



Ernest Jones Drive, Macleod VIC 3085 | GPO Box 4395 Melbourne Vic 3001 | DX 210675

Coal Mine Fire at Morwell, Victoria, Australia. PEER REVIEWS

Review of the EPA Victoria response to the Morwell Coal Fire: Soil and Ash Monitoring and Assessment.

Review scope:

1. Is our monitoring design appropriate to deal with all potential issues?

Issues of exposure to contaminants from ash in/on surface soil and vegetation should be attended to.

2. Are our assessment tools and methodology the best currently available?

Yes.

3. Are there other data sources that could improve our assessment and analysis in the short term?

Not that I know of.

4. Are there any other gaps or potential improvements in our current assessment, data sources, tools and methodology?

Sampling and analysis of surface soil (0-5 cm) should be included in the monitoring and assessment regime. This needs to be done in areas within the plume path, and include suitable background samples. Samples should be collected in areas with high potential for human exposure.

Sampling of edible above ground plant parts, with and without rinsing, should also be undertaken to ascertain if there is any problem with consuming these.

5. Are there approaches to communicating our summaries EPA could consider to improve our current products?

Note that I know of.

6. Will our current approach and outputs give EPA the level of confidence in the results to enable clear input into decision-making protocols?

With some adjustment (see items 1 and 4 above), yes.

Reviewer details:

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Brief Bio:

Robert Edis is an independent soil scientist (Certified Professional Soil Scientist, level 3), and Honorary Associate Professor with the University of Melbourne, specialising in soil processes related to agricultural production and environmental management. His particular interests are in processes associated with the dynamics of nutrients, contaminants and water in landscape systems. Robert is currently the President of the Victorian Branch of Soil Science Australia.



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Your understanding of the topic and scope:

My expertise relevant to the topic and scope is in the distribution and redistribution of surface deposited materials in the soil-plant-atmosphere system. This includes sampling requirements and processes related to redistribution and transformation of contaminants, and to some extent trophic transfer of materials.

Material supplied by EPA:

1. More detailed maps of Morwell town (with monitoring sites)
2. Draft plan of soil and ash sampling.
3. Ash and water sampling details
4. Draft piece on what is in the smoke

Additional material requested:

Any other relevant comments:

1. *What is the nature of the sites from which the soil samples are collected? Just in general terms such as lawn, or garden bed or some such. It is preferable to take samples from similar types of sites at each location, and that the sites are not likely to have higher than typical background levels of contamination.*
2. *Soil sampling 5-10 cm is preferred for many issues. In the case though of a surface contamination such as the situation here, particularly in the absence of much rainfall, it is prudent to collect 0-5 cm as well, as of course surface soil is a more direct exposure route than 5-10 cm. Is this being done? It was not apparent from the documents supplied Also, the background levels in 0-5 cm will be higher than those at 5-10 cm for many analytes. So when it comes time to compare the deposition, say based on ash plates, with the existing levels, some surface samples would be useful. So; have some 0-5 cm samples been collected?*
3. *The impact on edible plants is not clearly discussed in the documents provided, and some people will be concerned about eating vegetables.*

Robert Edis
6 March 2014