



Cockburn Cement Ltd. (CCL) Frequently asked questions

Dust and odour from Cockburn cement has been the subject of contention in the local community for a number of years. Despite the improvements in stack (chimney) emissions, dust from exposed stockpiles, graded roads and open areas may be a source of dust in the community under certain wind conditions.

The Department of Water and Environmental Regulation (DWER) has issued an updated operating licence to Cockburn Cement Ltd. (CCL) that requires tighter controls and extra monitoring so their contribution to dust in the community can be better understood. Intermittent odour emissions continue although the Cockburn Cement activity allegedly responsible for the odour has not been identified.

What is happening now?

The DWER has initiated an intensive community participation program to investigate dust and odours sources in the community. Volunteers have been recruited to participate in the program. Information about the program is available on the [DWER website](#). DWER will be sharing the information with the Department of Health. The Department of Health has provided information to general practitioners on health effects of industrial air pollution and anyone concerned about their health should speak with their doctor.

Air pollution and health

Are gaseous pollutants emitted from CCL going to damage my and my families' health?

Most industrial processes will generate gaseous air pollutants. The production of cement and quicklime is no different and a number of pollutants are emitted from CCL during their normal operations. At high levels these pollutants can be harmful to human health.

However it is not necessarily the case that health effects will occur when pollutants are present. Health effects directly attributable to emissions from CCL or any other facility are difficult to identify and quantify and the number of people affected depends on the levels of air pollution, not just its presence.

For most air pollutants standards or guideline levels have been developed in order to protect human health. Although some very sensitive individuals may experience health effects below these standards/guidelines, the vast majority of the population will not.

The Department of Water and Environmental Regulation (DWER) has monitored a range of gaseous pollutants from CCL and found all of them to be well below national standards and guidelines. Therefore, the risk to your health from current emissions from CCL is very low.

What about burning coal?

All fuels, including coal, produce air pollutants when they are being burnt. Potentially harmful gases are produced by the burning of petrol, diesel, gas and even wood. The most important thing, however, is that air pollutants generated from these fuels do not exceed air quality standards. At present, monitoring done by DWER shows gaseous pollutants from the burning of coal at CCL does not exceed air quality standards.

In principle the Department of Health does not support coal burning however the Department of Health cannot stop an industry from burning coal while it has a licence to do so and its emissions are controlled. Again, the presence of coal based pollution does not automatically translate into poor health for everyone when air quality guidelines are not breached.

Dust and particles are emitted from the factory, is this problem?

There are two types of dust from CCL that cause people concern. These are very fine invisible dust (particulate matter less than 10 micrometres in diameter also known as PM10) and visible lime and cement dust.

PM10 means all sizes of particles 10 micrometres and smaller such as PM2.5, PM1.0 and nano particles. PM10 is mostly produced by combustion and because particles are very small (microscopic) they can be breathed into your lungs. There is a lot of evidence that PM10 (and smaller) can affect your lungs and heart, although this depends both on how much of the dust you breathe and how sensitive you are to it. Most people will not be affected unless concentrations get to very high levels and stay there for a long period.

There is a national standard for PM10 and it is monitored at air monitoring sites around CCL. There have been times in the past when monitored concentrations exceeded the national standard, but these are intermittent and generally are not far above the standard. Some people may be affected by these increased concentrations of PM10 but most people won't be.

Unfortunately, it has been difficult to determine how much CCL emissions have contributed to background PM10 levels as well as the measured exceedances. There are many other sources of PM10 in the area and the current monitoring cannot identify where the dust comes from. Increased monitoring around the boundary of CCL, as required under the new licence, will help to determine PM10 levels generated by CCL.

Cement and lime dusts are much larger than PM10 and are noticeable as they settle on surfaces around homes. They can cause irritation of the eyes, nose and throat but are generally not inhaled deep into the lungs. Our understanding of the long-term health effects of cement dusts comes from studies of cement factory workers. These workers are exposed to concentrations far higher than will be measured in the air around a factory. There is some evidence that highly exposed workers have increased chronic breathing problems but the findings are not consistent and the long term health effects of these dusts remain uncertain. There is no evidence that these dusts cause cancer. Therefore, although it is possible that the cement and lime dust from CCL cause irritation of eyes, nose and throat, it is not likely that they will cause long-term breathing problems or cancers.

Nevertheless, these dusts can cause a nuisance, may discolour or damage surfaces and interfere with residents' sense of wellbeing and enjoyment of the neighbourhood. The Department of Health is aware that nuisance dust is affecting some people in the Cockburn area and that some people are concerned that Cockburn Cement LTD is the main source of nuisance dust. The nuisance dust seems to be coming from the CCL open areas however, this needs to be confirmed before DWER can act. Information about what DWER is doing in this regard is available on the DWER website.

Is there a safe level of particle pollution?

It is correct that a threshold level has not been identified below which there is no harm to health, although low levels will only affect those people who are highly susceptible. The World Health Organisation (WHO) recommends that air quality guidelines are set as low as possible.

The Australian air quality standards are among the lowest in the world and similar as those recommended by the WHO.

Australian National Environment Protection Measures (NEPM) for particulates		WHO for particulates	
PM10	PM2.5	PM10	PM2.5
50 $\mu\text{g}/\text{m}^3$ (24 h)	25 $\mu\text{g}/\text{m}^3$ (24 h)	50 $\mu\text{g}/\text{m}^3$ (24 h)	25 $\mu\text{g}/\text{m}^3$ (24 h)
25 $\mu\text{g}/\text{m}^3$ (annual)	8 $\mu\text{g}/\text{m}^3$ (annual)	20 $\mu\text{g}/\text{m}^3$ (annual)	10 $\mu\text{g}/\text{m}^3$ (annual)

Table 1: Australian and WHO air quality standards

It's important to remember that the presence of a pollutant does not necessarily mean health will be affected. Indeed, despite the lack of a threshold for some pollutants, the actual risk of exacerbating symptoms or developing disease due to air pollution is small. The current scientific understanding of the health effects of air pollution comes from studies of large populations conducted over many years. Large numbers of people are needed because only a small proportion of people will be affected by increases in air pollution. Of course, as air pollution concentrations get higher, the proportion of people affected will also increase, which is why there are standards.

Why can't particulate levels be set to zero?

Apart from industrial processes and traffic, particulates are also generated through everyday activities such as gardening, cleaning, animal dander, agriculture, small businesses that manufacture and repair goods, to name a few. Particulate and gas pollution is also generated from soil erosion, sea spray, volcanoes, plants and bush fires. It would be impossible to have zero particle pollution. Standards are set to be as low as possible without making low levels impossible to achieve.

What happens when standards are not met?

The DWER monitors air quality across the metropolitan and regional areas. Every time a standard is breached the DWER investigates the breach and reports the breach to the Department of Health. Breaches occur every year as a result of bushfires and occasionally from prescribed burns. DWER compiles an air quality report every year and submits it to National Environment Protection Council. All this information is available on the DWER website.

Is National Pollutant Inventory (NPI) data a good indicator of air quality?

NPI data is very useful for industry to understand and manage the efficiency of their processes. It is also very useful for the public to learn about emission sources in their local area. However, it is not useful for calculating if air quality standards are breached in an area.

Metals

Are there high levels of metals in the dust from CCL?

Metals have been detected in the cement dust but not at levels that are considered dangerous to human health. In 2012, the Department of Health measured metals in dusts collected in specialised collection gauges, designed to ensure that only the dust which has settled from the air is collected (there is no contamination from the surface). All the measured metals were well below investigation levels for health concerns.

Are metal levels in dust higher than those in some Chinese cities with high air pollution?

High air pollution does not automatically translate into high metal pollution. Chinese cities with high air pollution can have metal pollution within safe guidelines. What is important is that the concentrations of harmful metals remain below health based guidelines. The concentrations of

harmful metals detected in the Cockburn- Beeliam area are a long way below health based guidelines; even in dusts measured by community members. When reading information about the concentration of harmful metals in dust it is important to ask if the concentration is above health based guidelines irrespective of the location from which the dust was collected.

Odour

Odour from CCL is an ongoing problem. The specific cause of the odour is still uncertain and DWER are continuing to investigate this issue so that it can be resolved. Bad odour does not necessarily mean toxic chemicals that can affect your health are present. In fact, as stated previously, gaseous pollutants that may cause the odours have not been found to be elevated above health standards. However, odours can have indirect health effects because they are a nuisance and may make you feel sick or stressed.

Can the government do a health study?

There is no doubt that air pollution can have negative effects on health. It can cause or worsen heart and lung diseases and also, with long-term exposure, it may cause cancer. The information about these health effects has come from many international and national health studies. The studies generally involve large populations and are conducted over many years. There are three reasons why large numbers and long time periods are required. The first is that the risk of disease is low. That means that out of all the people who are breathing the air pollutants only a very small number are affected. The number affected increases as the air pollution gets worse but very high levels are required before most of us will experience symptoms.

This is the reason that air quality control is so important in countries like China that has air pollution up to 100 times greater than Australia. It is also one of the reasons that the highest numbers of people affected by pollution are in countries with the poorest air quality regulation. The second reason is that air pollution is only one of many causes of the diseases/symptoms we are concerned about. Therefore, researchers need large numbers of people and very high air pollution to find air pollution effects after accounting for all other potential causes. Finally, some of the diseases take many years to develop so populations have to be studied over a long period.

Doing studies in a small population, like the surrounding suburbs of CCL, is difficult because in the small numbers of people in the area it is highly unlikely that, on average, it would find any effects, even if they existed in a few individuals. This 'lack of evidence' may then cause more uncertainty and hinder further attempts to improve emissions – that is, the company may claim that the lack of evidence proves that there are no health effects. Air pollution standards/guidelines are based on knowledge gathered from international and national studies and it is important that the government ensures CCL complies with their license conditions so that air pollution remains below health standards.

What can I do if I'm concerned about my health and the health of my family?

The Department of Health strongly encourages people who feel they are affected by dusts and odours from CCL to visit their GP and request the GP report these to the Department of Health Public Health Physician if the GP feels the symptoms could be caused by exposures. By doing this the Department of Health can better monitor health complaints and determine if these are increasing. Although the evidence to date suggests that emissions from CCL are not causing major health concerns, the Department of Health considers that the dust and odour impacts on the amenity of some residents is unacceptable and must be addressed by the company.

I have had my hair tested and harmful metal pollutants have been found. Should I be concerned?

Hair testing is relatively inexpensive however; it is not a reliable indicator of exposure and is not diagnostic for metal toxicity. If hair testing has been undertaken then a clinical toxicologist should assess the results based on medical and exposure history.

What is the Health Department doing?

The Department of Health is concerned about keeping people healthy and triggered the investigation that led to the Legislative Council enquiry on CCL in 2010. As a result of the inquiry, CCL was required to improve its emission controls and implement monitoring to demonstrate that it is compliant with the air quality conditions in its licence. The licence was recently updated to tighten monitoring. The new licence is designed to ensure that pollutants released by CCL are managed to the extent that they do not cause the air quality guidelines to be exceeded where people live. The monitoring plan, CCL licence and air quality programs are publicly available on the [DWER website](#).

However, the licence conditions do not address nuisance dust as there are no guidelines for nuisance dust. To address this short fall the Department of Health has been working with DWER and the monitoring plan and the air quality programs currently being implemented by DWER are publicly available on the [DWER website](#). The Department of Health encourages the community to volunteer to participate in the programs.

The Department of Health through its Environmental Health Directorate (EHD) has been providing information and advice to individuals in the community, the local council and DWER. It has also provided information to Cockburn Pollution Stoppers and responded to their concerns. The Department of Health has invited school principals and parents of school children in the area to discuss their concerns with the EHD and has invited GPs to contact the Department of Health when they are concerned a patient is being affected by air pollution.

More information

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This document can be made available in alternative formats on request for a person with disability.

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