

Oxenford Air Monitoring Project

Fact Sheet: Real time monitoring results – April to September 2020

Key messages

- Oxenford community members have reported concerns about the potential environmental and health impacts of dust emissions in the local area.
- The Department of Environment and Science (DES) is actively investigating the air quality in Oxenford to identify potential environmental and health risks to the community.
- A trial of real time air monitoring was undertaken between April and September 2020.
- The results of the trial didn't indicate any significant concerns about air quality in the area.
- There was one exceedance of the 24-hour average standard on 20 August 2020 and elevated concentration on 22 August 2020, which are likely to be attributed to a dust storm that affected air quality across the region.
- DES is continuing to monitor air quality in Oxenford so that it can respond to risks to the community.
- The community is encouraged to continue to report any concerns about pollution events to the department through the Pollution Hotline: 1300 130 372 (option 2) or by emailing pollutionhotline@des.qld.gov.au

About the project

The Department of Environment and Science (DES) is currently undertaking an air quality monitoring program to gain a better understanding of air quality in the Oxenford area. The project was initiated in April 2020 in response to community concern relating to health impacts from the potential release of particulates, including respirable crystalline silica (RCS), from nearby industry. The project involves three different kinds of monitoring:

1. indicative real time air quality monitoring (April to September 2020)
2. dust deposition (April 2020-April 2021)
3. monitoring of crystalline silica (April 2020-April 2021).

This fact sheet provides the results from the indicative real time air quality monitoring.

What was monitored?

A key indicator for air quality is particulate matter (PM), which refers to airborne particles that may be hazardous to human health or cause a nuisance at elevated levels. Adverse health effects are closely associated with particle size; smaller particles are considered higher risk due to the way they interact with the respiratory system. Airborne particles are therefore commonly measured in two different size distributions, PM_{2.5} and PM₁₀. These measures refer to particles that are less than 2.5 micrometres (µm) in diameter and less than 10 micrometres respectively. Fine PM_{2.5} particles are generally a result of combustion processes, whereas PM₁₀ particles are coarse and are generated by both combustion and non-combustion processes. To safeguard human health and the natural environment, national air quality standards help to manage short or long-term air quality issues at local, national and regional levels.

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The particulate matter data from the monitoring station was averaged over 24-hour periods for assessment against standards (Table 1) outlined in the *National Environment Protection (Ambient Air Quality) Measure* (NEPM). The concentrations of PM_{2.5} and PM₁₀ are reported in µg/m³ (micrograms per cubic metre of air).

Table 1 – NEPM standard for PM_{2.5} and PM₁₀ concentrations.

Particle size	Time period	Standard
PM _{2.5}	24 hours	25µg/m ³
PM ₁₀	24 hours	50µg/m ³

What were the results?

Measurements of PM_{2.5} during the test period were well within the NEPM standard (Figure 1).

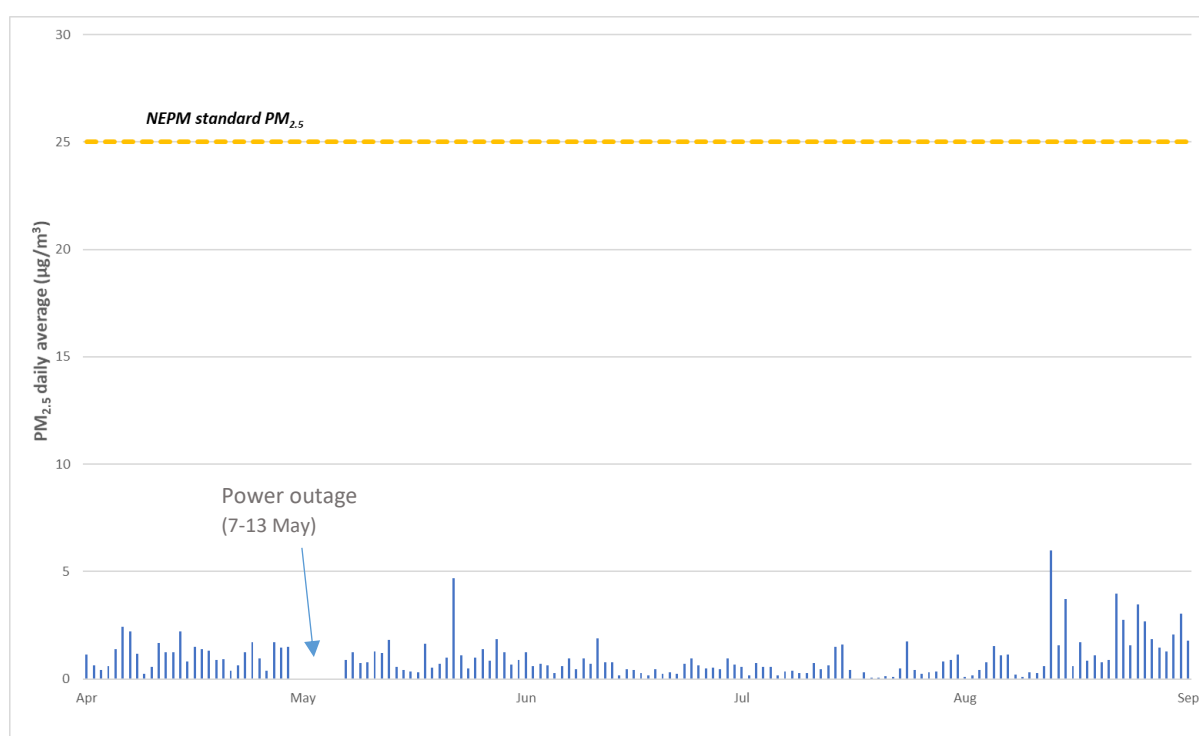


Figure 1. Average daily PM_{2.5} concentrations from 8 April to 8 September 2020 at the Oxford monitoring site.

Similarly, measurements of PM₁₀ during the test period were consistently within the NEPM standard except for one day that exceeded the standard which was likely due to a severe dust storm (Figure 2).

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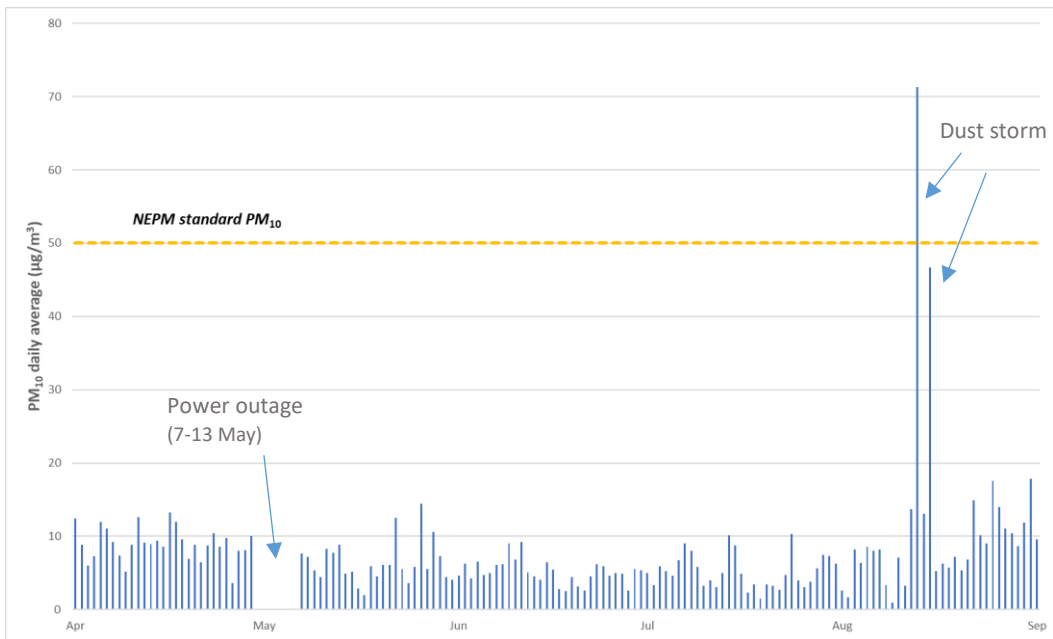


Figure 2. Average daily PM₁₀ concentrations from 8 April to 8 September 2020 at the Oxenford monitoring site showing local windblown dust event on 20 and 22 August 2020.

During late August, the device measured elevated readings of PM₁₀ which exceeded the 24-hour standard on 20 August 2020 (Figure 2). These elevated readings coincided with a large dust storm which brought particulates from inland Australia to the coast (Appendix A). This regional event resulted in high PM₁₀ readings throughout Southeast Queensland on 20 and 22 August 2020. Data collected in Oxenford followed similar trends to data collected by DES at the Southport air quality monitoring network station as shown in Figure 3. The Southport monitor is part of a state-wide network of highly accurate air quality monitoring instruments used to measure long-term ambient air quality in urban areas. This correlation indicates that fluctuations in readings in Oxenford are likely to be influenced by regional particle levels and local events (e.g. dust storms and bush fires).

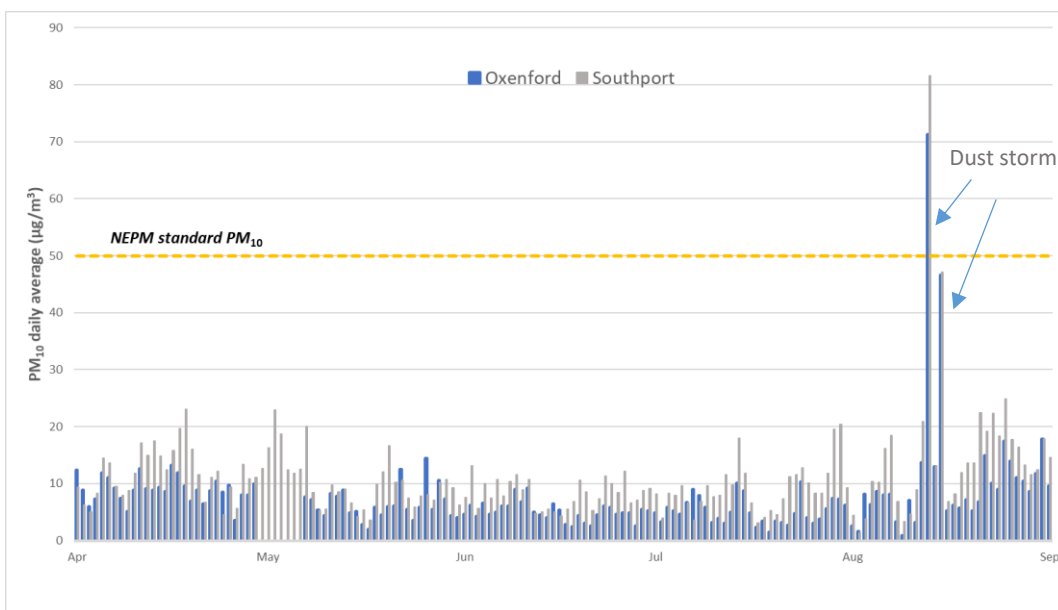


Figure 3. Comparing average daily PM₁₀ concentrations from 8 April to 8 September 2020 between the Oxenford air monitoring location and Southport air quality monitoring network station.

Oxenford Air Monitoring Project

Results of particulate concentrations collected in Oxenford is indicative that air quality in the community is of good quality and is unlikely, in the absence of local events such as dust storms or bush fires, to either approach or exceed the national standard for PM_{2.5} or PM₁₀.

Appendix A.



Figure A.1: Dust storm report on 20 August 2020 (Source: mygc.com.au, <https://www.mygc.com.au/gold-coast-shrouded-in-a-desert-dust-haze/>)

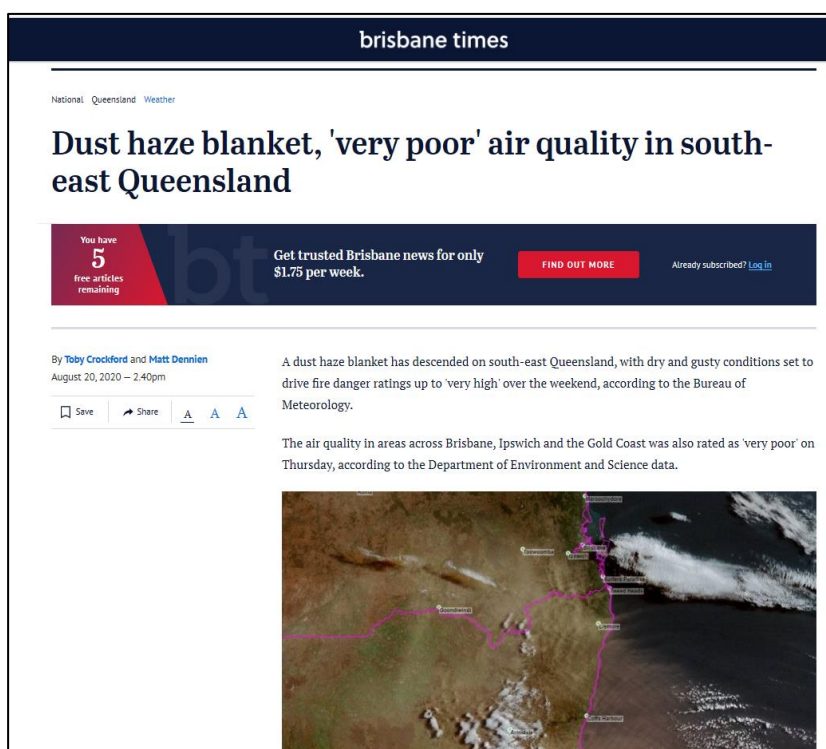


Figure A.2: Dust storm report on 20 August 2020 (Source: <https://www.brisbanetimes.com.au/national/queensland/dust-haze-blanket-very-poor-air-quality-in-south-east-queensland-20200820-p55nme.html>)



Figure A.3: Dust storm report on 20 August 2020 (Source: Bureau of Meteorology Twitter, https://twitter.com/BOM_Qld/status/1296211354832056322)



Figure A.4: Dust storm report on 22 August 2020 (Source: Bureau of Meteorology Twitter, https://twitter.com/BOM_Qld/status/1296982149237813250)