



Temporary aerial seeding over inactive dumps to provide stabilisation

Yancoal manages two open cut mines in the Hunter Valley - Hunter Valley Operations and Mount Thorley Warkworth.

We recognise that our operations in the Hunter Valley generate dust and other particulate matter, and have a strong commitment to continuous improvement in the area of air quality management.

Minimising our impacts is a responsibility of all mine operations staff.



Water truck re-filling

## What is particulate matter?

Commonly called dust, scientists and regulators refer to the term “particulate matter” (PM) to describe the types of particles that exist in the air that we breathe.

Particulate matter exists naturally in the atmosphere, for example as sea-salt spray and pollens. It also includes particulates from human activities such as vehicle exhausts, industrial processes, power stations, mining, farming and domestic wood heaters, as well as smoke from bushfires.

Large particles can cause amenity issues, such as the visibility of dust in the air, as well as settling on washing hung outside, house roofs, outdoor furniture and vehicles.

Exposure to particulate matter can also be associated with health impacts. Generally, it is thought that exposure to PM<sub>2.5</sub> (fine particles below 2.5µm (micrometres)) is of greater health concern than exposure to larger particles, as they can pass through the throat and nose and enter the lungs where they can cause respiratory and circulation problems. The likely risk of these impacts depends on a range of factors including age and the general health of the person.

You can read more about the effects of mine dust in the NSW Health fact sheet: “Mine dust and you”, which you can download from the NSW government health department website at [www.health.nsw.gov.au/environment](http://www.health.nsw.gov.au/environment).

Particle size	Description
TSP	Total Suspended Particulate Matter (TSP) refers to the total of all particles suspended in the air. Even the largest of these particles is barely half the width of a human hair
"larger than" PM10	A subset of TSP, and refers to all particles of size 10µm in diameter and greater
PM10	Also a subset of TSP, and refers to all particles of size 10µm in diameter (smaller than 1/7th of a hair width). Particles in the size range 2.5µm to 10µm in diameter are referred to as coarse particles (PM2.5 - PM10).
PM2.5	A subset of both PM10 and TSP categories, and refers to all particles less than 2.5µm in diameter. PM2.5 is referred to as fine particles and is mainly produced from combustion processes, such as vehicle exhaust.

## What are the sources of dust at a mine?

The majority of dust particles from mining activities are large particles, known as coarse particulates.

Coarse particulates are generated when we move rocks and soil with draglines, bulldozers, blasts and vehicles travelling on mine roads. Wind blowing over bare ground and coal stockpiles also generates coarse particles.

Fine particles such as PM2.5 account for five percent of dust produced at mine sites, and are mostly generated from vehicle exhausts and combustion processes, similar to urban areas.

## Minimising dust

We try to reduce dust created by our operations in the following ways:

- Use of predictive meteorological forecasting to ensure staff are aware of upcoming conditions which require active management;
- Using water trucks to dampen haul roads;
- Automatic activation of sprays at our hoppers when haul trucks dump their loads;
- Minimising tip heights;
- Enclosing coal processing areas;
- Modifying or shutting down mine operations during extreme weather, including windy and dry conditions;
- Covering coal conveyors and keeping stockpiles damp;
- Stabilising exposed areas with temporary aerial seeding;
- Rehabilitating mined land as soon as possible to reduce exposed areas;
- Restricting blasting during certain weather conditions that exacerbate dust;
- Implementing overburden dumping restrictions in dust sensitive areas; and
- Educating employees about minimising the generation of dust when operating heavy machinery



Water trucks continuously dampen haul roads with recycled water to minimize dust



Minimising tip heights when loading and unloading helps to reduce dust across Hunter Valley Operations

## How do we measure air quality?

Air quality is measured at locations inside and outside of our mine boundaries. Our monitoring networks measure Deposited Dust (largest particles), TSP and PM10. PM2.5 is monitored through the industry-funded, NSW Office of Environment & Heritage operated "Upper Hunter Air Quality Monitoring Network", which comprises three PM2.5 monitors and fourteen PM10 monitoring stations throughout the Upper Hunter.

Real-Time PM10 monitoring is undertaken in surrounding community areas, providing live information on air quality conditions. Alarms trigger when air quality conditions deteriorate, and also when wind speeds increase, alerting the mine operations to the types of conditions so that they can respond.

Monitoring is undertaken in accordance with the NSW EPA's 'Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales' guidelines, which can be downloaded from the EPA's website at <http://www.epa.nsw.gov.au/air/index.htm>.

Warkworth operations from inside and outside the mine's boundary. They also validate real-time air quality alarms and advise the mine shift coordinator of any problem dust sources.

Our CROs communicate constantly with the mine shift coordinator to help them to make changes to mining operations if dust levels are increasing, and to let them know whether the changes are working to reduce dust levels in real time.

CROs also speak with community members who register concerns about dust. They log their complaints and inform them of what changes may be happening at site to reduce dust levels.



Dust monitoring unit at Mount Thorley Warkworth

## How is air quality regulated?

The Protection of the Environment Operations Act 1997 (NSW) is the principle legislation regulating air quality in New South Wales.

Dust generated by mine sites is also regulated against standards adopted by the NSW Office of Environment & Heritage. These standards are set nationally under the National Environment Protection Measure – Air. To find out more about these standards visit [www.environment.gov.au](http://www.environment.gov.au)

Coal mines are required to monitor air quality as a condition of their development consents and environment protection licenses issued by the NSW Environment Protection Authority (EPA). These conditions require mining operations to manage, monitor and report on concentrations of air pollutants in and around their mines, as well as ensuring the implementation of industry best practice to manage air quality in the Upper Hunter.

## Am I able to receive dust proofing mitigation works for my home?

Under a mine's development consent, some properties are prescribed mitigation rights based on modelled environment factors (dust and/or noise).

If you would like to know whether your property lies within a Yancoal Zone of Mitigation please call 1800 727 745.

## Where can I find out more information?

Monitoring data is made publically available from all operations on a monthly basis on our website. Our annual environmental monitoring reviews that we submit to government provide further information about air quality monitoring and management. You can download these reports from our website by visiting <https://insite.yancoal.com.au/> and searching 'documents'.

## How can I make a complaint or ask a question?

If you wish to lodge a complaint about dust from one of our operations, please contact us on our free call number 1800 656 892. Please indicate if you would like to be called back to discuss the matter further and a member of our environment team or shift coordinator will return your call.



Area being bulk shaped ready for rehabilitation