NSW GOVERNMENT Office of Environment & Heritage

Community questions and answers

Upper Hunter Air Quality Monitoring Network

Published by:

Office of Environment and Heritage
59 Goulburn Street, Sydney NSW 2000
PO Box A290, Sydney South NSW 1232
Phone: +61 2 9995 5000 (switchboard)
Phone: 131 555 (environment information and publications requests)
Phone: 1300 361 967 (national parks, general environmental enquiries, and publications requests)
Fax: +61 2 9995 5999
TTY users: phone 133 677, then ask for 131 555
Speak and listen users: phone 1300 555 727, then ask for 131 555
Email: info@environment.nsw.gov.au
Website: www.environment.nsw.gov.au

Report pollution and environmental incidents
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OEH 2017/0281
June 2017

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The community information and consultation meetings were held in November 2009 at Singleton Civic Centre and Muswellbrook Council Administration Centre.

For more information please see http://www.environment.nsw.gov.au/topics/air/monitoring-air-quality/upper-hunter/upper-hunter-air-quality-monitoring-network-community-questions-and-answers

Why has it taken this long to begin monitoring?

Coal and power generation industries in the Upper Hunter Region are required to monitor air quality as a condition of development approvals or consents issued by the NSW Department of Planning. Industries are also required to monitor air quality as a condition of Environment Protection Licences issued by the Environment Protection Authority (EPA).

There are currently more than 30 PM_{10} monitors operating in the Upper Hunter. However, with the expansion in the mining industry and the population in the region, government, industry and the community recognised that a more strategic and coordinated approach was needed for the monitoring and reporting of results.

The proposed ambient air-quality monitoring network will be coordinated by the NSW Government and the data from the network made available to the community via the OEH website.

Why wasn’t the community consulted earlier in the process?

The decision was made to develop a detailed proposal to take to the community for consultation, rather than go out earlier with a broader concept. OEH believed that a more detailed approach would provide more focus for community consultation.

Nonetheless, the two community forums indicate OEH's commitment to extensive consultation and the community's views will continue to be sought as the project develops.

The signing of a Memorandum of Understanding (MoU) between major dust-contributing industries, OEH and the Department of Planning in September 2009 was a necessary and important step towards developing a framework to establish and fund an independent and centrally coordinated network of real-time dust monitoring sites in the Upper Hunter. Community consultation could not commence until the MoU had been finalised and signed by all parties.

Is the Memorandum of Understanding a public document? Where can it be viewed?

Although the Memorandum of Understanding (MoU) is not a public document, individuals are welcome to contact the Hunter Region office of OEH and request to view a copy of the MoU.

Will there be community participation on the management committee?

The public would like to see a minimum of three representatives per local government area.

A network advisory committee will be established and will include representation from appropriate local government and government agencies, the community and mining and power industries.

The role of the advisory committee will be to advise OEH on a wide range of issues associated with the establishment and operation of the network. OEH will work with the Upper Hunter community in 2010 to select community representation for the committee.

Should the network be based on monitoring $PM_{2.5}$ rather than PM_{10} particles?

Particulate matter (PM) comprises a range of 'particle matter' sizes.

The network is proposed to be based on PM_{10} rather than $PM_{2.5}$ as this is the current air quality standard and goal under the National Environment Protection Measure (NEPM). For further details, visit the COAG **Standing Council on Environment and Water**.

PM_{10} is the measure used at other air quality monitoring sites operated by OEH to monitor particulate matter levels. These sites are located in the metropolitan network (Sydney, Wollongong and Newcastle) and the regional centres of Albury, Bathurst, Tamworth and Wagga Wagga.

If the COAG Standing Council on Environment and Water changes the NEPM standard, these networks can be updated to reflect the revised standard. The proposed Upper Hunter Air Quality Monitoring Network can also be updated to reflect the new standard.

The 14 monitors will continuously measure all particles that are smaller than PM_{10}, which includes $PM_{2.5}$. However, these monitors cannot differentiate between the fraction or weight of particles between PM_{10} and $PM_{2.5}$ and the fraction that is $PM_{2.5}$ or smaller.

For research purposes, $PM_{2.5}$ monitors are proposed to be located at Singleton and Muswellbrook.

Why can’t the 24-hour average be scrapped for a one-hour average?

OEH's air quality index website for the Sydney metropolitan and regional networks is specifically designed to report PM_{10} as a 24-hour rolling average. PM_{10} data for the Upper Hunter will also be reported as a 24-hour rolling average.

This will enable the results to be compared with other metropolitan, regional and country locations in NSW in real-time and against the NEPM standard and goal. The website also reports the highest one-hour average daily. OEH staff can also query the database for information over shorter or longer time frames for specific investigations or research projects.

OEH is also working to develop a graphics-based data display to make it easy for the public to view and interpret monitoring data.

How long until $PM_{2.5}$ standards are established in Australia?

The National Environment Protection Council (NEPC) is currently undertaking a review of the NEPM standards and a discussion paper is expected to be released by April 2010. From this review the NEPC may decide to establish a standard and goal for $PM_{2.5}$ to be phased in over a specified period.

Information on the review process is available on the **Environment Protection and Heritage Council** website.

Will the network be able to pick up spikes in dust levels?

Air quality PM_{10} data is currently reported as a 24-hour rolling average on the OEH Air Quality Index. The website also reports the highest one-hour average daily. This averaging period will record changes in air quality over the course of a day.

Will the composition of dust particles be monitored?

The proposed network is designed to measure the concentration of particulate matter at each site but not chemical composition.

The reason for this is that the current national air quality standards for particulate matter relate to the total concentration of particles within the PM_{10} size range, rather than the composition of the particles. See the **NEPM website**.

Will OEH be 'fingerprinting' dust sources?

Fingerprinting dust sources is not a viable tool for the day-to-day regulation of mining operations. However, monitoring both wind speed and direction at each of the monitoring sites will assist OEH to identify dust sources under prevailing wind conditions.

If the National Pollution Inventory can identify the sources of dust pollution why can't the network?

The National Pollution Inventory (NPI) reports information from surveys submitted by individual mine operators based on a set of emission factors, formulae and reporting protocols.

These protocols provide a standard method for each company to estimate the annual mass of emissions from various pollution sources such as truck haulage of material, dragline and shovel operations. The information reported is not based on actual monitoring data and is reported annually as the estimated mass, in kilograms, emitted for the previous year.

The air quality network will accurately measure the concentration of PM_{10} from all sources, in real-time, at up to 14 monitoring sites. This information is a more sensitive and reliable indicator of community exposure to particulates over short and long periods of time and for the evaluation of health-related issues.

The design of the network and the monitoring of wind speed and direction will assist OEH to identify dust sources taking into consideration the prevailing wind direction. This level of analysis is not achievable using NPI data.

Will pollutants from diesel motors, rail and road be measured?

The National Pollution Inventory (NPI) reports information from surveys submitted by individual mine operators based on a set of emission factors, formulae and reporting protocols.

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Will heavy metals be monitored as part of the network?

The network is designed to measure dust particles at a size of PM_{10} or less because dust is the most significant pollutant associated with open-cut coal mining.

The PM_{10} monitors are not designed or suitable for monitoring heavy metals in ambient air. When required, samples of heavy metals from ambient sources are obtained on a 'campaign' basis. Such samples require laboratory analysis.

Heavy metals and other pollutants are currently monitored in stack emissions from Liddell and Bayswater power stations as a condition of Macquarie Generation's Environment Protection Licences.

Will all the pollutants (such as sulfur dioxide and nitrogen oxides) be integrated into the network?

The proposed network is specifically designed to monitor PM_{10}, wind speed and wind direction as the current NEPM standard and goal for particulates is based on PM_{10}. $PM_{2.5}$ will also be monitored at select sites.

Macquarie Generation is currently monitoring ambient levels of nitrogen oxides and sulfur dioxide at five sites in the Upper Hunter including Singleton and Muswellbrook. OEH is working with Macquarie Generation on a proposal to re-locate some of this current monitoring to the new network monitoring sites in Singleton and Muswellbrook. The relocation of this monitoring would allow the data to be reported real-time via the OEH website.

What action will be taken if pollution levels rise above safe levels?

Once the network is established, OEH will work with the network advisory committee to develop an operational response protocol. The operational response protocol will outline actions that could be taken if the particulate matter readings reported on the network exceed NEPM recommended levels.

Will the removal of redundant monitors affect the quality of the monitoring data reported?

Monitors currently operated by the mining industry will be maintained and function for a sufficient period to allow comparison with results from the new monitoring network.

Where there is good correlation between monitoring sites, older equipment and duplicate monitors can be phased out without affecting the quality and reliability of the data from the new network.

Data from redundant monitors will be retained for future reference.

Will the impact of dust on the horse industry be measured?

The areas covered by the network are across much of the Upper Hunter Region, including Aberdeen and Jerrys Plains, and an additional site in the western part of the region is under consideration. The network will monitor ambient air quality, wind speed and wind direction in these areas.

This will assist individuals, government agencies, industries and researchers to use the network database to assess ambient air quality conditions across a large part of the Upper Hunter Region.

Will the Bulga area have a monitor and will it be a $PM_{2.5}$ monitor (real-time)?

The Bulga area has been identified as a preferred site for a PM_{10} real-time network monitor. $PM_{2.5}$ monitors are planned for the Singleton and Muswellbrook locations.

Will there be a monitor in the Denman and Scone localities?

OEH is considering establishing a monitor at a suitable location in the general locality of Denman, Wybong or Scone. OEH will work with community, industry stakeholders and technical specialists over the coming months to select a suitable site.

Will there be a monitor in Camberwell?

The Camberwell area has been identified as a preferred site for a PM_{10} network monitor.

Will the expansion of the mining industry be addressed?

OEH is aware that the network's effectiveness in monitoring regional air quality may be affected over time by changes in mining operations, the expansion of existing mines and the establishment of new mines.

OEH, with advice from a network advisory committee, will regularly review the need to relocate monitors or establish new monitoring sites. Membership of the committee will include industry, community, government and local government representatives.

What strategies are there to address the independence of the data from the industries being monitored?

OEH will ensure that the Standards Australia and the National Environment Protection Measures (Ambient Air Quality) technical papers guide the construction, operation and reporting standards for the network.

Site maintenance and operation will be undertaken by field staff within the Atmospheric Science section under its current scope of NATA accreditation. The monitoring undertaken will comply with accredited NATA quality systems.

Once the data has been collected from the monitoring sites and transferred to the OEH central database, strict quality control regimes will be employed. OEH will also undertake periodic quality assurance audits of the full network to certify compliance.

What will happen when there are system outages?

Monitoring sites will periodically be unavailable to report the data back to the data server. These outages are often caused by power or telecommunication failures and technical issues with the complex monitoring equipment.

Generally, the data which is not reported to the server when the failure occurs is retrieved from the monitor at a later time. However, in some instances, data lost due to system failures may not be able to be retrieved.

When a system outage occurs, OEH will work with NATA-accredited technicians to have the problem rectified as a priority.

How will individuals who don't have access to the internet gain access to network information/data?

Local libraries provide free access to the internet. Individuals can visit their local library and subscribe to SMS updates for their mobile telephones. OEH no longer provides paper copies of the Air Quality Index because of the large volumes of data required to be printed.

Will the website store historical data?

The OEH website has a **search function** which will allow users to search historical data.

Can the network be changed once it is in place?

OEH recognises the network's effectiveness in monitoring regional air quality may be affected over time because of changes in mining operations, the expansion of existing mines and the establishment of new mines. OEH, with advice from the network advisory committee, will regularly review the need to relocate monitors or to establish new monitoring sites. The advisory committee will include community and industry representatives.

Will there be another community meeting to report on the status of the project?

OEH will work with key stakeholder groups over the coming months to establish whether there is a need for further community consultation meetings.

The **Upper Hunter air quality monitoring** pages on the H website will be periodically updated on the network project and future community meetings will be held if there is a strong demand.