Dr Andrew Davey 11 Aug 2010

Tas 7150

SUBMISSION ON AAQ NEPM REVIEW 2010

Dear Kerry,
Thank you for the opportunity to comment. I did manage to read the papers: Consultation Draft and Discussion Paper. My comments follow under different numbering to your questionnaire (it omits numbering the first question).

1) While I support the intention to monitor for and determine the adverse effects of benzene to establish relevant standards, please be aware that the use of benzene as a solvent has decreased in favour of toluene and xylene in many circumstances. Note that the various fibre glass resins use xylene which is vented to the atmosphere. Petrol contains toluene and alkyl toluene 'derivatives' rather than benzene itself, unlike what is indicated in the overview. Thus it is likely that some areas have elevated mono-aromatic ring compounds but low levels of benzene. The mono-aromatics should be monitored in appropriate loci.

2) The apparent assumption in figure 4.2 page 123 of the *Discussion Paper, Air Quality Standards* is not necessarily true. The area A may be greater or smaller than area B depending on the position of the Air Quality Limit (in this context area is proportional to a corresponding population). Given that the consultation and discussion papers imply that most limits are not appropriate, the relative size of areas A and B may well be reversed in some cases.

3) Given the Victorian bushfire enquiry recommends a 5% burn-off of pertinent bushland each year, standards for particulates and PAH's and, perhaps, benzene, may need to have careful wording. The emphasis should be permit burn-off strategies which minimise health effects on the population due to smoke while avoiding the potential for unacceptable property and life loss due to wild-fire. Careful definition on exceedances / what may be permitted / deemed not to imply standards are not being reached is needed. Exceedances should be avoided where reasonable anthropogenic means exist to suitably limit emissions. For instance burning which would result in smoke hanging in the air for days should be avoided.

All data should be recorded and above-limit values should note the reason so as to sort controllable emissions and their effects from the non-controllable. Where and when limits tend to be unavoidably exceeded, advice may developed to help those who may be adversely effected.

4) In general I support the implied desirability to reduce AAQ pollutant limits, namely CO, NO_2, SO_2, O_3, PM_{10}, $PM_{2.5}$, benzene / similar mono-aromatics and PAH's as it appears there is evidence which suggests probable adverse health effects, though mostly in sensitive persons (variably asthmatics, the cardiovascularly impaired, elderly and the very young; eg pps 44 - 48 of discussion paper for CO). That there is or is not a threshold value seems arguable in some instances. However, based on chemistry and biochemistry substances like benzene, toluene, xylene, most PAH's, O_3, lead and possibly NO_2 seem more likely to have no, or a very low, threshold, including for the not-so-sensitive population.

Evenso, for the pollutants mentioned above (and others) there is probably some degree of tolerance in most persons, thus it seems that limits should have some pragmatism such that, for instance, 99.999% percent of persons could live to an ideal age with an acceptable quality of life, say 90 years, provided they live within the recommended pollutant limits. (This assumes correction for other mortality and morbidity factors.) The idea here is that limits do not trend down to levels for which there is little or dubious community benefit relative to costs.

5) Mostly ambient atmospheric lead has become a non-issue since the removal of tetraethyl lead from petrol, so pursuing further AAQ lead limitations seems low priority. Point discharges should be otherwise covered and limited by licences.

6) Standards which apply 'universally' can be a bit of a worry. As regards exceedances, some local aberrations may be OK in the annual scheme of things: eg persistently 'clean' country air with a few moderate exceedances may have better health and environmental outcomes than persistently 'dirty' city air with no exceedances. However I believe there should be absolute maxima beyond which anthropogenic limits may not go, especially for substances which are cumulative or from which a brief higher dose does not imply a possible future adverse affect: in particular benzene, toluene, xylene, PAH's and lead. Such absolute maxima and duration of exposure should be no more than can be recommended to ensure no extra adverse health effects. In general absolutely no exceedence should be allowed, if any is / are promulgated, such that an adverse effect may occur in relatively healthy persons.

In other words there must be a maximum concentration / limit for all pollutants, including for man-caused exceedances, if exceedances are permitted.

7) That I agree with the concept of changing NEPM's and pollutant limits if warranted to improve health does not imply that I will agree to whatever outcome / is recommended - my support will depend on what is recommended.

8) I do not support the use of percentiles for exceedances because it can lead to a lowering or, less likely, an excessive raising of standards. In essence there would be very little 'absolute' about the standards which are meant to effect better health outcomes: we should not waste our time and resources for variable outcomes.

9) Your question 11 is answered above at (6) where I support a "not to be exceeded".

10) Your qns. 12 & 14: I believe natural exceedances (which are not directly facilitated by man) should be excluded from data when used to report on what man is responsible for and is to aim for (ie anthropogenic assessments). However such data should still be included in general presentations with notes as to the origin of the exceedance(s). As exceedances are likely to yield adverse health effects, they ought to be reported to realistically appraise AAQ and facilitate analysis of the causes of adverse health.

11) Your qn. 13: as regards protecting health, pro-active advice could be given (publicised) on how to minimise the adverse effects of both man-made AND natural levels of pollutants when higher levels are predicted or occur; this may be cheaper and more effective than actions to meet standards (or invoke lower limits) in some cases. This is particularly appropriate for natural exceedances.

12) States & Territories should assess, justify or / and explain sources of exceedences: please note that justify implies acceptance, with which I mostly disagree.

13) Your 16: covered in part previously - the public should be advised in the event of an exceedance in order to pressure action to implement remedial and preventative measures

Thank you for the opportunity to make comment. I would like to be invited into the next round of consultation; my contact details are at top of this communication.

Andrew Davey