



UPPER HUNTER AIR QUALITY ADVISORY COMMITTEE (UHAQAC)

MEETING MINUTES – Meeting 21

Date: 28 July 2016

Time: 10:00am – 1:00 pm

File: EF13/5718, DOC16/402261-02

Meeting Location: Singleton Visitor Information and Enterprise Centre, Townhead Park, New England Highway, Singleton, NSW 2330.

In attendance: John Tate (Chairperson), Dr Catherine Chicken, Lindy Hyam, Chris Knight, Lyn MacBain, Matthew Parkinson, Mark Scandrett, Geoffrey Sharrock, Andrew Speechly, John Watson.

Office of Environment and Heritage (OEH): Scott Thompson.

Environment Protection Authority (EPA): Mitchell Bennett, Anthony Savage, Leanne Graham.

Apologies: Mayor Wayne Bedggood, Dr Craig Dalton, Cr Hollee Jenkins, Morgana Gidley-Baird, Ben Harrison, John Krey, Adam Gilligan (EPA)

Agenda Item:

Acknowledgement of Country

1. Welcome and Introductions

Mr Tate welcomed attendees to the meeting. Mr Tate introduced Mr Knight, deputy for Mr Harrison; Mr Parkinson, deputy for Ms Gidley-Baird; Mr Thompson, OEH supervisor of the operation of the air quality monitoring networks in the Hunter Region; and Mr Savage, Manager of Air Technical Advisory Services, EPA.

The EPA advised that Muswellbrook Shire Council appointed Mark Scandrett, Sustainability Coordinator, as Council's representative on the Committee. Mr Scandrett had advised that would soon arrive at the meeting.

2. Apologies

See above.

3. Minutes of Previous Meeting, No. 20 of 28 April 2016

The Committee adopted the minutes as a true and accurate record.

4. Actions Arising from Previous Meetings

The EPA provided the following advice in response to actions from the previous meeting.

- The EPA emailed to the Committee Members, on 6 May 2016, an extract from the report 'Review of the health impacts of emission sources, types and levels of particulate matter air pollution ambient air in NSW', published by the Woolcock Institute of Medical Research, Centre for Air Quality and Health Research and Evaluation, in December 2015 (CAR, 2015).

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- The EPA and the OEH are exploring ways to show long term trends in PM₁₀ and PM_{2.5}, on the front page of future editions of the Upper Hunter air quality seasonal newsletters.

Action 1. The EPA and OEH to report back to the Committee at the next meeting, with options for graphs to show long term trends in PM₁₀ and PM_{2.5}, on the front page of future editions of the Upper Hunter air quality seasonal newsletters.

- The EPA provided an update on actions to reduce emissions from diesel locomotives. In early 2016, the manufacturing company, Electro-Motive Diesel Inc. (EMD), completed testing of the upgrade kit on the two electro-motive diesel locomotives that the EPA tested in 2015. This second test program investigated alternative fuel injection settings, to improve fuel consumption and reduce greenhouse gas emissions, while maintaining and improving the particle emission reductions. The EPA expects a final report from EMD Inc. will be available soon, for publication on the EPA website.

The EPA contracted testing on two General Electric (GE) locomotives in partnership with Pacific National. The two locomotives have engines common to GE locomotives in the NSW fleet. Combined with the EMD engines already tested, the four locos tested represent more than 90% of the fleet operated in NSW. The testing of the GE locomotives aims to assess their emissions performance against the Tier 0+ standard. The EPA expected testing to be completed this week, with the report available in one to two months.

Action 2: The EPA to provide updates to the Committee on actions to reduce emissions from diesel locomotives, as information becomes available.

- The EPA advised that it would respond in Agenda Item 7 (below), to the Committee's recommendation that the EPA commission an Upper Hunter dust deposition study in collaboration with the Committee.
- The EPA asked the Committee to reconsider its recommendation that the EPA invite Professor Richard Bush, of the International Centre for Balanced Land Use, at the University of Newcastle, to address the Committee on the cumulative impacts of development in the Hunter. The EPA reported that the university's web page noted that Professor Bush was a specialist in soil science and soil-water interactions. The Centre aimed to address food, water and energy security challenges. The EPA proposed that in Agenda Item 9 (below), Mr Savage's presentation may address the Committee's desire to understand cumulative impact assessment. The EPA invited the Committee to advise the EPA, after Item 9, whether there were further questions to be addressed on cumulative impacts.

5. Air Quality Report and Seasonal Analysis Autumn 2016

Mr Thompson (OEH) presented the draft seasonal air quality newsletter for autumn 2016, reporting on the results and performance of the Upper Hunter Air Quality Monitoring Network (UHAQMN).

Key points included:

- Air quality was generally good in the Upper Hunter, from 1 April 2016 to 31 May 2016.

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- Levels of nitrogen dioxide (NO₂) and sulfur dioxide (SO₂) were all below benchmark concentrations, during autumn 2016 at all 14 air quality monitoring stations.
 - Daily levels of PM_{2.5} (particles less than or equal to 2.5 micrometres (µm) in diameter) were above the benchmark of 25 micrograms per cubic metre (µg/m³) on two days, during autumn 2016. Singleton recorded 25.5 µg/m³ and 27.7 µg/m³ on 7 and 8 May 2016, respectively. At this time, a small hazard reduction fire was burning five kilometres (km) southeast of Singleton. Large fires were burning in Wollemi National Park, 40 km southwest of Broke, from 6 May to 6 June 2016. Autumn 2016 was the first autumn period to record days above the PM_{2.5} benchmark, since the network commenced monitoring in 2012.
 - Daily levels of PM₁₀ (particles less than or equal to 10 µm in diameter) were above the benchmark of 50 µg/m³ on three days during autumn 2016, on 2 and 6 April and 24 May 2016. Daily levels of PM₁₀ ranged from 51.2 µg/m³ to 65.7 µg/m³. Camberwell recorded levels above the benchmark on all three days. Singleton and Mt Thorley each recorded one day over the benchmark, on 6 April and 24 May 2016, respectively. The number of days above the PM₁₀ benchmark (three) was the same as in the previous three autumns. The network recorded eight days above the PM₁₀ benchmark in autumn 2012.
 - The Upper Hunter experienced the hottest autumn on record in 2016 and rainfall was very much below average.
 - Lightning strikes reduced the network's online time, to 90% for PM₁₀ monitoring at Mt Thorley and 88% for wind monitoring at Warkworth.
 - The OEH's Internet web page dedicated to the Upper Hunter network showed peaks in the number of page views, on 7 April, 7 May and 19 May 2016, coinciding with the PM₁₀ peaks.

Mr Thompson discussed the rolling annual average levels for PM₁₀ and PM_{2.5}, noting that the results could not be compared to the annual benchmarks, which are based on a calendar year.

My Hyam asked what role the Committee could play in helping to improve particle levels at Muswellbrook. The EPA acknowledged that the Muswellbrook air quality monitoring station had exceeded the PM_{2.5} benchmark levels in winter. The Upper Hunter Valley Particle Characterisation showed that woodsmoke was the dominant contributor to PM_{2.5} levels in Muswellbrook and Singleton in winter. The OEH and the EPA confirmed that sources of woodsmoke close to the monitor could affect the recorded PM_{2.5} levels. The EPA reiterated that it is working with local councils to reduce woodsmoke emissions in the Upper Hunter.

Ms MacBain asked whether there were sites where the influence of local topography meant that air quality problems could never be solved. The EPA advised that while local topography is important, the key to improving air quality is to reduce all possible sources of emissions. For example, the EPA targeted reductions in particles emitted from mining activities, erosion of exposed surfaces, diesel engines and wood heaters. The EPA reminded the Committee that finding a suitable location for a monitor for the Upper Hunter network in Muswellbrook had been difficult.

The Chair acknowledged Mr Scandrett, who had joined the meeting. The Chair asked Mr Scandrett how Muswellbrook residents were responding to the Council's woodsmoke reduction programs. Mr Scandrett reported that most of the air quality complaints received by the Council were about sources other than woodsmoke and came from residents in east Muswellbrook.

The Chair, on behalf of the Committee, requested that the EPA seek an update on Muswellbrook Shire Council's actions to reduce woodsmoke.

Action 3: The EPA to communicate with Muswellbrook Shire Council about actions to reduce woodsmoke and to report back to the Committee at the next meeting.

The Chair commended the OEHL for the draft Upper Hunter air quality newsletter for autumn 2016 and thanked Mr Thompson for his presentation.

6. Air Quality and Health

The EPA played an audio-visual presentation, 'Health impacts of air pollution - a Hunter perspective', prepared by Dr Dalton, drawing on the best available international and Australian research.

The presentation drew on Dr Dalton's journal article, "Investigating the health impacts of particles associated with coal mining in the Hunter Valley", published in *Air Quality and Climate Change*, Volume 48, No.4, November 2014. Dr Dalton's commentary acknowledged his co-authors, the eminent researchers Professor Guy Marks of the Centre for Air Quality and Health Research and Evaluation, Woolcock Institute of Medical Research, University of Sydney NSW and Professor C. Arden Pope III., of Brigham Young University, Provo, Utah, USA, one of the world's most cited authors on air pollution and health.

In his commentary, Dr Dalton introduced the concept of appropriately communicating the health risks associated with air pollution. Public communications about the health risks of air pollution can influence the way we talk about and think about air quality, which in turn affects a person's physical and psychological well-being. For example, commentaries which minimise the physical health risk, when the risk is actually high, can increase the risk of excess physical suffering. Conversely, commentaries which exaggerate the physical health risk, when the actual risk is low, can increase the risk of psychological suffering. If suffering comes through the experience of the mind and the experience of the community, then it is important for public discussion to talk about health risk in a balanced way.

Key points in Dr Dalton's presentation included:

- Numerous scientific studies have linked particle pollution exposure to a variety of health problems, involving the respiratory and circulatory systems.
- Research on large populations has found a relationship between particle levels, health impacts and mortality. Pope (*et al.* 2002) found that for every 10 µg/m³ increase in PM_{2.5} there was a 6% increase in the long term death rate. [Reference: 'Lung cancer, cardiopulmonary mortality, and long-term exposure to fine particulate air pollution', by Cope, C.A., RT Burnett, R.T., Calle, E. E.,

Krewski, D. and Thurston, G.D., *The Journal of the American Medical Association*, Volume 287 (9), pp 1132-1141].

- There is no threshold of safe exposure to particulate air pollution. This means that there is no evidence for a level of particulate air pollution below which there is no health impact. The fewer the particles in the air, the better for health.
- Particle sizes are related to health impacts. Airborne particles from crustal sources, including mining, generally are larger than PM_1 (particles with diameters less than or equal to one μm). Particles from combustion, for example, emissions from diesel engines, generally are smaller than PM_1 .
- Earlier research on the health impacts of air pollution focused on respiratory diseases and assumed that the lungs were an impenetrable barrier to particles.
- More recent understanding is that, the smaller the particle, the deeper into the lungs and bloodstream the particle can travel. Particles smaller than $PM_{2.5}$ are believed to cause a body-wide inflammation of tissue and constriction of blood vessels. Particles of 0.65 μm to 1.1 μm diameter can rupture cell walls, damage blood vessels, change the coagulability and viscosity of blood and activate inflammatory damage in the brain. The most common damage is probably cardio vascular disease (heart disease and stroke) caused by long term exposure to $PM_{2.5}$. PM_{10} impacts are more related to respiratory diseases.
- Particles can contain a mix of dangerous compounds, For example, particles in diesel exhaust contain chemicals ranging from respiratory irritants to carcinogens. The health impact of specific particles is an area of cutting edge research.
- A review of research on the health impacts of particles in NSW, by the Centre of Air Quality and Health Research and Evaluation (CAR, 2015), found that particles from combustion sources generally were considered more harmful to health than particles from crustal sources. Metals from vehicle brake materials, tyres and woodsmoke are considered more harmful than larger crustal and coal particles. Particles from indoor sources such as cooking can have potential health impacts.
- The annual average concentrations of $PM_{2.5}$ and PM_{10} in ambient air are the best predictors of long term health impacts. Rolling annual averages provide an indication of particle levels during the previous months. However, they are not intended to be compared to the national annual benchmarks.
- Rolling annual averages across the UHAQMN indicate that particle levels are under the PM_{10} annual benchmark and close to or above the $PM_{2.5}$ annual benchmark.
- The most important and surprising finding in the Upper Hunter particle characterisation study was the major contribution of woodsmoke to PM_2 levels in Muswellbrook and Singleton, especially in winter.

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- Annual average particle levels in Sydney and rural NSW are under the new national standards of $8 \mu\text{g}/\text{m}^3$ for $\text{PM}_{2.5}$ and 25 for $\text{PM}_{10} \mu\text{g}/\text{m}^3$ and are slightly lower than in the Hunter. Australian cities are among the least polluted in the world. The median daily $\text{PM}_{2.5}$ levels are about 10 to $15 \mu\text{g}/\text{m}^3$ in large cities in the USA and about 80 to $100 \mu\text{g}/\text{m}^3$ in Beijing, China. These cities have very high levels of mortality due to air pollution.
 - Large populations need to be studied to accurately detect the health impacts of air pollution. Epidemiological studies which examine the relationships between local pollution levels and local health effects can provide locally relevant data. However, epidemiological studies can take three to five years and can miss important health impacts when the study size is small.
 - Health Risk Assessments can use concentration response functions (CRFs) from overseas studies to estimate health impacts of air pollution in Australia. These studies assume that the overseas conditions of pollution and populations are similar to Australian conditions. CRFs are useful for predicting incremental impacts of increases or decreases in pollution levels. Exposure science and toxicology studies are also important in health risk assessments.
 - In May 2010, the Hunter New England Area Health Service (HNEAHS) published an epidemiological study, 'Respiratory and cardiovascular diseases and cancer among residents in the Hunter New England Area Health Service', available on the NSW health website. The study focused on a wide range of diseases and causes of death, potentially associated with air pollution. The study compared emergency department visits, hospital admissions, mortality and cancer in Hunter New England residents, within area clusters and other parts of NSW. Results showed:
 - The rates of respiratory illnesses were lower in Muswellbrook and Singleton than in Tamworth, Gunnedah and Cessnock in all age groups,
 - Muswellbrook area had above average rates for emergency department presentations for asthma. However, rates in Tamworth and Gunnedah were higher.
 - Singleton ranked highly for rates of emergency department presentations for asthma in people aged 15-64 years
 - Muswellbrook and Singleton were equally highly ranked for rates of emergency department presentations for conditions unrelated to air pollution.
 - Asthma is one of the most difficult health conditions to study. Research by the HNEAHS found rates of hospital discharges for asthma in 2004-2009 in Muswellbrook were slightly above the state average and slightly below average in Singleton. Rates were higher in the Liverpool Plains, Narrabri and Dungog than in Muswellbrook and Singleton. In Lake Macquarie, with three power stations nearby, rates were lower than Singleton. Confounding factors, potentially affecting the bias in the data, included differences in the management of asthma patients in different areas, socio-economic status and the incidence of smoking among patients.

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- Roemer (et al. 1998) studied 2,000 asthmatic children across Europe during winter 1993-1994. Annual average PM₁₀ levels ranged from 11 µg/m³ in Oslo to 99 µg/m³ in Athens. No clear impacts of PM₁₀, black smoke, SO₂ or NO₂ were detected. [Reference: Daily variations in air pollution and respiratory health in a multicentre study: the PEACE project', European Respiratory Journal, 1998: Vol 12: pp 1354-1361].
 - The best approach to managing the health impacts is to focus on keeping air pollution levels as low as possible. The concentration-response function, identified in studies of very large populations, can be used to estimate the measurable improvements in health from reducing particle levels. If the annual average PM_{2.5} level in Muswellbrook could be reduced by 5 µg/m³, for example from 8.8 µg/m³ to 3.8 µg/m³ (close to background levels in pristine air), then the number of deaths attributable to air pollution potentially would be reduced by 3%. PM₁₀ causes less impact, hence the focus on PM_{2.5}.
 - The conclusions of NSW Health are that:
 - Particles have impacts on multiple systems in the human body,
 - Reductions in particle levels give measureable health benefits,
 - Community perceptions of air quality reflect the community's acceptance of air pollution levels, compared to national standards and people's lived experience of air quality,
 - Quantification of local air quality levels, compared with national standards, is important to inform the community and policy-makers, and
 - It is important to communicate that the changes to the national standards in 2016 included long term targets for lower maximum concentrators of PM_{2.5} by 2025.

The Committee members commended the presentation and expressed interest in facilitating its distribution among members' contact networks.

Action 4. The EPA, in liaison with Dr Dalton, to advise the Committee on how to access the video 'Health impacts of air pollution – a Hunter perspective', for distribution to member's contact networks.

Ms MacBain asked the EPA to clarify how the new national air quality standards affected mines. Mr Savage explained that mining proposals would continue to be assessed for impacts on ambient levels and compared to published assessment criteria. He would explain further in Item 9.

Ms MacBain noted that in Singleton, asthma cases were more likely to be managed by general practitioners rather than a hospital emergency department.

Mr Tate thanked the EPA and Dr Dalton, in his absence, for the presentation and thanked the Committee for its positive feedback.

7. Dust Deposition in the Upper Hunter

Mr Bennett reminded the Committee that the main drivers of the Lower Hunter Dust Deposition Studies (LHDDS) were the public's perception of high levels of coal dust in Newcastle because of coal stockpiles and coal trains.

The LHDDS assessed black dust deposited across suburbs near to the coal stockpiles and rail corridor. The study found that deposited black dust levels were about 70% below the EPA assessment guideline, of four grams per square metre per month ($\text{g/m}^2/\text{mth}$) as an annual average. The largest proportion of coal dust in a sample was 20%. Most dust samples contained less than 20% coal dust. Soil dust was the largest component in the samples.

Unlike Newcastle, the Upper Hunter does not have large coal stockpiles adjacent to residential areas, but there are large areas of exposed soil from mining. Therefore, dust in Upper Hunter households would most likely contain more soil and less coal, than in the Lower Hunter.

Dust deposition levels at Camberwell, the most highly impacted monitoring site in the Upper Hunter, recorded annual dust deposition levels below the guideline of $4 \text{ g/m}^2/\text{mth}$, ranging from $2.3 \text{ g/m}^2/\text{mth}$ to $3.1 \text{ g/m}^2/\text{mth}$.

In 2011, the EPA introduced the Dust Stop program to reduce dust from coal mines across NSW. The Committee regularly received updates on the progress the Dust Stop program in the Upper Hunter. Mines were implementing a series of pollution reduction programs (PRP), targeting dust sources by order of significance in their contribution to dust levels. The most recent challenge for mines was to minimise the surface area of land exposed to wind erosion.

Based on the evidence outlined, the EPA concluded that the best allocation of resources was to maintain investment in the Dust Stop program and other particle reduction strategies, which aimed at continually improving air quality in the Upper Hunter, rather than conduct a dust deposition study.

In discussion, the Committee members advised that the community lacked an understanding of the composition of the dust and assumed that mines were a major source of deposited dust.

The EPA reminded the Committee that a dust deposition study would not identify whether soil dust came from a specific mine site or from agricultural land.

The Committee agreed that the messages from the EPA's particle characterisation and dust deposition studies, and the NSW Health's publications, were not reaching the community. The messages that were not widely understood included: that invisible fine particles are most likely to cause health impacts; that wood heaters were major contributors to high $\text{PM}_{2.5}$ levels in winter; and that EPA facilitated programs are reducing particle levels.

The Committee acknowledged the potential improvement in the community's wellbeing, if the community perceived more widely that resources were allocated appropriately to improving air quality. Individuals would feel more reassured that something was being done to address community concern.

The Committee noted that the EPA's media release about summer air quality levels in the Hunter was not reported by the media in the Upper Hunter.

Recommendation 1. The Committee recommended that the EPA prioritise engagement with the Committee, to find ways to address, more effectively, the ongoing community concern for air quality and health in the Upper Hunter.

The Chair thanked the Mr Bennett and the Committee for their contributions.

8. Community Feedback

Mr Tate invited the Committee to share feedback from their contact networks.

Ms MacBain reported that community members frequently observed low level smoke and dust in areas between Edderton Road and Bulga. Ms MacBain reiterated community concern that local topographies could create air quality problems. The EPA confirmed that local topography affected airflows and air quality. For example, mist frequently formed in low lying areas and along water courses and the prevalence of dust in the air could enhance fog formation.

The EPA reminded the Committee to encourage community members to report observations to the EPA's Environment Line on 131555.

9. Modelling the air quality impacts of mining

Mr Savage explained how air quality modelling is used to assess the cumulative impacts of proposed coal mine developments.

The EPA publication, *Approved Methods for Modelling and Assessment of Air Pollutants in New South Wales* (Department of Environment and Conservation, 2005) establishes methods for estimating the air quality impacts of mines and impact assessment criteria.

By adhering to these *Approved Methods*, the air quality modelling study is designed to deliver a reasonable worst case estimate of mine impacts.

Air quality modelling involves simulating the impact of a proposed mine, using computer software.

Mr Savage described how an air quality impact assessment is put together. The first step is collecting input data and setting up the model. Model inputs include quantified estimates of local terrain, synoptic and local meteorology, background air quality and rates of air emissions from all mining activities and wind erosion.

The model predicts the dispersion of particle emissions from their sources, across a study area, incorporating the influences of meteorology, terrain and land use. The model estimates the ground level concentrations of particles, due to the mine's emissions, at every grid point across the modelled area, for specific averaging periods.

The model uses monitored hourly wind speed and direction from local air quality monitoring stations, to improve the prediction of air flows over a defined area surrounding the monitoring stations. The area of influence of the monitored values can be set to be wider, where the terrain is more open, as around Muswellbrook, or narrower, where the terrain is more complex, as around Bulga.

The cumulative impact is calculated by adding the predicted (mine only) incremental impact to the background air quality levels. The background concentration may be selected as the maximum concentration measured in the modelling year, or as the average hourly concentration, corresponding to the actual hour in the modelling year.

The model outputs are displayed as maps, similar to a contour map, with lines showing predicted ground level concentrations, for specific averaging periods. The model can also output a list of the predicted ground level concentrations for each hour in the modelling year, for any point in the grid. Such outputs are used to estimate the highest predicted daily PM₁₀ concentration at the residence nearest to the mine, called the most sensitive receptor.

Another approach to estimating the cumulative impacts on air quality in the Upper Hunter is to model emission rates for as wide a range of sources as available. Background concentrations are taken from an air quality monitoring station more distant from mining activity. This approach is extremely data intensive to set up, run and process. The advantage of this approach is that the model can be re-run to include new emissions sources, as information becomes available, such as a new mine proposal.

Ms MacBain asked how the national standards in the Air NEPM applied to air quality modelling. Mr Savage reiterated that the national standards were considered when developing the impact assessment criteria set out in the *Approved Methods*. The EPA intends to review the *Approved Methods* to consider the new national standards set in February 2016. These are: 25 µg/m³ for the annual average PM₁₀ concentration, 8 µg/m³ for the annual average PM_{2.5} concentration, and 25 µg/m³ for the 24-hourly average PM_{2.5} concentration.

Air quality criteria are used to assess the impact of proposed mines. Once they are operating, the EPA focuses on minimising emissions.

Ms MacBain asked how the DPE reviewed environmental impact statements for proposed mines and what triggered a peer review. Mr Savage explained that the EPA participated throughout the development approval stage, reviewing the air quality assessments and advising the DPE as well as the Planning Assessment Commissions (PAC). The DPE often sought external advice from peer reviewers.

Ms Hyam asked for Mr Savage's view on community allegations, at PAC hearings, that modelling had been manipulated. Mr Savage advised that the quality of model outputs depended on the quality of the inputs. The cumulative impact assessment process requires the availability of a lot of information. The assumption underlying the modelling practice is that the method is defensible. He noted that models perform more accurately for predicting concentrations with longer averaging periods, such as annual averages, rather than hourly or daily averages. For example, while the predicted maximum daily concentration may compare closely with the observed (monitored) maximum daily concentration, the dates of the events, in the modelling year, may not coincide.



Mr Savage concluded that modelling involved a complexity of factors and the results were reliable if the model was constructed properly.

Mr Tate thanked Mr Savage for the presentation.

10. EPA update on Dust Stop program and optimising mine operated air quality monitoring

Mr Bennett reminded the Committee of the stages in the EPA's Dust Stop program, which commenced five years ago, to minimise mine dust emissions across NSW.

In 2010, EPA commissioned a best practice review of dust control that identified scope for improvement in NSW mines. Dust control from wheel generated dust, overburden handling and wind erosion became the focus for the EPA's Dust Stop program.

The EPA's Dust Stop program required NSW coal mines to undertake a series of pollution reduction programs (PRPs), part of each mine's environmental protection licence. The PRPs aimed to achieve 80% control of dust from wheel generated dust (PRP 1), to modify operations in weather conditions likely to increase dust (PRP 2), to investigate dust control when handling overburden, the rock material overlying the coal seams (PRP 3), and to estimate the mines' surface areas exposed to wind erosion (PRP 4).

To make sure that mines continue to meet EPA requirements, the EPA's Dust Buster program recently conducted helicopter surveillance of Hunter mines. The surveillance confirmed that mines were achieving effective dust control on haul roads, which were well-watered, with virtually no dust observed. Overburden handling continues to produce dust. The EPA was investigating dust being generated by drilling rigs at two mines.

The EPA continues to check the progress of the mines' assessments of the actual surface areas exposed to wind erosion, compared to the predicted areas of wind exposed land, stated in the mines' Environmental Assessments, prepared before mining commenced.

Ms MacBain asked what the EPA was doing to address the surface area exposed to wind erosion along the Putty Road. Mr Bennett advised that the EPA was using PRP 4 to explore ways to require mines with more exposed land than predicted, to meet the predicted area exposed to wind.

Mr Bennett reminded the Committee of the principles driving the EPA's plans to optimise mine site air quality monitoring and the benefits for air quality management. The establishment of the industry-funded, government-operated UHAQMN, provided monitoring in receiving areas. The mine monitoring optimisation program aims to move mine-operated monitors nearer to mines, to monitor emissions from mining activity. Replacing older monitoring instruments with continuous PM₁₀ monitors, aligned with the dominant wind direction, will allow measurement of the mine's individual contributions to PM₁₀ levels. The difference in ambient PM₁₀ levels, upwind and downwind of the mine site and the comparison between sites, will assist the EPA's regulation of dust in the Upper Hunter.

The EPA issued draft notices to 17 mines, proposing the relevant changes to monitoring conditions on their environment protection licences. Mr Bennett noted that five of the mines' community consultative committees (CCCs) had discussed the proposed optimisation. Feedback from CCCs expressed cautious acceptance and acknowledged the benefits of mine-specific monitoring. The EPA recently finalised the new licence variations with mines at Bulga and Mangoola.

Mr Knight, representing the DPE, acknowledged that proposed removal of dust deposition gauges (DDGs), at sensitive receiver locations, raised community concerns. Mr Knight confirmed the DPE's in-principle support for the optimisation and the retention of limited numbers of DDGs. He reminded the Committee that the DPE and the EPA signed a Memorandum of Understanding with the mines to negotiate down-sizing of mine-operated monitoring, following the commissioning of the UHAQMN.

Mr Knight advised that the DPE encouraged mines to submit modifications, seeking to retain a limited number of DDGs, such as at residential properties, to address community concerns.

Ms MacBain asked which of the key stakeholders was speaking to the community members, who hosted mine-operated DDGs on their properties. Mr Bennett advised that the EPA was raising the optimisation proposals with the mines' CCCs, which represented the relevant community members.

In conclusion, Mr Bennett reiterated that the optimisation of mine-monitoring and the operation of the UHAQMN aimed to improve air quality monitoring in the Upper Hunter.

Ms Hyam asked about the time frame for mines to complete the optimisation. Mr Bennett noted that the EPA initially hoped for completion by spring 2016. The EPA expected that the mines would proceed as soon possible, following consultation with their CCCs.

Mr Tate thanked Mr Bennett for his presentation.

11. General Business

Ms MacBain advised that she could not attend the next meeting and her deputy would attend.

Mr Tate thanked the Committee, the OEH and the EPA for their participation and contributions.

Meeting closed at 1.00 pm.

Next meeting dates: Thursday 27 October 2016 and tentatively Thursday 23 February 2017.

Minutes for review by: John Tate (Chair).