



Coal Services

Prevention of pneumoconiosis in NSW

Information for workers in the
NSW coal mining industry





Prevention of pneumoconiosis in NSW

What is black lung?

Coal workers pneumoconiosis results from the prolonged exposure to respirable coal dust and the gradual accumulation of coal dust particles within the lung tissue, usually over a period of many years.

Recently there have been some reported cases in the Australian coal industry of coal workers pneumoconiosis, or as it's more commonly known, 'black lung disease'.

While we cannot comment on the situation in Queensland, we want to reassure you that the enforced regulation of dust monitoring and health surveillance continues to help protect NSW coal mine workers from developing black lung.

This information pack includes:

- An overview of what we do in NSW
- Health monitoring
- Dust monitoring and mitigation
- Longwall dust suppression plans
- Standing Dust Committee

History of black lung in NSW

NSW coal mining operations have come a long way since the Royal Commission into Health and Safety recommended that a minimum dust concentration standard be introduced.

The creation of the independent Joint Coal Board (JCB) in 1947 provided a greater commitment to enforcing compliance against the new dust standards.

At that time black lung was prevalent throughout the industry, affecting 16 per cent of all coal mine workers across NSW, with 4.5 per cent showing obvious symptoms.

The global position of pneumoconiosis results like those seen in China where 6,000 people die each year, and the United States reporting around 1,000 deaths per year are a sobering reflection of regulation and compliance must remain a key preventative strategy that unites all stakeholders across the NSW coal industry.

What is the current situation in NSW?

Under the *NSW Coal Industry Act 2001*, Coal Services is tasked with executing NSW government Orders 34 (training), 40 (dust abatement), 41 (health monitoring) and 42 (dust monitoring) to work with coal mining companies on dust mitigation and control techniques and health surveillance.

It is a requirement that performance is monitored in line with regulations and the results are reported back to industry.

What does this mean for you?

The Orders ensure that you are properly trained in health and safety, dust is monitored and managed appropriately to the exposure standard, and that your health is periodically monitored to ensure that those systems remain effective.

In the NSW coal mining industry the enforced regulation of dust monitoring and health surveillance continues to help protect NSW coal mine workers from developing black lung disease.

Health monitoring

Why do I need a pre-employment medical?

A pre-employment medical is required before you commence work in the NSW coal industry. This includes a chest x-ray for new entrants to the industry. The medical and chest x-ray serve as a baseline for future health surveillance.

If you were already working in the industry and were asked to attend a pre-employment medical, a chest x-ray would only be conducted if you were due to have one as required under Order 41, or if clinically indicated.

Why do I need a health surveillance medical?

As most occupational illnesses take many years to develop, regular health surveillance allows for early detection and intervention with the goal of ensuring that you can continue to work safely.

Under Order 41, every NSW coal worker must have a health surveillance medical (known as a Periodic Health Assessment) every three years.

The Periodic Health Assessment focuses on a range of occupational health issues including dust, noise, fatigue and vibration. It also includes an assessment for general health issues that may impact you in the workplace including an assessment of the cardiovascular system, general health issues, mental health, musculoskeletal issues and alcohol use.

The periodic medical assessment ensures that your ongoing health is protected and monitored for any adverse health risks as a result of your employment.

How often do I need a chest x-ray?

A chest x-ray is required every 6 years if you have a high risk of dust exposure. For example, if you are an underground coal miner or an 'at risk' open cut miner.

Where do I get my chest x-rays taken?

Chest x-rays are conducted by CS Health in its Singleton and Lithgow facilities.

Other offices utilise local x-ray providers.

What are the qualifications of those who review my chest x-rays?

CS Health utilise qualified Radiologists, and when required, Respiratory Physicians. CS Health Doctors also review the reports from the Radiologists.

In Australia, Radiologists are Doctors who undergo a 5 year training program that equips them to read and interpret x-rays for any signs of abnormalities. Their curriculum includes the study and identification of dust disease including pneumoconiosis and silicosis.

Respiratory Physicians are specialists in diagnosing any condition of the lungs.

What is the process used to check my chest x-rays?

All x-rays taken of NSW coal miners by CS Health are read and reported on by Clinical Radiologists on the Royal Australian and New Zealand College of Radiologists (ANZCR) register. From there, x-rays that show any abnormalities are referred for further investigation, which may include a high resolution CT scan, and referral to a Respiratory Physician if there is any suspicion of a dust disease of any type.

As required by Order 41, medical assessments not conducted by CS Health, including x-rays and Radiologists reports, must be sent to CS Health for inclusion in the NSW coal database. All of these medical assessments are fully reviewed by CS Health and any abnormal x-ray results would be discussed with the Doctor that conducted the medical and a full investigation would be carried out by CS Health.

Note: CS Health is introducing standard reporting that will see all chest x-rays being read and reported against the ILO International Classification of Radiographs of Pneumoconioses. The ILO Classification of x-rays is a method of grading based on x-ray appearance. This added feature will complement existing processes for coal worker health surveillance, including the practice of looking for any abnormalities on the x-ray – not just dust disease. It is expected that the reporting will be in place across all regions by March 2017.

What are the typical causes of abnormal x-rays?

In coal miners x-rays, the most common cause of abnormal x-ray results are due to medical conditions NOT associated with dust disease.

Medical conditions identified generally include:

- An enlarged heart due to high blood pressure
- Bony abnormalities such as scoliosis
- Old scarring due to previous lung infections
- Plaque due to previous asbestos exposure
- Tuberculosis
- Tumours
- Sarcoidosis (autoimmune inflammatory disease)
- Granuloma (a mass of tissue typically produced in response to infection, inflammation or the presence of a foreign substance).

I haven't had a chest x-ray, or can't remember when I last had one.

In either case, please contact your nearest CS Health office and we can assist you.

Airborne dust monitoring

Order 42 allows Coal Services to enter coal mine operations for the purposes of monitoring airborne dust, collecting dust samples and other functions and activities necessary to monitor airborne dust.

What are the specified dust exposure limits?

In NSW Coal, the specified dust exposure limits are:

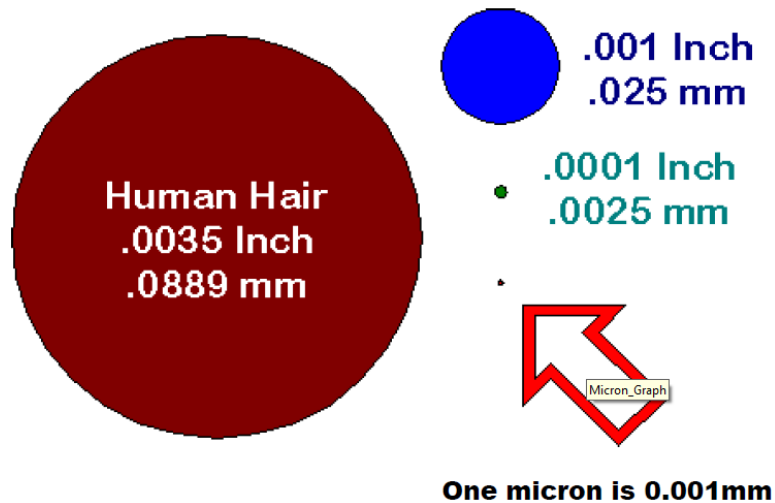
- Respirable Dust 2.5mg/m³
- Inhalable Dust 10mg/m³
- Respirable Quartz 0.10mg/m³

What is the difference between inhalable dust and respirable dust?

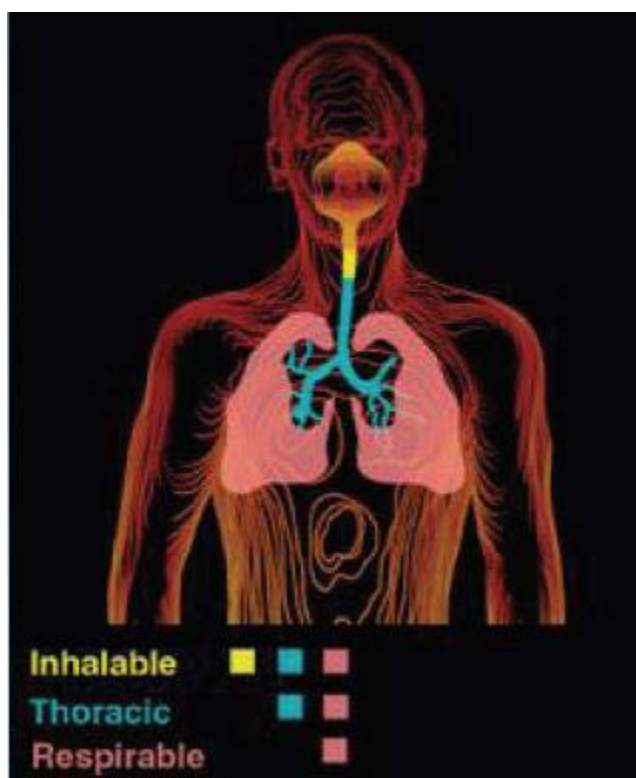
Inhalable dust particles are <100 micron in diameter and can be easily seen. Inhalable dust is usually breathed in but is trapped in the mouth, nose and upper respiratory tract.

In comparison, **respirable dust** can be thought of as 'invisible dust' because it is too small to be seen with the naked eye. The naked eye can only see >10 micron; whereas respirable dust is <5 micron in diameter. Respirable dust can be caught in the lungs.

To give you an idea of the sizes we are talking about, the diagram below compares dust particle sizes to that of a single human hair.



Serious diseases – not just black lung – can result from the retention of hazardous dust. The diagram below shows where inhalable dust and respirable dust can be trapped in your body.



How is airborne dust monitoring undertaken?

Onsite dust sampling is carried out by a Coal Industry Act Inspector. Inspectors are experienced Occupational Hygiene Technicians (Coal Services employees) who perform dust monitoring and analysis.

They operate under:

- Order 42
- AS 2985 and AS3640
- Work Health and Safety (Mines and Petroleum Sites) Regulation 2014

The frequency of monitoring is based on requirements outlined in Order 42 and the Work Health and Safety (Mines and Petroleum Sites) Regulation 2014. In general, all shifts/crews are monitored every 6-12 months depending on their location, tasks undertaken and exposure risk. Typically 5 crew members will be sampled during each shift monitored.

A single sample which exceeds the exposure limit requires the entire crew to be re-sampled to ensure no systemic problems exist. This typically occurs within 14 days of the original exceedance.

Coal Services works closely with mine operators to improve exposure levels where assistance is required. This is not just to 'pass' re-samples, but to ensure dust control measures are both in place and adequate. Best practice dust control initiatives are shared across the industry to improve the workplace environment and reduce likely hood of lung disease.

Who receives the sampling results?

The results of statutory airborne dust samples are sent to:

- The mine where samples were taken
- NSW Department of Industry (Resources Regulator)
- Coal Services
- CFMEU
- Standing Committee on Dust Research and Control (Standing Dust Committee)

All statutory dust results are held in a single database by an independent monitoring authority.

Longwall dust suppression

Mines across NSW are required to prepare plans to limit dust creation and exposure for personnel for each operating longwall panel.

Order 40 requires the Coal Services Board to review and approve these plans to ensure worker health and safety. Additionally, mines must submit an audit of these plans once longwall production commences. This is to confirm all provisions of the approval are in place and operational.

The Standing Dust Committee

The **Airborne Contaminants & Diesel Particulate Sub Committee** (Standing Dust Committee) is an expert advisory body comprised of representatives from across the industry.

The role of the Standing Dust Committee is to:

- Monitor the results of respirable and inhalable dust sampling
- Evaluate dust hazards
- Research improved dust control methods
- Disseminate and communicate information
- Educate coal mine personnel in matters related to dust control

The Standing Dust Committee reviews all dust exceedances for the period, including factors that may be contributing to the exceedances. There is also a review of any investigations and controls that may have been implemented following exceedances. This information is also distributed across the industry.

Other information

Coal Services has published 'Protecting against airborne dust exposure in coal mines', commonly known as 'the blue dust book' as a guide for workers in the NSW coal mining industry.

Copies of the book can be obtained by contacting your nearest Coal Services office.

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