

# Air monitoring at Morwell East (February 2012 - May 2013)

Environment  
report



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## Summary

This report provides the air monitoring results from February 2012 to May 2013 at Morwell East and Traralgon in the Latrobe Valley.

Overall, the levels of most air pollutants measured at both sites were comparable or below the air quality objectives or standards set by national and state environment protection policies.

The key findings from the monitoring are:

- Levels of sulfur dioxide and nitrogen dioxide measured at both Morwell East and Traralgon were well below the ambient air quality objectives or standards.
- Measured and estimated small particles (PM<sub>10</sub> and PM<sub>2.5</sub>) levels were generally below ambient air quality objective or reporting standard except for four to seven days of the 15 months of air monitoring.
- The high levels of small particles (PM<sub>10</sub> and PM<sub>2.5</sub>) at both sites were mainly due to significant smoke impacts from a local bushfire in January 2013 and planned burning in May 2013 rather than an ongoing air quality problem.

## What was measured?

### Sulfur dioxide

The levels of sulfur dioxide (SO<sub>2</sub>) in the Latrobe Valley are of particular interest to EPA due to it being a product of the combustion of brown coal at power stations.

Overall, measurements during the monitoring period (February 2012 to May 2013) of ambient concentrations of sulfur dioxide at Morwell East and Traralgon were well below the limits set by state environment protection policy objectives.

State protection policies set a 1 hour average maximum concentration for sulfur dioxide of 200 parts per billion (ppb) per day, an overall daily average maximum of 80 ppb and an annual average maximum of 20ppb.

As shown in Figure 1, the highest 1 hour average maximum concentrations for sulfur dioxide at both the Morwell East and Traralgon sites was well below 200 ppb. The highest concentration measured at both sites was 52ppb at Morwell East and 101ppb at Traralgon.

As shown in Figure 2, the highest daily average maximum measured for sulfur dioxide at Morwell and Traralgon, was 8ppb and 5ppb respectively. Both these readings were therefore well below the 80 ppb maximum set by state policy.

Finally, the annual average sulfur dioxide concentrations for Morwell East and Traralgon, were 1 ppb and 2 ppb respectively. This is also well below the annual average maximum of 20 ppb.

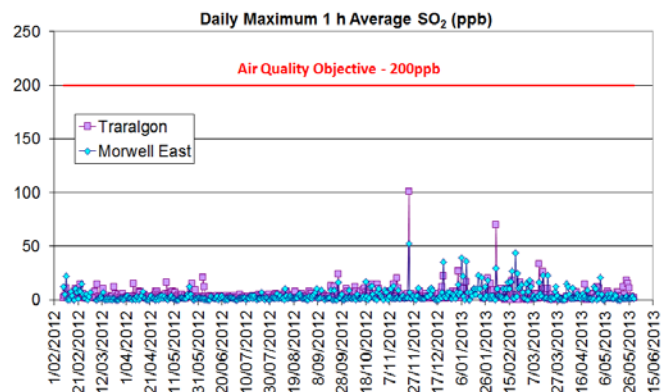


Figure 1: Daily maximum 1 hour average sulfur dioxide - February 2012 to May 2013

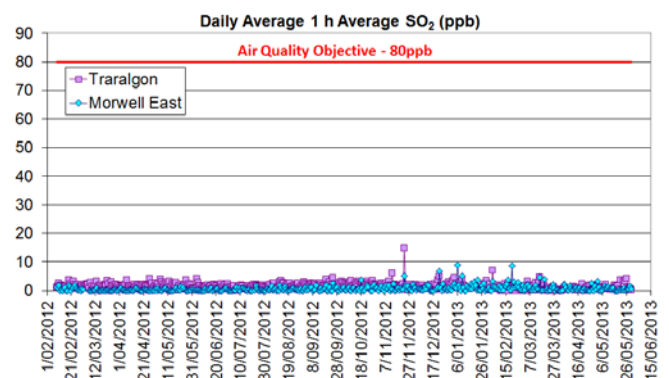


Figure 2: Daily average sulfur dioxide at EPA site - February 2012 to May 2013

### Nitrogen dioxide

Nitrogen dioxide (NO<sub>2</sub>) is a pollutant mainly emitted from industry, motor vehicles and domestic heating via combustion.

Measurements at both Morwell East and Traralgon show that the ambient concentrations of nitrogen dioxide were well below the limit set by environment protection policy objectives.

The state environmental protection policy for nitrogen dioxide sets a maximum 1 hour average air quality concentration of 120 ppb and an annual average maximum concentration of 30 ppb.

As shown in Figure 3, the highest daily maximum 1 hour concentration measured at both Morwell East and Traralgon was 34ppb, well below the maximum objective of 120 ppb.

The annual average concentration of nitrogen dioxide at Morwell East and Traralgon was 5 ppb and 7 ppb

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respectively. These readings are well below the annual nitrogen dioxide objective of 30 ppb.

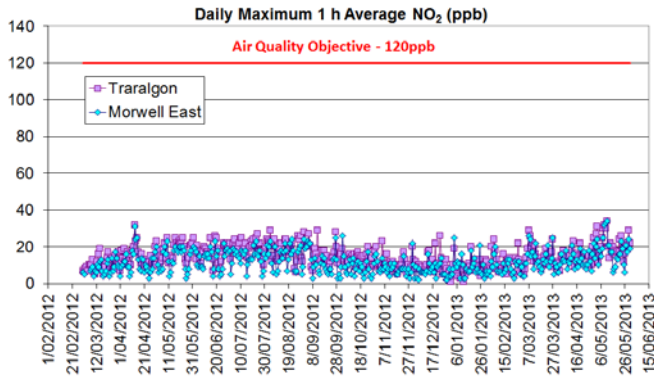


Figure 3: Daily maximum one-hour average nitrogen dioxide at EPA sites - February 2012 to May 2013

## Particles as PM<sub>10</sub>

Particles less than 10µm in diameter (0.010 mm) or 'PM<sub>10</sub>' are potential pollutants generated from industry, motor vehicles, smoke from fire, stirred up dust and domestic solid fuel heating.

Measurements at both Morwell East and Traralgon sites showed some readings of PM<sub>10</sub> above concentrations set by environment air quality objectives. The cause of this high concentration was smoke from nearby fires.

Most of the time, concentrations of PM<sub>10</sub> measured at both sites were below concentration limits set by environment protection policy,

The state environmental protection policy for PM<sub>10</sub> sets a daily average air quality objective concentration of 50 µg/m<sup>3</sup>.

As shown in Figure 4, there were 6 days out of the 15 months of monitoring at Morwell East that exceeded the daily average objective (21 and 25 January 2013 and 9, 10, 11 and 12 May 2013). These were due to smoke from a bushfire in the Aberfeldie region (21 to 25 January 2013) and planned burns (9 to 12 May 2013)

Similarly, in Traralgon, the daily air quality PM<sub>10</sub> objective was exceeded on 4 days due to smoke from a bushfire in the Aberfeldie region (21 January 2013) and planned burns (10 to 12 May 2013).

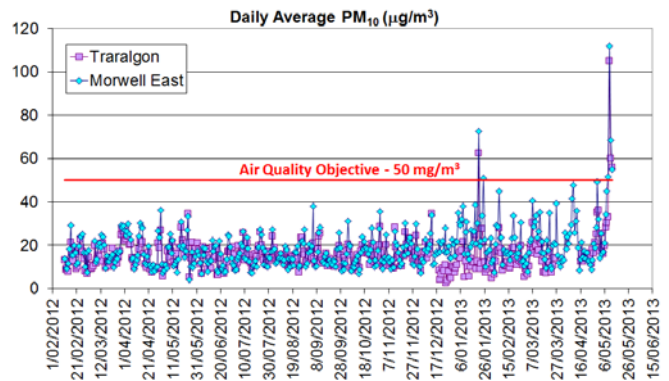


Figure 4: Daily average PM<sub>10</sub> 11 February 2012 to 16 May 2013 (no data 13-16 May 2013 due to equipment failure)

## Particles as PM<sub>2.5</sub>

Particles less than 2.5 µm in diameter (0.0025 mm) are a potential pollutant generated from industry, motor vehicles, smoke from fire and domestic solid fuel heating.

The levels for PM<sub>2.5</sub> are measured in relation to annual reporting standard for assessment as there is no formal objective for PM<sub>2.5</sub>.

Measurements at both Morwell East and Traralgon sites had some readings of PM<sub>2.5</sub> above concentrations set by annual reporting standards. The cause of this high concentration was smoke from nearby fires.

Most of the time, concentrations of PM<sub>2.5</sub> measured at both sites were below concentration limits set by reporting standards and the readings did not exceed the annual reporting standard.

The national advisory reporting standards for assessment for PM<sub>2.5</sub> sets a daily average air concentration standard of 25 µg/m<sup>3</sup>, and an annual advisory reporting standard of 8 µg/m<sup>3</sup>.

As shown in Figure 5, the daily PM<sub>2.5</sub> readings at the Morwell East site were generally below the daily average standard. However, this limit was exceeded for five days during the monitoring period due to the smoke impact from bushfires (21 January 2013) and planned burns (9 to 12 May 2013).

Although the Traralgon monitoring station did not directly monitor PM<sub>2.5</sub> concentrations, an estimate of PM<sub>2.5</sub> levels was made based on visibility reduction readings taken at the site. As shown in Figure 5, the daily estimated PM<sub>2.5</sub> readings at the Traralgon site were generally below the daily average standard. However, this limit was exceeded for seven days due to bushfire smoke impacts in the area (21 January 2013) and smoke from planned burning (1, 9 to 12 May, and 21 to 22 May 2013).

The average concentration of PM<sub>2.5</sub> for Morwell East and Traralgon was 7.8 µg/m<sup>3</sup> and 7.4 µg/m<sup>3</sup> respectively, below the 8 µg/m<sup>3</sup> annual reporting standard.

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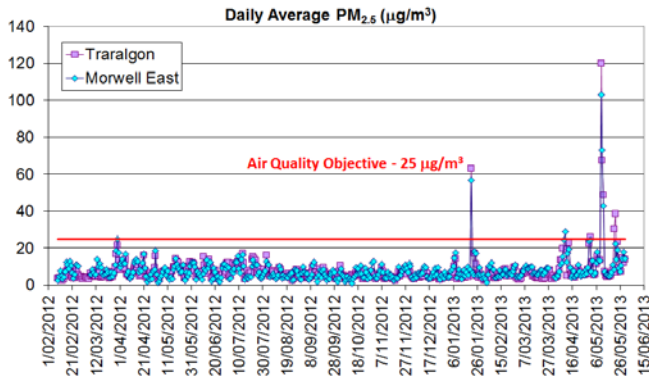


Figure 5: Daily average PM<sub>2.5</sub> 6 February 2012 to 26 May 2013.  
Note: Traralgon PM<sub>2.5</sub> data is estimated not measured.

## How were the monitoring results assessed?

The levels measured for sulfur dioxide, nitrogen dioxide and PM<sub>10</sub> levels were compared against state<sup>1</sup> and national<sup>2</sup> air quality objectives and goals. The objectives have been set at levels that are designed to protect human health and wellbeing. Nevertheless, exposure by sensitive groups to air pollutants may have some health impacts below existing national objectives.

The national air quality goals are for no more than a number of specified days to exceed the objective at one monitoring site. For PM<sub>10</sub> this means no more than five days annually to exceed the daily PM<sub>10</sub> objective. For sulfur dioxide and nitrogen dioxide it means no more than one day for the hourly and daily objectives for, and no days for the annual objective.

For PM<sub>2.5</sub>, the levels are compared to state and national advisory reporting standards for assessment. There is no goal as there is no formal objective. A national review of PM<sub>2.5</sub> air pollution impacts and setting air quality objectives is being undertaken during 2013.

1 State Environment Protection Policy (Ambient Air Quality), Victoria Government Gazette No. S19, 9 Feb 1999 (amended Dec 2001), available at [www.epa.vic.gov.au](http://www.epa.vic.gov.au)

2 National Environment Protection (Ambient Air Quality) Measure, National Environment Protection Council, available from [www.ephc.gov.au](http://www.ephc.gov.au)