
UPPER HUNTER AIR QUALITY ADVISORY COMMITTEE (UHAQAC)

MEETING MINUTES – Meeting 16

Date: 30 April 2015

Time: 10:00am – 1:00pm

File: EF13/5718 DOC15/198590-02

Meeting Location: Singleton Library Meeting Room

In attendance: John Tate (Chairperson), Dr Craig Dalton, Wendy Wales, John Krey, Andrew Speechly, John Watson, Scott Brooks, Cr Wayne Bedggood, Cr Hollee Jenkins, Dr Catherine Chicken, Melinda Hale, and Lisa Potter.

Office of Environment and Heritage (OEH): Alan Betts.

Environment Protection Authority (EPA): Mitchell Bennett, Leanne Graham, Emma Coombs, Rebecca Akhurst, Ann-Louise Crotty, and Kieran Lynch.

Apologies: Lyn MacBain, Geoffrey Sharrock and Adam Gilligan

Agenda Item:

1. Acknowledgement of Country

2. Welcome and Introductions

Mr Tate welcomed attendees and noted the new Committee name, the Upper Hunter Air Quality Advisory Committee. The name reflects the broadening of the Committee's Terms of Reference to include advising the EPA on issues related to regional air quality management.

Mr Tate introduced new members, Cr Hollee Jenkins representing Singleton Council and community representative Mr John Krey.

Mr Tate welcomed guests Ms Lisa Potter - Environmental Officer at Muswellbrook Council; Ms Melinda Hale - Coordinator Sustainable Environment at Singleton Council; Ms Anne-Louise Crotty - EPA Manager Air Policy; Ms Rebecca Akhurst - EPA Operations Officer; Ms Emma Coombs - EPA Operations Officer; Mr Kieran Lynch - EPA Acting Manager Compliance & Assurance; Mr Mitchell Bennett - EPA Head Regional Operations Unit; and Mr Alan Betts - Senior Team Leader, Quality Systems and Reporting, Climate and Atmospheric Science, OEH.

3. Apologies (see above)

Mr Tate noted the resignation of Mr Craig Flemming, representative for Muswellbrook Shire Council. The EPA has asked Council to nominate a new representative.

4. Previous Meeting Minutes and Actions

The Committee members adopted the minutes of the meeting of 26 February 2015.

Responding to Recommendations and Actions of previous meetings:

- The EPA emailed the Committee, on 20 April 2015, providing a web link to the Lower Hunter Air Quality Community Research Project report and the EPA's response.

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- Dr Dalton will present a presentation on the paper '*Investigating the health impacts of particulates associated with coal mining in the Hunter Valley*', *Air Quality and Climate Change, Volume 48, No.4, November 2014*, co-authored by Dr Dalton, the Committee's representative for the NSW Ministry for Health (see agenda item 7 below).
 - The EPA advised the Committee that BHP Billiton's Mt Arthur coal mine entered a plea of guilty in the NSW Land and Environment Court in relation to offensive odours from blast fumes in 2014. A sentencing hearing is scheduled for 30 July 2015.
 - The EPA will continue to provide regular information to the public on regulatory actions in the Upper Hunter as it becomes available.
 - The EPA's Mr Lynch will provide an update on the EPA's program to audit coal handling facilities (see agenda item 8 below).
 - OEH provided expanded explanatory notes on page 24 of the Upper Hunter Air Quality Summer 2014/15 report in relation to fire maps and the influence of weather and climate and to the meaning of rainfall deficiencies.
 - The Committee adopted Meeting Minutes from 26 February 2015. The EPA's Mr Bennett will provide an update on the EPA's progress towards optimising mine operated air quality monitoring for better management of coal mine dust emissions (see agenda item 9 below).
 - The EPA agreed to change the Committee's name to the Upper Hunter Air Quality Advisory Committee and broadened the Committee's Terms of Reference on 30 April 2015 as recommended by the Committee.
 - Ms Hale from Singleton Shire Council and Ms Potter from Muswellbrook Shire Council will provide presentations on their Councils' wood-smoke reduction programs. Ms Crotty will provide an overview of the EPA's actions to reduce wood-smoke emissions (see agenda item 6 below).

5. Network Performance Report and Seasonal Analysis Summer 2014-15

Mr Betts presented the *Upper Hunter Air Quality Monitoring Network Season Report: Summer 2014-15*.

From 1 December 2014 to 28 February 2015, all PM_{2.5} and PM₁₀ monitors achieved the benchmark of 95% data capture, or better, except for the Mount Thorley PM₁₀ monitor, which achieved 94% due to sensor instability. The Singleton NO₂ monitor achieved 92% due to a problem with the flow sensor.

Daily average PM₁₀ levels were lower than the benchmark of 50 µg/m³ on most days during the three month monitoring period. PM₁₀ levels were above 50 µg/m³ on one day, 17 December 2014 at five sites due to dust originating inland from the Victorian Mallee region.

Merriwa recorded the highest daily average PM₁₀ level of 55.2 µg/m³ for the period, on 17 December 2014.

In the larger population centres of Singleton, Muswellbrook and Aberdeen, daily average PM₁₀ levels were below 50 µg/m³, except on 17 December 2014, when Singleton recorded 54.6 µg/m³ and Aberdeen 50.4 µg/m³.

At the smaller population centres, daily average PM₁₀ levels above 50 µg/m³ occurred on 17 December 2014 at Camberwell (51.4 µg/m³).

At the Network's diagnostic sites, operating close to mines, daily average PM₁₀ levels were below 50 µg/m³ except at Singleton NW which recorded 54.8 µg/m³ on 17 December 2014. PM₁₀ levels were lower than 50 µg/m³ at the Singleton South background site throughout the period.

Daily average PM_{2.5} levels were lower than the benchmark of 25 µg/m³ at all sites during the three month monitoring period.

The SO₂ monitors at Singleton and Muswellbrook and the NO₂ monitor at Muswellbrook achieved 95% data capture. The NO₂ monitor at Singleton achieved 92% data capture for wind data, due to a problem with the flow sensor. The NO₂ and SO₂ levels were below the benchmark across the Network during the monitoring period.

Seasonal analysis for three summer seasons, indicates that 2014/15 had only one day when PM₁₀ exceeded 50 µg/m³, compared with nine days in the 2013/14 summer and six days in the 2012/13 summer. The greater number of days in exceedance of the benchmark in earlier years was due to drier climatic conditions and bushfire activity.

At the request of the Committee, Appendix A of the report now includes expanded explanatory notes about the influence of weather and climate; and the meaning of rainfall deficiencies (page 24).

Wind rose maps for summer 2014/15, 2013/14 and 2012/13 showed typical along-valley flows from the south-east sector. Wind roses depict the average wind over the season. The Upper Hunter primarily experiences south-east winds during summer with infrequent north-west winds.

A regional dust event on 16 December 2014 originated from the Victorian Mallee region and resulted in elevated dust levels above the PM₁₀ benchmark of 50 µg/m³ at five monitoring sites on 17 December 2014.

Mr Tate enquired about dust levels on 18 December 2015. Mr Betts advised that dust level decreased and agreed to include this data in the report.

ACTION 1. OEH to amend the *Upper Hunter Air Quality Monitoring Network Season Report: Summer 2014/15* to include maximum 24 hour PM₁₀ levels in each NSW region on 18 December 2014 in Table 6, page 17.

Time series plots for PM₁₀, wind direction and wind speed show the onset of a front in the valley affecting the southern-most site at approximately 9am on 17 December 2014 then turning south east and moving up the Hunter Valley. The plots also demonstrated that recorded particle levels are affected by the location of the monitor, wind direction and topography. Mr Tate noted that communication of this information to the community is challenging. Mr Betts agreed and noted the OEH is currently working on better ways to convey this information.

Ms Wales recommended that the date (17 December 2014) of the time series plots be included.

ACTION 2. OEH to amend the *Upper Hunter Air Quality Monitoring Network Season Report: Summer 2014/15* to the date "17 December 2014" in Figure 3, page 19.

Mr Bennett noted that brown dust deposited on cars and verandas in Newcastle and the Illawarra on 17 December 2014 also suggested that this was a regional dust event.

The Chair noted the report and thanked Mr Betts.

6. Wood-smoke Reduction

Ms Hale outlined Singleton Shire Council's 2013 and 2014 Wood-smoke Reduction Education Programs and future strategies to minimise wood-smoke. The Education Programs support regulation which together can be used to reduce wood-smoke and deliver improved air quality outcomes.

Key points from Singleton Shire Council's 2013 and 2014 Wood-smoke Reduction Education Programs include:

- Wood-smoke contains particulate matter $PM_{2.5}$ which can cause respiratory and circulatory health problems.
- Atmospheric inversions in winter months trap smoke at ground level.
- The Upper Hunter Fine Particulate Characterisation Study 2012 showed that wood-smoke contributed approximately 14% of the annual $PM_{2.5}$ mass in Singleton and is the largest single contributing factor in winter months. Wood-smoke is also an issue across the local government area as it can travel large distances and interact with meteorology and other source emissions.
- Council applied for and received two EPA Wood-smoke Reduction Education grants.
- The 2013 grant of \$5000 was focused on community education and used a media campaign, marketing material and a street/township audit.
- The 2014 grant of \$38000 again focused on community education but included email banners, banners in major thoroughfares, bus advertisements, marketing materials, regulation through auditing; and rebates for replacing wood heaters with heaters meeting approved standards.
- The EPA provided an invaluable resource tool package including pre-scripted media releases and radio/TV advertisement, templates for posters and brochures and a campaign slogan and brand.

Challenges faced during the program included:

- the resource intensive nature of the program;
- difficulty auditing in low light conditions;
- occupational safety;
- measuring behavioural change; and
- getting the message out to the community about rebates and competitions.

Program outcomes included:

- Media was saturated with information and messages on wood-smoke from wood heaters during the winter months.
- Information in the newspaper was found to be the most effective method of community education.
- Council received many enquiries from the community about the wood-smoke message.

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- Council received complaints about neighbourhood wood-smoke and used the opportunity to educate rather than regulate.
 - Competition entries were disappointing.
 - No applications for rebates were lodged. Council believe this was because the rebates were offered in winter when people needed to use their heaters, the economic situation and the cost of the replacement versus the rebate received.

Current and future strategies include:

- A \$50 rebate for professional cleaning of chimneys and flues.
- Continuing community education.
- Participating in the EPA's Upper Hunter Wood Smoke Community Research Project which will consider what influences households' heating choices.

Ms Potter advised that Muswellbrook Shire Council's 2013 and 2014 Wood-smoke Reduction Programs and future strategies to minimise wood-smoke were very similar to those presented in Ms Hale's presentation.

Key points from Muswellbrook Council's 2013 and 2014 Wood-smoke Reduction Program reports include:

- The Upper Hunter Fine Particulate Characterisation Study 2012 showed that wood-smoke contributed approximately 30% of the annual average PM_{2.5} in Muswellbrook, increasing to 62% in the winter months.
- Council applied for and received two EPA Wood-smoke Reduction Education grants.
- The 2013 grant of \$40000 was focused on community education and used a media campaign, marketing material and auditing. The program also included a rebate incentive scheme. \$17000 was returned to the EPA.
- The 2014 grant of \$40000 again focused on community education and included auditing and a rebate scheme.

Program outcomes included:

- Media was saturated with information and message on wood-smoke from wood heaters during the winter months and very high community awareness of the issue.
- Council received enquiries from the community about the wood-smoke message.
- Complaints about neighbourhood wood-smoke.
- Enforcement action in response to auditing.
- Minimal response to rebate program. Council believe this is because the rebate value is too low in comparison to the cost of replacing heaters and the additional requirements required such as completing paper work, development application and professional installation.

Council is seeking to participate in the EPA's Upper Hunter Wood-smoke Community Research Project in 2015. With the cessation of EPA funding, the Wood-smoke Reduction Program will not continue in 2015.

Ms Crotty outlined the EPA's wood-smoke programs and their role within the EPA's air quality management initiatives. The programs provide local council staff with information, resources, and policy and regulatory options for managing emissions from wood heaters.

Key points made during Ms Crotty's presentation were:

- Particulate matter PM_{2.5} is a priority pollutant based on potential health impacts.
- EPA is looking at all major sources of PM_{2.5} including wood-smoke and diesel engines.
- EPA provides grants and educational tools to councils to support wood-smoke programs, provides information to the community via the EPA website, works with the national government and provides input to the Australian and New Zealand standards process to establish wood heater emissions and efficiency standards.
- New standards for wood heater emissions and efficiency are due to come into effect in NSW in August 2015.
- The EPA's Wood-smoke Reduction Program provided over \$1 million in the winters of 2013 and 2014 in grants to Councils and Regional Organisations of Councils to assist local communities address air pollution caused by wood heaters through the following options:
 - i) Community education programs about the health impacts of wood-smoke pollution and how best to operate wood heaters.
 - ii) Smokey chimney surveys and appropriate educational/enforcement action.
 - iii) Targeted cash incentives to replace old wood heaters and fireplaces with cleaner alternatives.
- Community uptake of financial incentives has generally been low.

During discussion it was noted that higher rates of uptake of rebates had been achieved in other areas and programs such as Bathurst, NSW and Launceston, Tasmania. In response to Mr Tate's question as to why the incentive uptake rate varied, it was noted that the reasons are varied and this is why the EPA believes it is worthwhile undertaking a study to identify what would be required to effect community behavioural change. Ms Potter noted that Bathurst Council matched EPA rebate amounts making the option more financially viable for residents. In Launceston, a number of actions including incentive values and health-based supporting information assisted with greater rates of replacement of wood heaters with more efficient heating options.

Ms Crotty advised that the Draft Clean Air Regulation Amendment proposes new wood heater emission and efficiency standards and would allow Councils to choose options such as permitting or refusing the installation of new fire places and heaters and establishing emission standards, to manage emissions in all or part of a local government area. The amendment is on exhibition until 15 May 2015.

The EPA is to undertake an Upper Hunter Wood-smoke Community Research Project in 2015 to:

- i) identify what influences households' heating choices;
- ii) assess the need for energy efficiency audits and advice on cleaner heating options;

- iii) establish the level of household willingness to replace existing wood heaters and the economic incentive required to do so; and
- iv) develop region specific education tools.

The Chair thanked Ms Hale, Ms Potter and Ms Crotty.

7. Community Feedback

Discussion Paper – ‘Investigating the health impacts of particulates associated with coal mining in the Hunter Valley’ Air Quality and Climate Change, 4 November 2014

Dr Dalton presented the findings of an investigation into the health impacts associated with coal mining in the Hunter Valley.

Key points made during the presentation were:

- NSW Health has chosen a Health Risk Approach to assessment and management of health impacts from particulates as there is insufficient health impact data and an epidemiological approach would take many years.
- Health data varies seasonally and it is challenging to remove other influences.
- There is no threshold for safe exposure to PM_{2.5}.
- A 10µg/m³ increase in PM_{2.5} equates to a 6% increase in the long term death rate.
- Recent research indicates cardiovascular impacts from PM_{2.5} as well as respiratory impacts.
- PM_{2.5} is able to cross membranes and may have an impact on the whole body, but these are hard to quantify.

In response to questions, Dr Dalton noted that:

- The impact of particulates on life expectancy is hard to quantify and approaches currently used are not robust.
- NSW Health is looking at ways to convey key messages about particulate impacts on health in a manner that maintains balance so that it does not alarm the public, can be understood in the community and cannot be misinterpreted by the media.

Ms Crotty noted the proposed lowering of the National Environment Protection Measure criteria for PM₁₀ and PM_{2.5}. The review is complete and will be considered by Australian government environment Ministers in mid-2015.

Ms Wales noted the community experiences the inflammatory impacts of particulates and noted the importance of minimising particulate levels.

The Chair thanked Dr Dalton.

8. EPA Coal Handling Investigation and Audit Program

Mr Lynch outlined the EPA's Compliance Audit Program to deliver continuous improvement in environmental performance.

Key points in the EPA's state-wide Audit Program for coal train loading and unloading at premises licensed by the EPA include:

- Site inspections were completed at 15 premises in the Hunter, Central West, Gunnedah area and Illawarra, including 11 coal loading facilities at mines and four export terminals, three in Newcastle and one in Port Kembla.
- There was a focus on maintenance and operation of equipment to minimise the loss of coal during rail transport. The audit also considered operator training and incident management.
- The audit identified potential for coal spills from tops of wagons and wagon doors, parasitic coal deposited on wagon exteriors such as sills, shear plates and bogies, and carry back coal remaining in unloaded wagons.
- Key strategies to reduce coal loss for train loading facilities were identified as:
 - i) ensure optimal height, shape and position of the load profile in wagons;
 - ii) understand the properties of loaded coal including moisture, dustiness and particle size;
 - iii) monitor wagon doors; and
 - iv) prevent deposition of particles on wagon exteriors.
- Key strategies to reduce coal loss for train unloading facilities were identified as:
 - i) minimise the amount of carry-back coal;
 - ii) monitor wagon doors; and
 - iii) prevent deposition of particles on wagon exteriors.
- In total, 26 non-compliances were identified. EPA is following up actions to address wagon door non-compliances (due 31 March 2015) and actions to address tops of wagon non-compliances (due 30 June 2015).
- Individual audit reports are available on the EPA's Public Register at <http://www.epa.nsw.gov.au/prpoeoapp/> and a summary report is available on the EPA's website at <http://www.epa.nsw.gov.au/resources/epa/148597-comp-audit-caol-train.pdf>
- A copy of Mr Lynch's slide presentation was provided to attendees.

In response to questions, Mr Lynch noted that:

- The performance of NSW premises was comparable with global practices. Differences in global practices generally arise from environmental conditions and the development of alternative management practices to deal with specific conditions.
- Upper Hunter train loading facilities perform well in comparison with other regions of NSW.
- No coal mines in the Upper Hunter use a front end loader to load coal into wagons.
- The EPA's literature review indicated that approximately 80% of coal loss from train loading and unloading is from the top of wagons. Re-entrainment of coal is also an issue.

The Chair thanked Mr Lynch.

9. Coal mine air quality monitoring optimisation for better dust management – EPA project update

Mr Bennett explained that as part of the EPA's Dust Stop program, from August 2013 to June 2014, all open cut coal mines had been required to modify their operations in response to adverse weather and to monitor and report on the outcome.

There were nine days during the monitoring period when PM₁₀ levels in Singleton had exceeded 50 µg/m³. During all but one of these, north westerly winds were dominant and PM₁₀ levels increased as air flowed down the Hunter Valley through areas dominated by mining. However, on some days, high overnight PM₁₀ levels are also a significant factor, and rainfall significantly reduces PM₁₀ emission rates for several days following the rainfall event. The EPA is investigating whether the conditions that lead to elevated PM₁₀ concentrations in Singleton can be reliably predicted.

The results of the EPA's investigations confirm that north westerly winds are the most significant factor in PM₁₀ transport from mining areas towards Singleton. Accordingly, the EPA intends to proceed with its proposal to optimise monitoring carried out by Hunter coal mines. This will result in continuous monitoring of PM₁₀ to the northwest and southeast of each mine so that individual mine contributions can be better quantified.

10. General Business

The EPA advised that the next meeting date set by the Committee was 30 July 2015. The meeting would be held in the Singleton Civic Centre Auditorium Foyer meeting space.

Mr Watson suggested a minimum of one meeting per year to be held in Muswellbrook.

RECOMMENDATION 1: The Committee recommended that the EPA and OEH consider holding meetings at other locations within the Upper Hunter.

Meeting closed at 1:20 pm.

Next meeting dates: Thursday 30 July 2015 and 29 October 2015.

Minutes for review by: John Tate (Chair).