



Port Hedland air quality

A [health risk assessment \(external site\)](#) was completed in 2016 as part of [a whole of government response \(external site\)](#) to planning and management of land uses in and around the Port Hedland township and port.

There is some uncertainty as to the impacts from dust exposure and how and where the boundary of air quality standards is applied. There is also some ongoing conflict between minimising population growth due to dust impacts and developing a growing vibrant town on the peninsula. Still, Department of Health strongly supports all efforts to reduce dust levels to as low as reasonably achievable and separating residential areas from industry source emissions.

Are Port Hedland residents at risk of greater health effects from dust than the rest of the population?

The [risk to health from dust \(PM₁₀\)](#) increases with increasing concentration and proximity to sources – this is true regardless of where people live. As yet there is no definitive evidence that particulates, measured as PM₁₀, in Port Hedland are any more or less harmful than the types of particulates found in large urban centres. The [health risk assessment \(external site\)](#) demonstrated that increased levels of dust exposure can have an adverse impact on human health in Port Hedland over the long term. There is no immediate or acute health risk to the Port Hedland community – but there needs to be a focus on managing and minimising peoples' exposure to dust.

Areas of Port Hedland with increasing proximity to the port experience occasional high dust events (>70 µg/m³). It's therefore reasonable that people living in this environment would be at greater risk than people living in a less dusty areas of Port Hedland. Due to the increased risk for susceptible groups, facilities that cater for these groups (known as sensitive land-uses), such as child-care centres, aged-care residences, schools and health centres, are prohibited in the West End.

While the Port Hedland population remains small, the number of individuals theoretically affected is also small. In addition, relatively fewer sensitive individuals are likely to inhabit short-term accommodation in a high commercial land use area.

If the residential population is allowed to increase and broaden to include more sensitive or health compromised individuals, the number of affected people would increase.

Who is most at risk?

Persons susceptible to elevated dust levels include:

- older people (>65 years old)
- people with pre-existing cardiovascular or respiratory disease
- children and adults with pre-existing respiratory conditions (asthma, bronchitis, chronic obstructive pulmonary disease (COPD))
- children.

For most healthy individuals, effects from small increases in dust levels range from no observable effects to subtle, reversible and manageable effects. Effects become more pronounced as dust levels increase.

Is all of Port Hedland affected by high concentrations of dust?

Dust concentrations increase with increasing proximity to the Port. As such, the risk of being adversely affected by dust will also increase the closer you are to the Port. In the West End of Port Hedland the impact may be up to twice as high than for those living in South Hedland, but, again, because the population in the Town of Port Hedland is smaller than South Hedland the actual numbers of people affected may not be noticeably different.

The industrial suburb of Wedgefield has the greatest number and magnitude of exceedances above 70 µg/m³.

Is the dust at high levels all the time in Port Hedland?

The concentration of dust varies throughout the day and night in Port Hedland irrespective of location. On any given day (and night) the dust levels in any one location can be below the health based guidelines for long periods of time.

What is the current air quality standard?

Dust - PM₁₀

Monitoring data suggests that the National Environmental Protection Measure (NEPM) air quality standard for PM₁₀ cannot be consistently achieved in certain areas of Port Hedland, particularly the West End (west of Taplin St).

A 24-hour PM₁₀ guidance value of 70 µg/m³ is applied on the provision that the population does not grow in those areas where the NEPM is unlikely to be achieved. Should the population be allowed to grow unabated, the guideline value would need to revert to the average daily PM₁₀ concentration as regulated by the national NEPM (50 µg/m³).

Other pollutants

Currently NEPM values for other important pollutants such as sulphur dioxide and oxides of nitrogen are not exceeded in Port Hedland. The Port Hedland Industry Council data suggests PM_{2.5} has been exceeded from time to time. These pollutants will continue to be monitored by the [Department of Water and Environmental Regulation \(external site\)](#) and unacceptable increases will be investigated. Increased emissions and pollutants may result from growth of industry in the area, such as through increased transport and commercial / industrial support services that would be required.

What are the next steps?

The Government endorsed the Taskforce recommendation that the interim guideline of 24-hour PM₁₀ of 70 µg/m³ continues to apply to residential areas of Port Hedland and that measures should be introduced to cap (and if possible, reduce) the number of permanent residents in dust-affected areas of Port Hedland.

Individual agencies are now responsible for the implementation of the [Government response to the Port Hedland task force in 2018 \(external site\)](#). The regulation of industrial and port emissions as well as air quality monitoring is undertaken by the [Department of Water and Environmental Regulation \(DWER\)](#). To help industry reduce its contribution to dust emissions, DWER is working with industry on best dust management practices. Industry is allowed ten exceedances a year of the guideline in the West End while DWER assists industry to implement best practice.

[Department of Planning, Lands and Heritage \(external site\)](#) and [Town of Port Hedland \(external site\)](#) are responsible for strategic planning and implementing planning conditions associated with the Government recommendations.

One of the strategies the Taskforce recommended to manage exposure to the worst of the dust is to cap residential development between Taplin and McGregor Streets. This means that future development east of Taplin Street must also be managed to make sure the net population across the peninsula is not substantially increased.

The Taskforce report (supported by the Department of Health) recommends restricting population growth in areas of Port Hedland most affected by dust levels. However, this applies only to long-term permanent residents. Short-stay tourist and work contract accommodation on the peninsula can continue, provided the 70 $\mu\text{g}/\text{m}^3$ PM₁₀ guideline is achieved more often than not. Short-stay tourist accommodation includes hotels, holiday apartments, self-contained accommodation and so forth. This would allow the population to swell at times of peak tourist influx and reduce the potential for increased health impacts associated with a permanent, expanding population.

Will dust emissions increase or change?

The output of ores is expected to increase over the next 5 to 10 years and it will become increasingly difficult to manage dust emissions through dust control measures alone. Strategic planning will need to consider expansion of industry and associated services and infrastructure in the area. The potential impacts on the population are uncertain because the magnitude of the expected increase in ore throughput at the port is unknown. However, it is more likely that average dust concentrations may increase with expansion.

Over the next five years Government will put into place an exposure reduction strategy to manage risks. The strategy is taking three broad approaches:

1. **Monitoring approach.** Department of Water and Environmental Regulation (DWER) has advised that a base year concentration for PM₁₀ will be set along with a target to reduce PM₁₀ into the future. The target could be described in terms of percentage reduction to the base year.
2. **Emissions control approach.** Given the fugitive nature of dust, having an emission defined ceiling is not practical, therefore, a best practice approach for managing dust is being developed for the resource industry.
3. **Strategic planning of population centres.** For a pollutant like dust, the evidence of adverse health outcomes in a population are driven by large scale exposure; therefore, permanent residential areas will be separated from industry through a voluntary buy back scheme and planning schemes that allow industry to operate and mitigate the exposure of residents to industry source emissions. In addition, population growth will be managed across Port Hedland to prevent unabated growth and to maintain health equity.

See also

- [Air pollution and health](#)
- [Health effects of dust](#)
- [Health effects of wood smoke](#)

Related sites

- [Cockburn cement](#)
- [Hydrogen sulfide and public health](#)
- [Port Hedland air quality](#)