



NATIONAL ENVIRONMENT PROTECTION (AMBIENT AIR QUALITY) MEASURE

Report on the Review of the Practicability of a 10 Minute Sulfur Dioxide Standard

Summary of process

In making the National Environment Protection (Ambient Air Quality) Measure (the NEPM) in 1998, the National Environment Protection Council (NEPC) agreed to a range of future actions, including:

- by 2003 commence a review of the practicability of developing a 10 minute sulfur dioxide standard; and
- commence a review of the Ambient Air Quality NEPM in 2005.

In October 2003, NEPC agreed to commence the review of the practicability of incorporating a 10 minute sulfur dioxide standard in the NEPM, noting that the review may foreshadow a need to consider options for managing short-term sulfur dioxide emissions outside the framework of the Measure.

The review has been chaired by Ms Lisa Corbyn, the New South Wales member of the NEPC Committee. A review team was established with representatives from Victoria, the Commonwealth, New South Wales, South Australia, enHealth Council and CSIRO (as observer). A Jurisdictional Reference Network was also established to provide jurisdictional advice for the review.

An Issues Paper was prepared which included analysis of 10 minute sulfur dioxide data from jurisdictions. The Issues Paper was placed on the EPHC website in March 2004 and comment was sought from a range of industry, community and government stakeholders. The Issues Paper formed the basis of discussion in consultation sessions held during April 2004 in Perth, Port Pirie, Newcastle, Wollongong, Melbourne, Geelong and the Latrobe Valley. Thirty-one written submissions were received in response to the Issues Paper.

Following receipt of submissions and at the request of the review team, the enHealth Council provided a response to the review that focused on the health aspects.

Summary of issues paper

The Issues Paper examined the sources and levels of sulfur dioxide in Australia, the health impacts arising from exposure to short-term peaks of sulfur dioxide and the implications of adopting a short-term standard. The paper included:

- information on current ambient sulfur dioxide levels around Australia, including an analysis of 10 minute averages, and the exposure of the population to levels of concern. The data indicated that levels are low except in the vicinity of major point sources where there are occasional high levels recorded;
- an outline of the health effects of short-term exposures to sulfur dioxide and the applicability of overseas health data in Australia. Studies reviewed indicated that short-term exposure to sulfur dioxide of between five and fifteen minutes is associated with

decreases in lung function in exercising individuals with asthma. Responses to short-term exposures are immediate and do not appear to worsen after longer exposure periods;

- a summary of sulfur dioxide standards used overseas showing that the World Health Organisation (WHO) has a 10 minute guideline of 0.175ppm and the United Kingdom has a 15 minute standard of 0.1ppm but few other countries have adopted short-term standards, preferring to deal with short-term peaks of sulfur dioxide through other mechanisms;
- an outline of current management strategies used in the different jurisdictions for short-term sulfur dioxide emissions;
- a discussion of whether the NEPM is the most appropriate instrument for providing protection from 10 minute peaks given that it focuses on general air quality rather than air quality in the near vicinity of major pollutant sources;
- a discussion of the practical implications of a 10 minute sulfur dioxide standard such as the resource implications for monitoring and data management.

Options

Three options were identified to address short-term emissions of sulfur dioxide:

1. incorporate a 10 minute standard for sulfur dioxide in the Ambient Air Quality NEPM;
2. retain the status quo where individual jurisdictions develop their own management strategies for short-term peaks of sulfur dioxide; or
3. undertake a non-statutory process to establish a health protection value that may be used by jurisdictions in communities affected by short-term peaks of sulfur dioxide.

Outcomes of consultation relating to the practicability of incorporating a 10 minute standard for sulfur dioxide in the Ambient Air Quality NEPM

The majority of submissions (19) supported continuation of the current situation where individual jurisdictions deal with short-term peaks of sulfur dioxide through their legislation and environmental improvement programs. Three out of thirty-one submissions supported the inclusion of a 10 minute sulfur dioxide standard in the Ambient Air Quality NEPM.

There was broad acceptance that the Ambient Air Quality NEPM standards deal with general population exposure and do not deal with hot spots or the control of individual point sources. It was acknowledged that individual jurisdictions are primarily responsible for the regulation of individual point sources. It was also noted that, because the existing NEPM monitoring networks have been established to assess general population exposure and are not located at point sources, they would be unlikely to pick up elevated 10 minute levels and that the additional data processing costs associated with 10 minute monitoring would not be warranted.

Eight submissions suggested that there were more effective ways to manage emissions around point sources such as placing emission controls in individual licenses (eg using 10 minute design criteria). Current management strategies have resulted in the reduction of total sulfur dioxide emissions from point sources in recent years and improved ambient levels in the vicinity of major point sources.

Seven industry submissions raised concerns about their ability to meet a 10 minute standard and the potentially significant cost of making changes to meet such a standard in the future.

Some of these pointed out the difficulty of adjusting operations in response to meteorological conditions in time to guarantee compliance with a 10 minute standard.

Overall the outcome of consultation is that the incorporation of a 10 minute sulfur dioxide standard in the NEPM is not considered appropriate.

Other issues arising from consultation

Three submissions supported the inclusion of a 10 minute standard in the NEPM on the grounds it would provide for a nationally consistent approach to the protection of the health of communities living in close proximity to point sources, and would result in transparent monitoring and reporting of sulfur dioxide levels.

Ten submissions supported the development of a national health protection value for short-term emissions of sulfur dioxide. It was suggested that a guideline specifically intended for application at point sources would be more appropriate than a NEPM standard designed for protection of the general population. It was noted by some submitters that the development of a nationally consistent value for assessment of potential health impacts may be of particular importance since the National Health and Medical Research Council (NHMRC) 10 minute guideline was no longer current [*Initial advice from the NHMRC indicated that its 1995 10 minute sulfur dioxide goal of 0.25ppm had been rescinded. This was subsequently updated to indicate that the goal was due to be considered in 2005 as part of the NHMRC policy and procedure for assessing publications for currency*].

Four submissions from community representatives argued that the current management of point sources by jurisdictions did not adequately protect the health of the surrounding community and that stricter and more enforceable standards were required. It was also suggested that different approaches taken by jurisdictions under their environmental legislation and policies may not provide a level playing field for industry. Only one industry submission identified this as a possible concern.

Three submissions considered that the current focus of the NEPM on air quality for regions with a population of 25,000 or more did not provide equivalent protection for all Australians. The review team considered that any decision to alter the framework of the NEPM and increase its focus on monitoring at peak sites was outside the scope of this review and should be considered in the review of the NEPM as a whole, scheduled to commence in 2005.

enHealth Council response

enHealth Council indicated that it did not support the incorporation of a 10 minute sulfur dioxide standard in the NEPM, but considered that there would be merit in developing a non-NEPM health protection guideline and/or health investigation level which could be applied at point sources. It also raised the need to prioritize other pollutants for which standard setting may have greater potential to protect public health.

Review conclusions

The outcomes of the review are:

- the original decision by NEPC in 1998 not to include a 10 minute standard for sulfur dioxide in the Ambient Air Quality NEPM remains valid;
- analysis of sulfur dioxide monitoring data by jurisdictions indicates that 10 minute levels are only of concern at a limited number of locations, usually close to point sources.

Short-term levels at monitoring sites without significant impacts from major point sources are typically well below international guidelines;

- short-term exposure to high levels of sulfur dioxide has been linked with adverse health effects;
- some communities in the vicinity of point sources have concerns about the current management of emissions of sulfur dioxide in some jurisdictions. There is broad agreement amongst the majority of stakeholders that the NEPM is not the most effective instrument for dealing with those impacts;
- the need for other means of ensuring that the health of communities in the vicinity of point sources is protected should be considered in consultation with health agencies; and
- the broader issues raised by some stakeholders about the scope of the NEPM and whether or not it should be varied to include point source monitoring are more appropriately considered in the full review of the NEPM.

Recommendations

On the basis of the analysis conducted by the review team and the outcomes of consultation it is recommended that:

1. A variation to the Ambient Air Quality NEPM to include a 10 minute sulfur dioxide standard is not required;
2. The current situation where individual jurisdictions deal with short-term peaks of sulfur dioxide through their legislation and environmental improvement programs should continue;
3. Discussions take place between the Environment Protection and Heritage Council Air Quality Working Group, enHealth Council and the National Health and Medical Research Council regarding the need for alternative approaches to address community and health agency concerns about the health effects arising from exposure to short-term sulfur dioxide peaks in affected communities; and
4. Issues raised by submitters about the scope and framework of the Ambient Air Quality NEPM be considered as part of the full review of the NEPM scheduled to commence in 2005.