutants in our ambient air is acceptable. If it has been scientifically determined that a level of a pollutant is harmful, then this should be an absolute maximum that the population should be exposed to, and if the precautionary principle would be applied, that a suitable safety factor be incorporated into the maximum allowable levels. Other methods that would be a more appropriate mechanism for measuring compliance would include thresholds that shall not be exceeded, and thresholds that can be exceeded for periods of time. For example, some EC Directives nominate that emissions can never exceed a particular level, and can only exceed lower level thresholds for certain percentages of time.

Q3. Should changes be made to the reporting protocols that would lead to a greater transparency and better understanding of the causes of exceedances in jurisdictions, the potential risk to population health, and management approaches being undertaken to address these exceedances?

The reporting protocols are somewhat historical in their presentation. For instance, it appears that the latest reports available on the WA DEC or the EPHC website is for 2008 and it was submitted or published in December 2009.

Some of the findings in the report suggest that there were a higher number of exceedances in some areas for PM10, but it is unclear as to whether this information was released at any stage to the public prior to the publication of the report. It is also curious to note that the WA monitoring report on the EPHC website notes that these exceedances in Gosnells were for dust and unknown reasons, where the same report posted on the WA DEC website had then listed as smoke haze.

ACE recommends that the NEPM be altered to include a requirement for public disclosure of every exceedance within a short time of the exceedance (within a week) and the requirement to determine the actual reason for exceedance and the regulatory mechanism that will address the exceedance and ensure it does not re-occur.

ACE also recommends that areas that are subject to higher than average ambient air quality levels are required to further investigate the reasons for the higher than average results or exceedances and publically report on the findings. An investigation protocol may need to be developed to ensure that there is a consistent investigative method that is used across jurisdictions.

Q4. Any other issues you wish to raise?

Adequacy of the Existing Monitoring Network

Although the current monitoring network is not specifically addressed in this Air Quality Discussion Paper, its effectiveness drives into the heart of the issue.

It has long been speculated that the current system of monitoring stations in Western Australia is not suitable for determining the actual air quality that the population is exposed to. There has been a number of pollution events (prescribed burns gone wrong) which have resulted in air quality that is visually poor and prompted Health Authorities to issue warnings. These events do not appear to be reflected in the data that has been presented due to the absence of the pollutants that would be expected to be seen as a result of bushfires.

Currently, the data that is presented could, in all likelihood, be a misrepresentation of the actual air quality that the population is exposed to. As this data is generally used to justify the establishment of new pollution sources as being insignificant when compared with "background levels" of pollutants, its validity is paramount. Similarly, if the monitoring station are not suitably located, determining compliance with the NEPM in terms of number of exceedances will also be compromised.

A lack of any adverse reporting mechanism for air quality levels undermines the NEPM framework. This critical information is needed to inform the assessment of the NEPM pollutants and to validate the effectiveness of the NEPM's. For example when there are DEC burnoffs that result in complete air quality disasters for the Perth area where visual quality is compromised greatly, a lack of adverse reporting or complaints mechanisms seems to be unjustified and poor methodology.

ACE calls for an independent review of the adequacy of the current monitoring network, and suggestions for improvements to the current monitoring network. ACE also calls for a formal statement from the WA Minister for the Environment to ensure that there is adequate funding available for the current network and its potential expansion as a result of an independent review, along with funding to investigate air quality in "hotspots" that are currently not being assessed. ACE does not believe that the quality of ambient air should be compromised by funding cutbacks.

It has been a great concern in WA that the 5 year review of the Perth Air Quality Management Plan has not been released to the public and this has undermined the WA community's effectiveness in submitting comments on this related review. Similarly the failure of the WA government to release the Midland Background Air Quality study and the deferral of Kwinana (WA's major industrial precinct) air quality studies, particularly the relevant EPP's also undermines the WA community's ability to contribute to this related review. These studies are needed to inform related national air quality standards and studies. ACE recommends that these studies be considered before finalising this review as the data relates to actual background levels of some of the NEPM pollutants and may identify anomalies, exceedance hot spots, data gaps and methodology problems that may have some bearing on the NEPM review.

Inclusion of further parameters in the AAQ NEPM

ACE would also like to suggest the inclusion of further parameters into the AAQ NEPM. It would seem that the EU will incorporate the 4th Daughter Directive that relates to the regulation of arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in ambient air, once it has sufficient experience in its implementation, into its standards for ambient air quality. It is also noted that the EU Directive has set a do not exceed target value of 0.1ng/m³ for BaP which is significantly below the current MIL of 0.3ng/m³ in the Air Toxics NEPM.

Conflicts of Interest

There are also concerns over the lack of accountability where in WA's circumstance, the regulator of air quality is also the manager and instigator of prescribed burning. Is it likely that the same department would call itself to account for inducing poor air quality that compromised public health? The impartiality of the managers of both the ambient air quality and prescribed burning would suggest that the two divisions should not be located within the control of the one department or the one minister.

ACE recommends that in order to avoid conflicts of interest, that either the responsibility of ambient air quality testing be removed from the states and be solely funded and carried out by the Commonwealth, or the NEPM require the separation of responsibilities from the monitoring entity and any entities that may be responsible for inducing adverse ambient air quality.

Extensions of the NEPM Monitoring Network and Targetted Pollutants

ACE recommends that areas where there are high emissions of criteria pollutants (as determined from NPI or other data), that there is a requirement for ambient air monitoring to determine impacts of surrounding population areas.

ACE recommends that the list of pollutants that are measured should be enhanced to include other dangerous pollutants such as dioxins, hydrochloric acid, mercury, cadmium, arsenic, PAH's and formaldehyde be considered for inclusion in the AAQ NEPM.

Finally there are a number of other air quality impacts that remain unaccounted for, such as the annual herbicide and pesticide spraying regimes by local governments, where during certain months ie Aug and Sep, vast amounts of chemicals are sprayed in urban area's generating significant spray drift impacts that are largely unknown and unaddressed. Nonetheless, these impacts are increasingly concerning to the public as health and environmental impacts continue to be reported and experienced.