



# Air Quality Monitoring in Western Australia

## Purpose

The purpose of this Fact Sheet is to provide information on air quality monitoring that is undertaken by the Department of Environment Regulation (DER).

## Introduction

Air quality monitoring is undertaken by DER at a number of metropolitan and regional centres within Western Australia in accordance with the National Environment Protection (Ambient Air Quality) Measure (NEPM).

The NEPM was established in 1998 under the *National Environment Protection Act 1994* to provide a nationally consistent framework for monitoring and reporting.

The NEPM sets out a goal to set ambient air quality that allows for the adequate protection of human health and well-being. It also guides strategies to manage human activities that may affect the environment.

### Key Points - Air Quality Monitoring

- NEPM is used as the national standard to monitor ambient air quality.
- A total of five pollutants are measured at a number of metropolitan and regional centres.
- DER maintains and monitors ambient air quality using 13 monitoring stations.
- In addition to the annual monitoring report, a series of Fact Sheets outlining the monitoring results from ambient air monitoring within the Perth metropolitan and regional centres are available on our website at [www.der.wa.gov.au](http://www.der.wa.gov.au)

## Our Monitoring

Air quality pollutants that are monitored in accordance with NEPM include:

- Carbon monoxide – a gas found in air that can be harmful to humans, with the main source attributed to motor vehicles and industrial activities.
- Photochemical oxidants (as Ozone) – the principal component of a mixture of air pollutants commonly known as ‘photochemical smog’. It can be harmful to humans and is formed through a complex reaction between sunlight and air pollutants (volatile organic compounds and nitrogen oxides). Sources of air pollutants are industrial activities, motor vehicles and bushfires.
- Nitrogen dioxide – a gas found in air that contributes to ‘photochemical smog’ which can be harmful to humans. Sources include motor vehicles and industrial activities.
- Sulfur dioxide – a gas found in air that reacts to form compounds such as sulfuric acid, sulphurous acid and sulfate particles which can be harmful to humans. Sources include industrial activities and the processing of some minerals ores that contain sulfur.
- Particle matter – particle matter found in air that is less than 10 micrometres in diameter (PM<sub>10</sub>) and less than 2.5 micrometres in diameter (PM<sub>2.5</sub>). These small particles can be harmful to humans and can be attributed to industrial activities as well as natural sources such as bushfires, dust storms and pollen.

## Air Quality Pollutant Criteria

The NEPM was amended in February 2016, with changes made to the particulate matter criteria.

Table 1 details the air quality pollutants and the maximum concentration standards that are used to assess ambient air quality to protect human health and wellbeing.

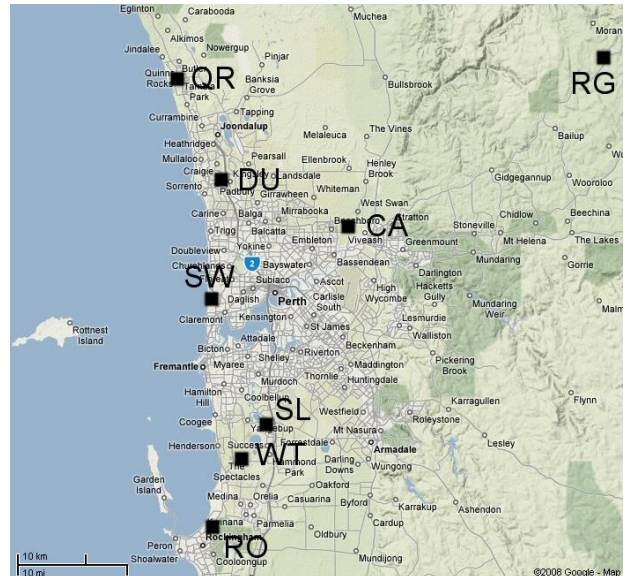
**Table 1. Air Quality Pollutants and criteria**

| Pollutant                               | Averaging Period | Maximum concentration (parts per million or micrograms per cubic metre) |
|---|------------------|---|
| Carbon monoxide                         | 8 hours          | 9.0 ppm   |
| Nitrogen dioxide                        | 1 hour           | 0.12 ppm  |
|   | 1 year           | 0.03 ppm  |
| Photochemical oxidants (as Ozone)       | 1 hour           | 0.10 ppm  |
|   | 4 hours          | 0.08 ppm  |
| Sulfur dioxide                          | 1 hour           | 0.2 ppm   |
|   | 1 day            | 0.08 ppm  |
|   | 1 year           | 0.02 ppm  |
| Lead                                    | 1 year           | 0.5 µg/m <sup>3</sup>   |
|   | 1 year           | 0.5 µg/m <sup>3</sup>   |
| Particle Matter as PM <sub>10</sub>     | 1 day            | 50 µg/m <sup>3</sup>  |
|   | 1 year           | 25 µg/m <sup>3</sup>  |
| Particulate Matter as PM <sub>2.5</sub> | 1 day            | 25 µg/m <sup>3</sup>  |
|   | 1 year           | 8 µg/m <sup>3</sup>   |

## Monitoring Locations

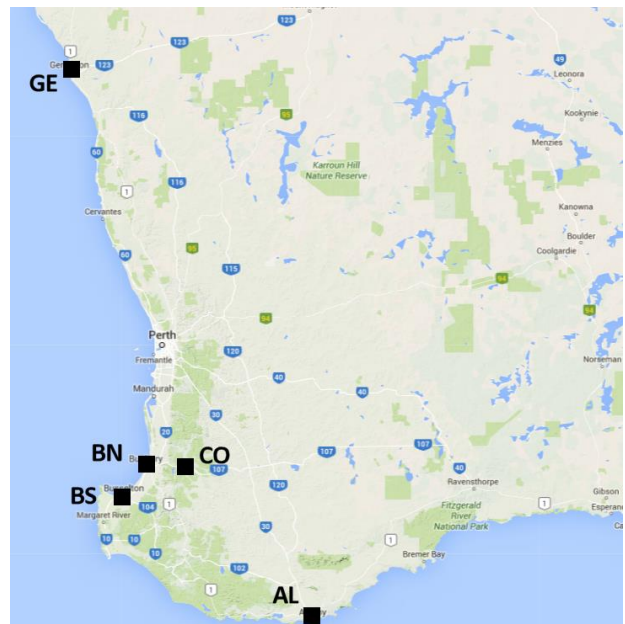
The locations and the parameters monitored at each of DER's 13 air quality monitoring sites are based on emission sources, pollutant chemistry and important features of meteorology.

Eight of the sites are located within the Perth Metropolitan Region and include Caversham (CA), Duncraig (DU), Quinns Rocks (QR), Rolling Green (RG), Rockingham (RO), South Lake (SL), Swanbourne (SW) and Wattleup (WT) shown through Figure 1.



**Figure 1. Location of Perth metropolitan monitoring stations**

The remaining five sites are located in the Regional Centre's of Albany (AL), Bunbury (BN), Busselton (BS), Collie (CO), Geraldton (GE) and monitor pollutants from bushfires, fire hazard reduction burns and wood-fired home heaters (shown in Figure 2).



**Figure 2. Location of regional monitoring stations**

## Results

An annual monitoring report is published and available on DER's website at [www.der.wa.gov.au/airquality](http://www.der.wa.gov.au/airquality). Generally the air quality within Western Australia is considered to be very good.

### WHAT IS NEPM?

A [NEPM](#) is legislation designed to protect particular aspects of the environment in a consistent way across state, territory and Commonwealth jurisdictions in Australia.

### More Information

For advice on the NEPM, Regulations, or related matters, please contact DER on 6467 5000.

This document is available in alternative formats and other languages on request.

### Related Documents

Additional publications about air quality are available online from [www.der.wa.gov.au/airquality](http://www.der.wa.gov.au/airquality), or can be requested by phoning 6467 5000.

### Legislation

This document is provided for guidance only. It should not be relied upon to address every aspect of the relevant legislation. Please refer to the State Law Publisher (SLP) for copies of the relevant legislation, available electronically from the SLP website at [www.slp.wa.gov.au](http://www.slp.wa.gov.au).

### Document Versions

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