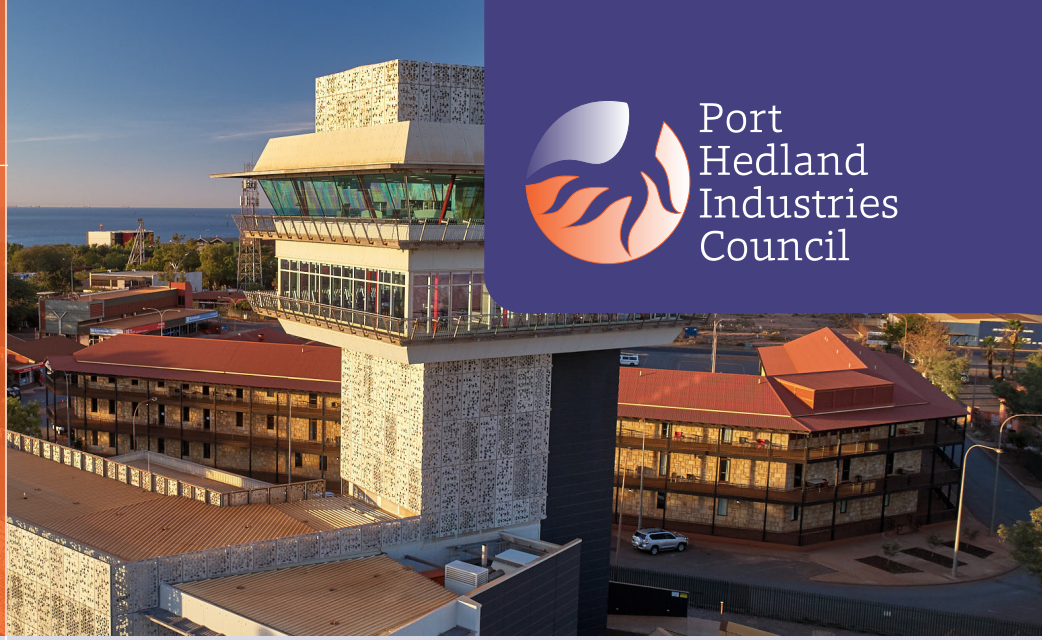
2025

Port Hedland Air Quality and Dust Management



Port Hedland Industries Council

PHIC members are committed to continuing to implement leading dust mitigation practices at the Port of Port Hedland.

MONITORING THE PORT HEDLAND AIRSHED

The Department of Water and Environmental Regulation (DWER) manages the ambient air quality monitoring network in Port Hedland. It assumed this responsibility on 1 January 2022, fulfilling a recommendation of the Port Hedland Dust Management Taskforce accepted by the State Government in 2018.

The network was established by port users in 2009 as part of developing an integrated approach to air quality monitoring in Port Hedland. It provided data and informed the work of the Dust Management Taskforce, supported the work of the regulator, provided the community with real-time information and assisted industry in the development of strategies and evaluation of dust impacts from the Port of Port Hedland.

Industry continues to fund the network, which is operated by a third-party dust specialist consultant with oversight from DWER.

Port users have long recognised community concerns around dust and industry has consistently invested heavily in the implementation of leading dust mitigation practices at port operations.

Since its establishment in 2009, PHIC has worked with the State Government to balance the interests of residents, businesses and the export industries that are vital to the town, State and nation.

Collectively, PHIC advances investment in new technology and innovations, and proactively shares information, experience and knowledge on dust management.

PHIC remains committed to continuous improvement in dust performance as the Port continues to grow.

WHAT IS BEING MEASURED?

The DWER monitoring network measures air quality within the Port Hedland Air Shed.

Particulate matter (PM) includes microscopic matter suspended in air or water. Airborne particles are called aerosols. The most common metrics for measuring particulate matter are PM_{10} and $PM_{2.5}$. PM_{10} includes particles less than 10µm (micrometres) in diameter, $PM_{2.5}$ those less than 2.5µm

The monitoring network is made up of eight monitoring sites. The monitors located in the West End measure PM_{10}, $PM_{2.5}$ and NOx. NOx is shorthand for nitric oxide (NO) and nitrogen dioxide (NO_2), the nitrogen oxides that are associated with air pollution, specifically vehicle emissions.

The monitor at the Port Hedland Bureau of Meteorology site measures meteorological conditions including temperature, wind speed and wind direction. The Yule River monitor measures regional particulate matter to determine background levels of dust.

Individual operators are required to report operational dust exceedances to DWER. The Dust Management Taskforce endorsed the monitoring station at Taplin Street, confirmed by the 2016 Health Risk Assessment, as the most suitable site to monitor reportable events for PM_{10} of 70µg/m^3 with 10 industry exceedances.

In addition to DWER monitoring and individual operator monitoring as part of regulatory requirements, PHIC undertakes a wide range of air quality monitoring activities at various times to provide a scientific understanding of potential dust sources as well as:

- Data verification
- LiDAR trials
- Hi-vol monitoring
- Wind Analysis
- Climate Analysis
- Fire analysis

SOURCES OF DUST IN PORT HEDLAND

1. Industrial - includes all material handling processes at the port
2. Commercial - includes all non-industrial sources particularly those contained within the Wedgefield light industrial estate and commercial areas within the airshed including along Redbank and within the West end of Porth Hedland itself.
3. Residential - although not a major contributor to particulates in the Port Hedland airshed, emissions from vehicle traffic from both sealed and unsealed roads (inclusive of emissions from the exhaust, brakes, and tyres), wood fires (barbeques), recreational boating and lawnmowing are sources of dust.
4. Biogenic (natural) - emissions from biogenic sources can be highly variable (spatially and temporal) including sea salt, wind erosion of exposed surfaces, and wildfires.

Factors other than industry that are likely to contribute to higher dust readings include:

- Climate - The warmer and drier than average conditions experienced in Northern Australia in 2023/2024, combined with prevailing winds, can result in a loss of vegetation and topsoil.
- Regional bushfires.
- Meteorological – including winds strength and direction, cyclones and other weather events.
- Local construction works – recently, there were several larger scale construction-works in progress around the Port, South Hedland, and Wedgefield, which could generate dust at Taplin Street, depending on prevailing winds.

DUST MITIGATION AND MANAGEMENT

Port users including PHIC members handling or exporting bulk commodities through the port operate under Part V environmental licences issued under the Environmental Protection Act, which set out requirements to manage, monitor and report on dust emission levels.

Port users have invested heavily in the implementation of leading dust mitigation practices at Port Hedland Port operations since 2002 and this continues today. All port operations use a range of dust control measures and employ leading dust mitigation measures. These include but are not limited to:

- Dust elimination – which focuses on the control of dust being generated, such as moisture control of the product for storage and handling, and water spray systems at key operational areas.
- Engineering or infrastructure controls - such as enclosed conveyors and ship loader chutes, wind fences, vegetation barriers, and sealing major traffic areas to reduce dust emissions.
- Administrative controls - including policies, plans, procedures, and work instructions used by personnel to ensure effective management of materials.

OPERATING ENVIRONMENT

Regulatory

The Department of Water and Environmental Regulation (DWER) considers the Port Hedland air quality guideline value in its dust regulatory framework. However, it should be noted that the air value guideline is not an enforceable limit. The Port Hedland dust regulatory strategy May 2021 states:

"Exceedances of the measure would incur a proportionate regulatory response aimed at returning air quality to an acceptable level."

In March 2010, the Port Hedland Dust Management Taskforce adopted an 'interim guideline' of 70ugm^3 (24-hour average) with 10 exceedances per calendar year, to be met east of Taplin Street. In its response to the final recommendations of the Taskforce, in October 2018, the State Government agreed that the air guideline value of 70ugm^3 should apply to residential areas, where people live on a permanent basis in Port Hedland.

The Department of Health agreed to the continuation of the 10 exceedances per year of the air quality guideline value, as measured at Taplin Street, on the understanding that the overall population for the Port Hedland peninsula does not exceed 17,000 - the Modelled population in the Health Risk Assessment (HRA).

There is no limit on exceedances solely due to natural events as per the National Environment Protection (Ambient Air Quality) Measure.

It should also be noted that the 2021 DWER *Port Hedland Dust regulatory strategy* defines natural events as bushfires, jurisdiction authorised hazard reduction burning, or continental-scale windblown dust.

PHIC continues to work with DWER on creating and implementing dust management guidelines as per the 2018 State Government recommendations.

Land Use Planning

Providing greater separation between industrial port activities and permanent residential areas was another recommendation of the 2018 State Government recommendations.

This recommendation not only brings Port Hedland in line with what has been accepted as best planning practice for many years, it is crucial to the future development of Port Hedland and the long-term prosperity of industry, the community, and the Western Australian and national economies.

Since the recommendations were released, land use conflict issues have been partially addressed by zoning changes introduced by the WA Planning Commission through the Port Hedland West End Improvement Scheme No. 1 and the Port Hedland Voluntary Buyback Scheme (**PHVBS**).

The PHVBS, implemented by the Hedland Maritime Initiative, a subsidiary of Pilbara Ports, is a three-to-five-year initiative. In October 2023, the State Government announced the extension of the PHVBS to 2025.

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PC06072-202502v1