

Air quality quarterly summary report – April to June (Q2) 2016

Issued September 2016

Introduction

One of the EPA's environmental goals is good quality air. To support this goal the EPA conducts ambient air quality monitoring at locations around the state.

This report contains a summary of the previous quarter's air quality based on data from the EPA's monitoring network:

- [Adelaide CBD](#)
- Northwestern Adelaide [Le Fevre 1](#)
- Northwestern Adelaide [Le Fevre 2](#)
- [Southern Adelaide](#)
- [Northern Adelaide](#)
- [Eastern Adelaide](#)
- [Western Adelaide](#)
- [Northeastern Adelaide](#)
- [Port Pirie](#)
- [Whyalla](#)

Further information about air quality monitoring can be found on the EPA [website](#).

1 Adelaide region

Pollution from fine particles and nitrogen dioxide are among the greatest challenges to managing air quality across metropolitan Adelaide, with the bulk of emissions coming from motor vehicles and domestic sources; significant contributions from industrial sources; and on occasions, from planned burning, bushfires and dust storms. They are also a primary focus of the [National Clean Air Agreement: Towards a clean air future for all Australians](#).

Fine [particles](#) are often a complex mixture of materials arising from many sources, but are generally grouped into two categories, called PM₁₀ and PM_{2.5}, where the number gives an idea of the range of sizes of particles. Both are able to enter the lungs and are known to have health effects.

[Nitrogen dioxide](#) (NO₂) mostly comes from combustion of fuels such as petrol, diesel or gas. Although it is generally found at concentrations below the national standard in Adelaide, recent Australian research suggests that it may still cause health effects in our communities.

While there is considerable variation in the mix of sources in different parts of the metropolitan area, air pollution knows no boundaries, so emissions in one area may well affect air quality in another. The impacts of emissions into our air depend heavily on the weather conditions on any given day. For example, very still conditions over the city for several days allow pollutants to build up. In contrast, very windy conditions across the State can raise dust into the air. Either situation can result in exceedences of ground level concentration (GLC) criteria in Adelaide or regional population centres.

1.1 Adelaide CBD

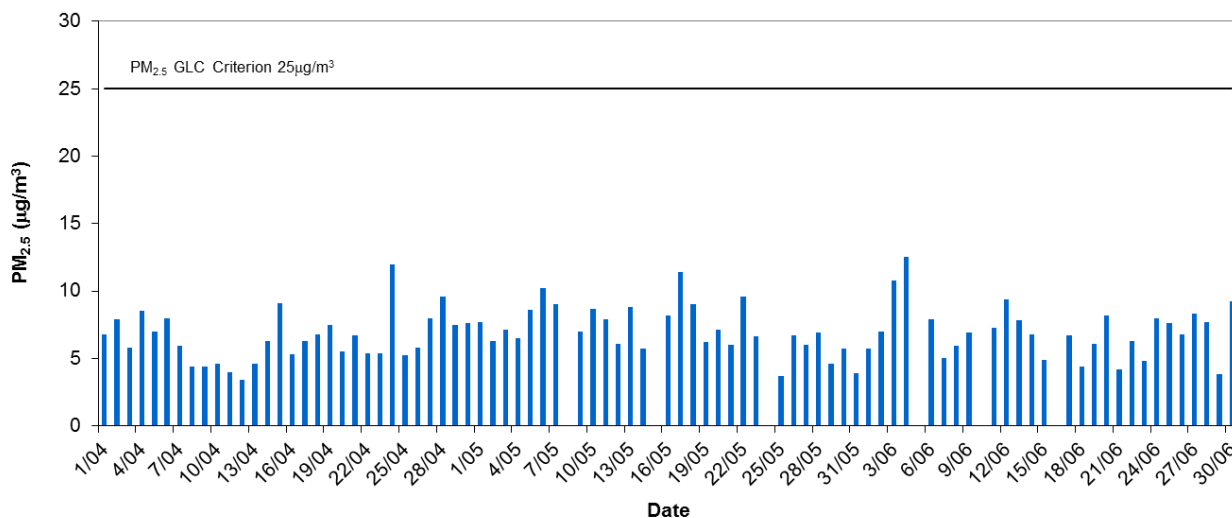
The Adelaide CBD station was established in May 2014. The monitoring station was established to help the EPA better understand pollution sources and patterns in the CBD, and how they may impact on air quality.

Air quality in Adelaide CBD was generally good this quarter, however elevated particle levels were recorded on the 27th April due to a regional dust storm. This resulted in an exceedence of the PM₁₀ ground level concentration criterion.

1.1.1 Particles (PM_{2.5})

- There were no exceedences of the 24-hour ground level concentration criterion for PM_{2.5} at Adelaide CBD this quarter.

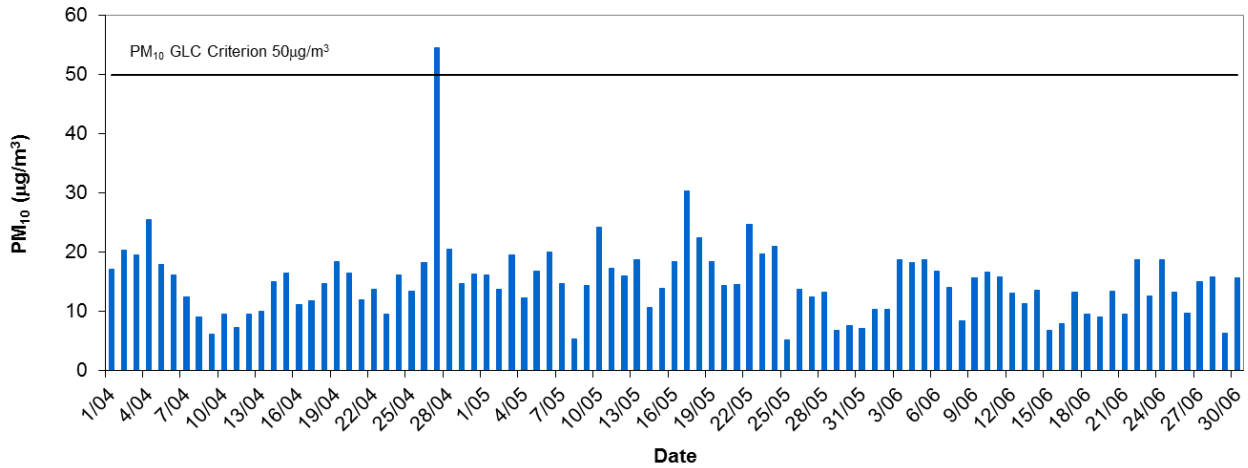
Adelaide CBD Daily Average PM_{2.5} - Quarter 2, 2016



1.1.2 Particles (PM₁₀)

- There was **1** exceedence of the 24-hour ground level concentration criterion for PM₁₀ at Adelaide CBD this quarter due to a regional dust storm.

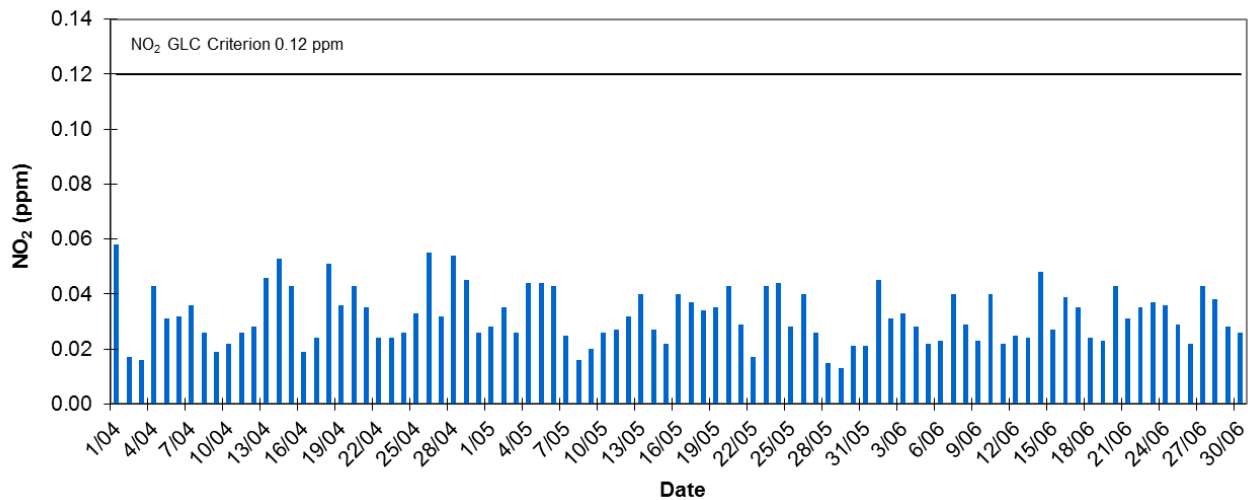
Adelaide CBD Daily Average PM10 - Quarter 2, 2016



1.1.3 Nitrogen dioxide

- There were no exceedences of the 1-hour ground level concentration criterion for nitrogen dioxide at Adelaide CBD this quarter.

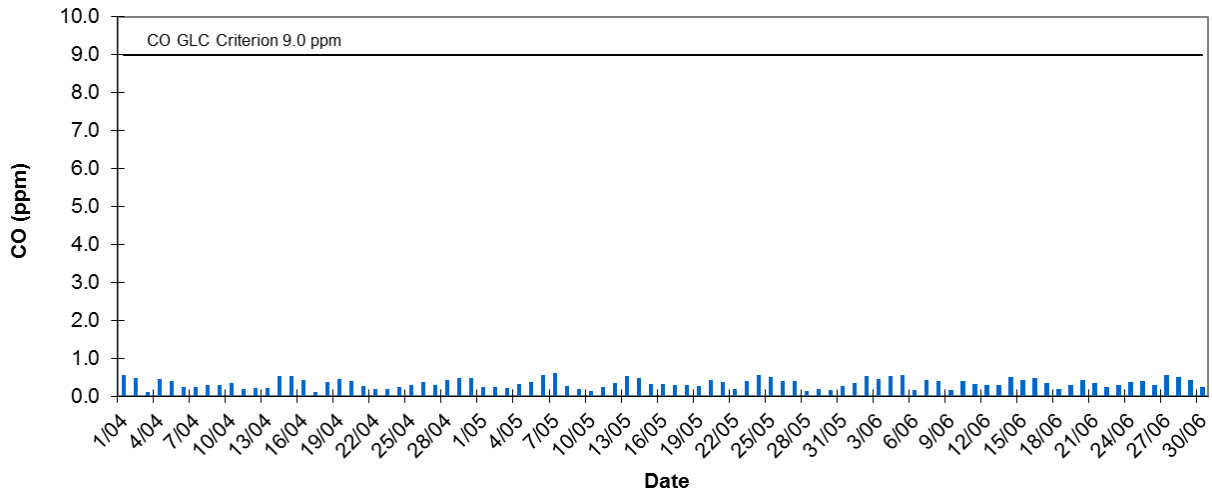
Adelaide CBD 1 Hr Daily Maxima NO2 - Quarter 2, 2016



1.1.4 Carbon monoxide

- There were no exceedences of the 8-hour ground level concentration criterion for carbon monoxide at Adelaide CBD this quarter.

Adelaide CBD 8 Hr Daily Maxima CO - Quarter 2, 2016



1.2 Northwestern Adelaide

Air quality in Northwestern Adelaide was generally good this quarter, however elevated particle levels were recorded on the 27th April due to a regional dust storm. This resulted in exceedences of the PM₁₀ ground level concentration criterion at both Le Fevre 1 and Le Fevre 2.

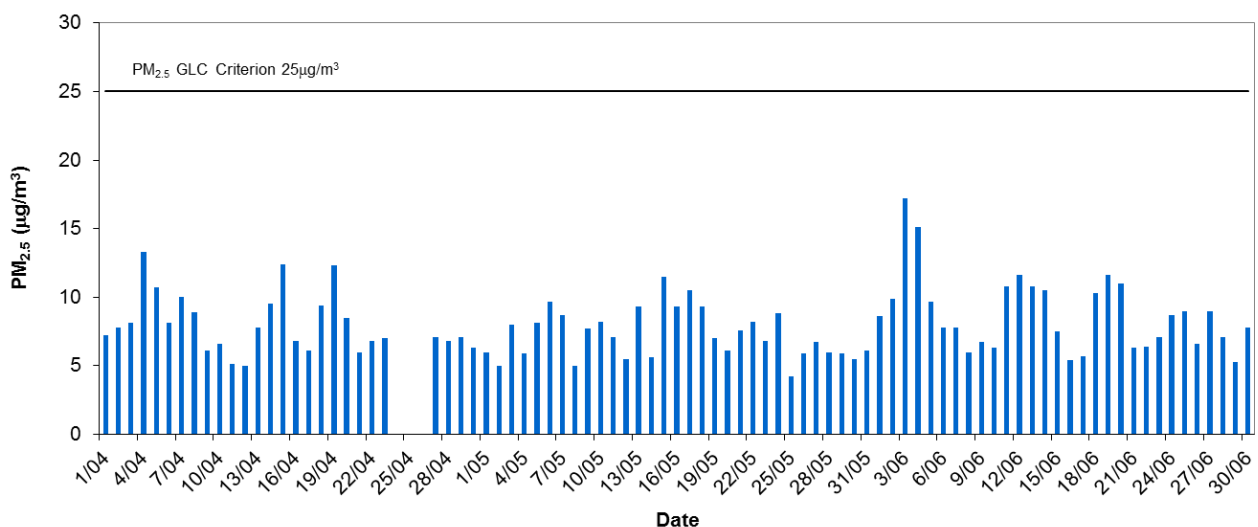
Le Fevre 1

The Le Fevre 1 station was recently upgraded to include monitoring for PM_{2.5} particles.

1.2.1 Particles (PM_{2.5})

- There were no exceedences of the 24-hour ground level concentration criterion for PM_{2.5} at Le Fevre 1 this quarter.

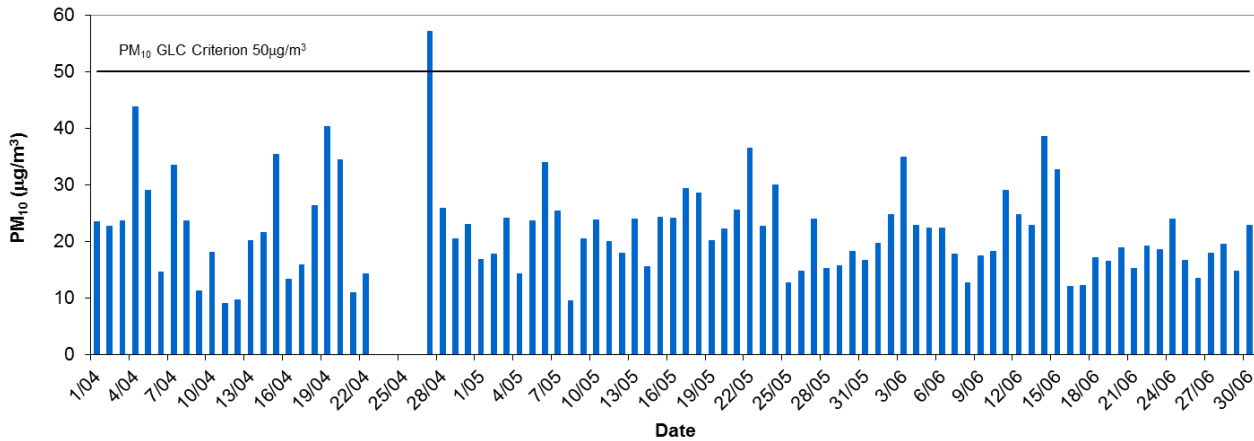
Le Fevre 1 Daily Average PM_{2.5} - Quarter 2, 2016



1.2.2 Particles (PM₁₀)

- There was **1** exceedence of the 24-hour ground level concentration criterion for PM₁₀ at Le Fevre 1 this quarter due to a regional dust storm.

Le Fevre 1 Daily Average PM10 - Quarter 2, 2016

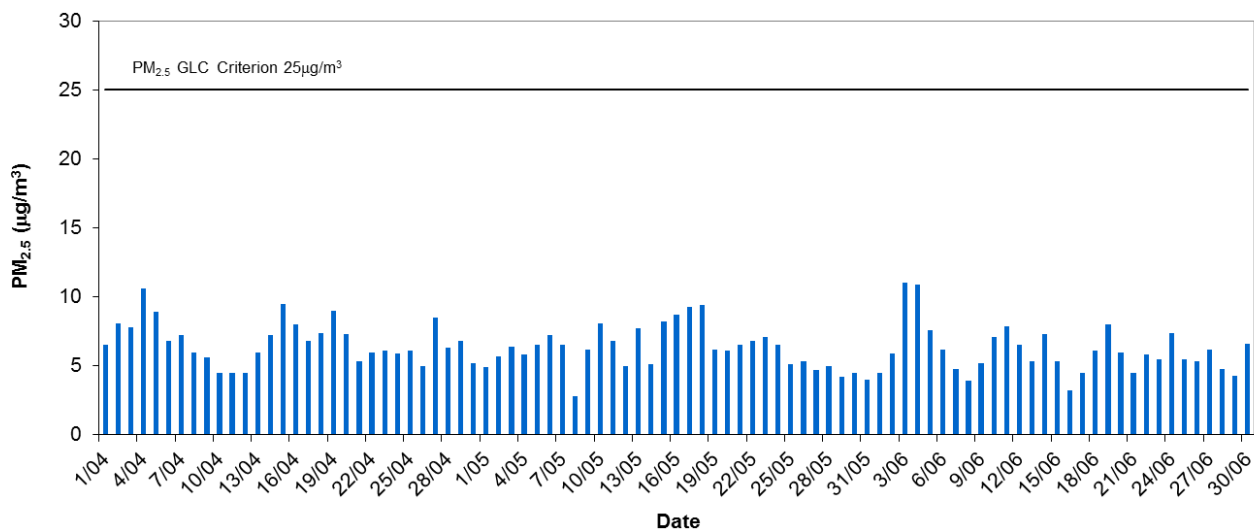


Le Fevre 2

1.2.3 Particles (PM_{2.5})

- There were no exceedences of the 24-hour ground level concentration criterion for PM_{2.5} at Le Fevre 2 this quarter.

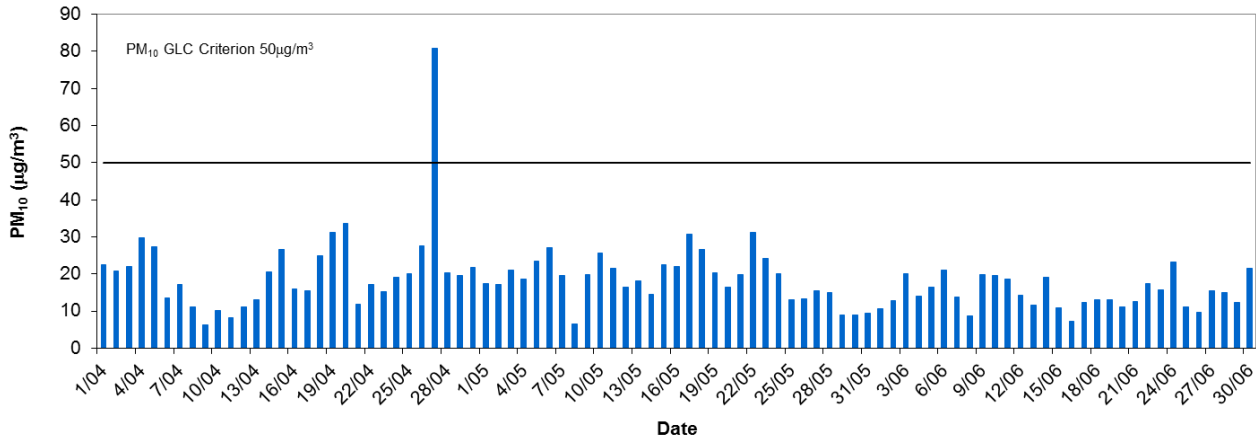
Le Fevre 2 Daily Average PM2.5 - Quarter 2, 2016



1.2.4 Particles (PM₁₀)

- There was **1** exceedence of the 24-hour ground level concentration criterion for PM₁₀ particles at Le Fevre 2 this quarter due to a regional dust storm.

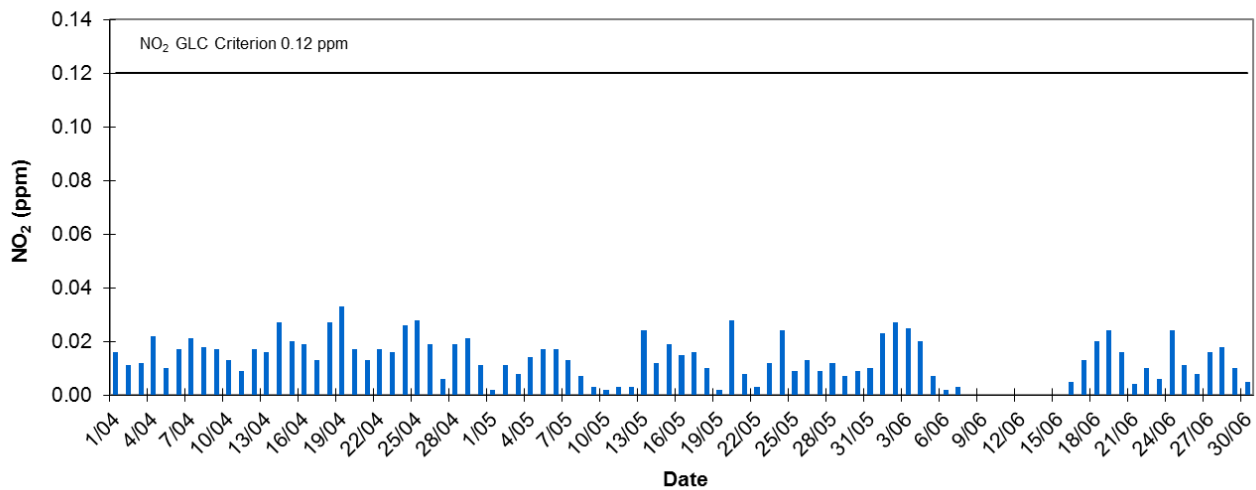
Le Fevre 2 Daily Average PM10 - Quarter 2, 2016



1.2.5 Nitrogen dioxide

- There were no exceedences of the 1-hour ground level concentration criterion for nitrogen dioxide at Le Fevre 2 this quarter.

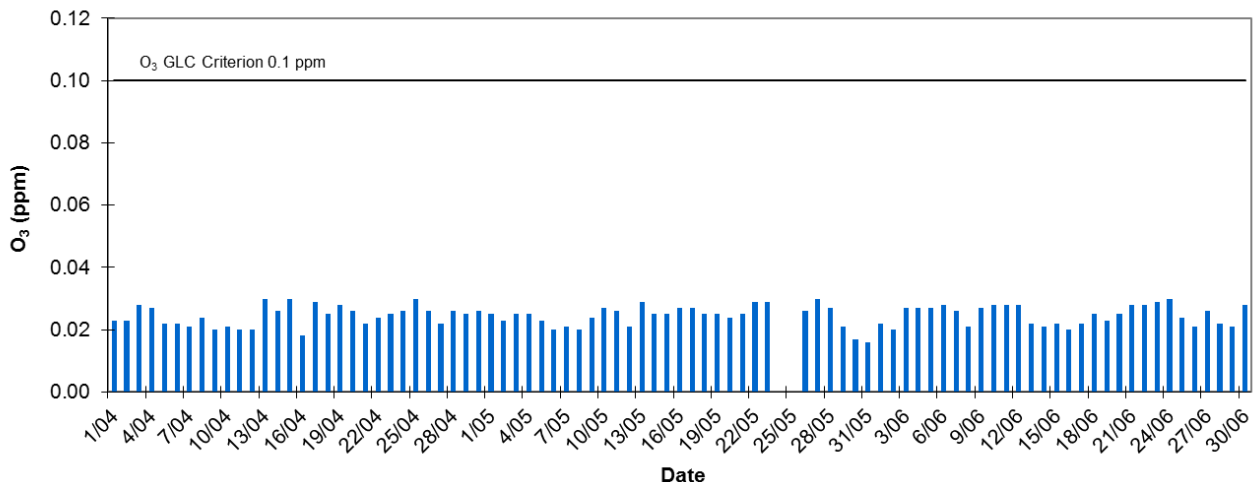
Le Fevre 2 1 Hr Daily Maxima NO2 - Quarter 2, 2016



1.2.6 Ozone

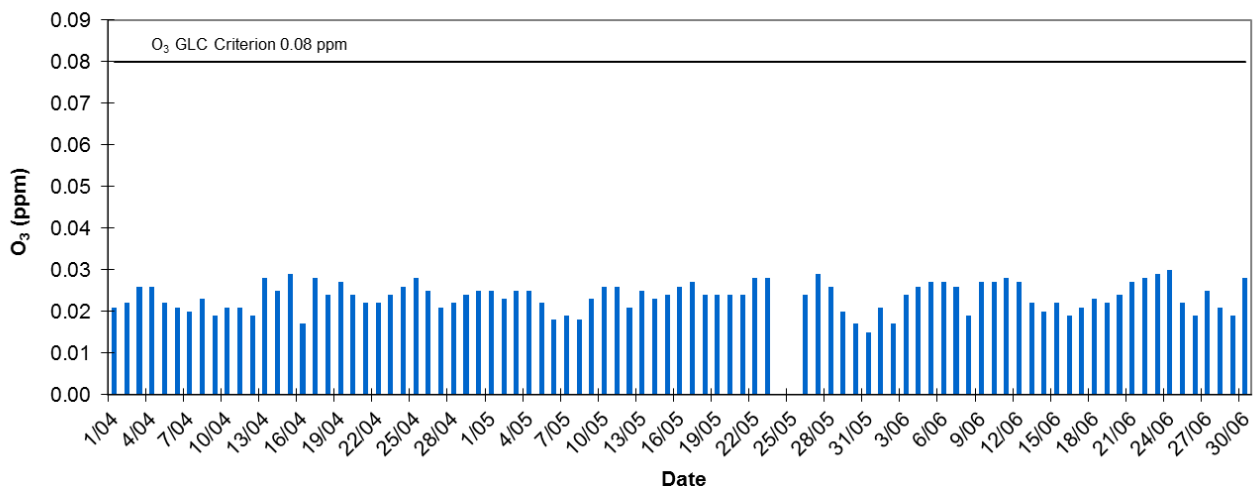
- There were no exceedences of the 1-hour ground level concentration criterion for ozone at Le Fevre 2 this quarter.

Le Fevre 2 1 Hr Daily Maxima O3 - Quarter 2, 2016



- There were no exceedences of the 4-hour ground level concentration criterion for ozone at Le Fevre 2 this quarter.

Le Fevre 2 4 Hr Daily Maxima O3 - Quarter 2, 2016



1.2.7 Sulfur dioxide

- The concentration of sulfur dioxide at Le Fevre 2 is consistently low and well below the relevant ground level concentration criteria, hence the 1-hour daily maxima and daily average graphs are only shown if a significant event occurs.

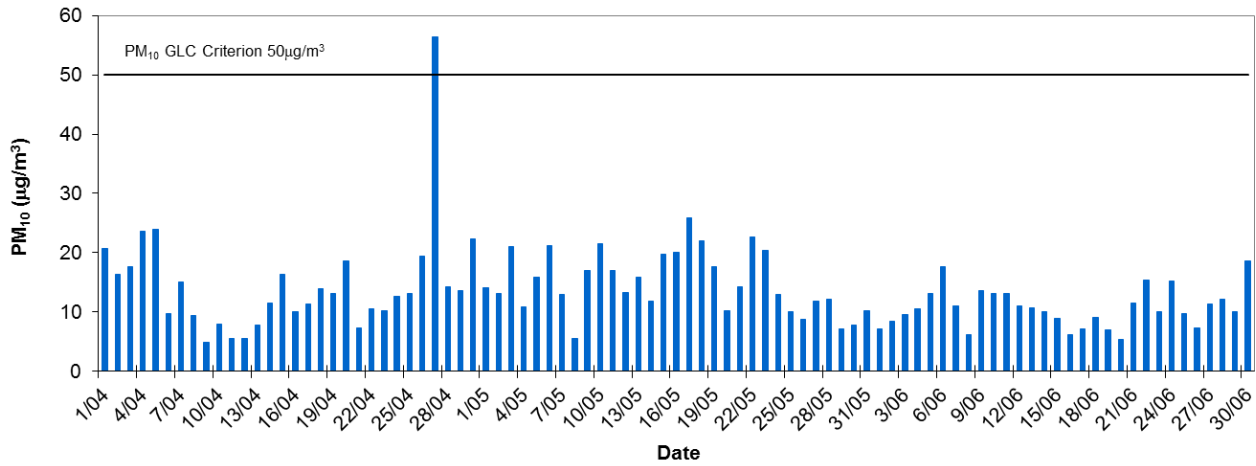
1.3 Southern Adelaide

Air quality in Southern Adelaide was generally good this quarter, however elevated particle levels were recorded on the 27th April due to a regional dust storm. This resulted in an exceedence of the PM₁₀ ground level concentration criterion.

1.3.1 Particles (PM₁₀)

- There was **1** exceedence of the 24-hour ground level concentration criterion for PM₁₀ at Southern Adelaide this quarter due to a regional dust storm.

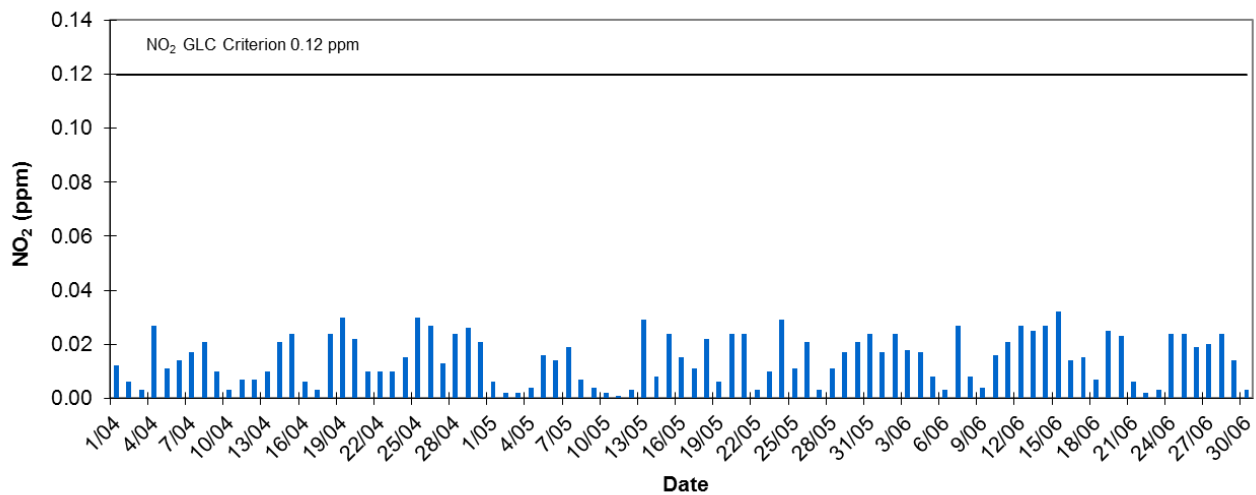
Southern Adelaide Daily Average PM10 - Quarter 2, 2016



1.3.2 Nitrogen dioxide

- There were no exceedences of the 1-hour ground level concentration criterion for nitrogen dioxide at Southern Adelaide this quarter.

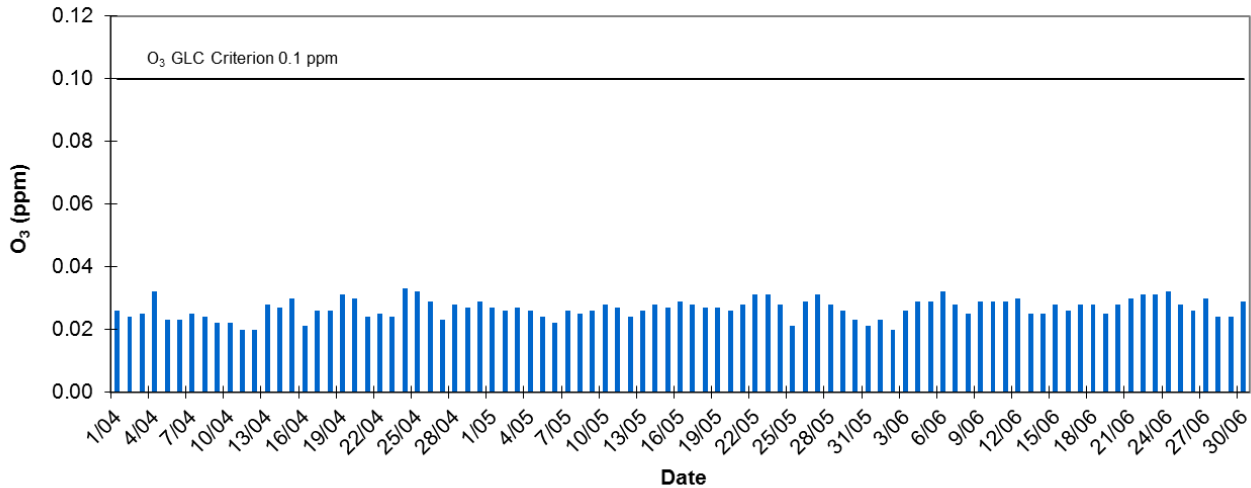
Southern Adelaide 1 Hr Daily Maxima NO2 - Quarter 2, 2016



1.3.3 Ozone

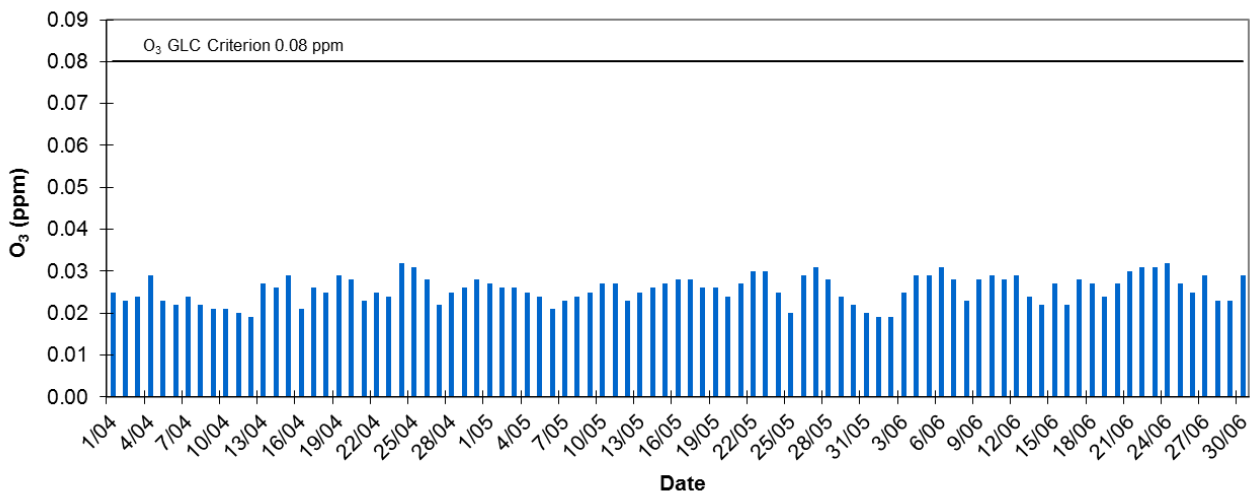
- There were no exceedences of the 1-hour ground level concentration criterion for ozone at Southern Adelaide this quarter.

Southern Adelaide 1 Hr Daily Maxima O₃ - Quarter 2, 2016



- There were no exceedences of the 4-hour ground level concentration criterion for ozone at Southern Adelaide this quarter.

Southern Adelaide 4 Hr Daily Maxima O₃ - Quarter 2, 2016



1.4 Northern Adelaide

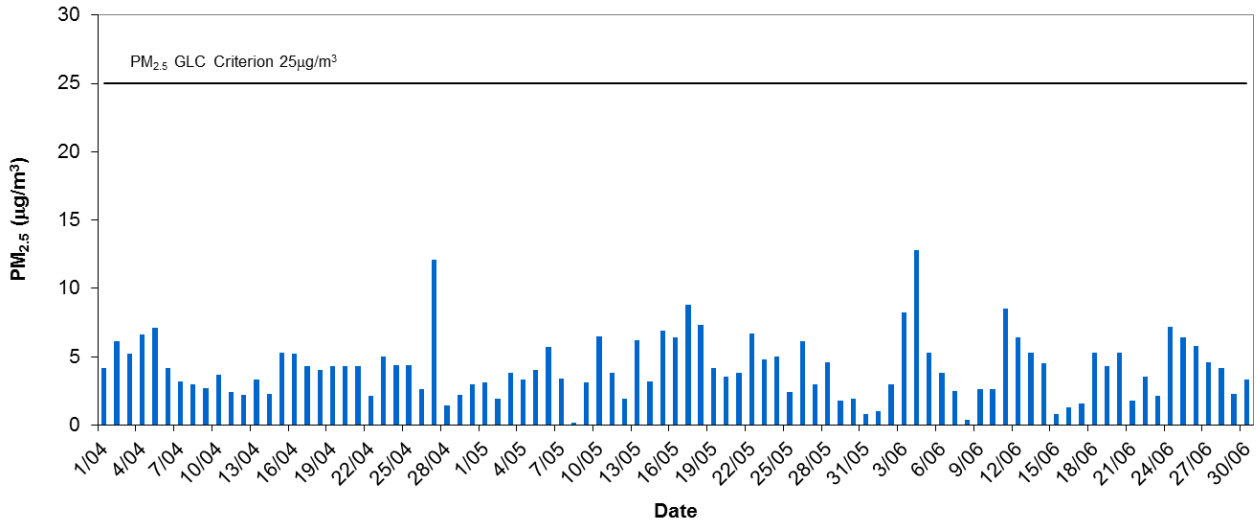
Air quality in Northern Adelaide was generally good this quarter, however elevated particle levels were recorded on the 27th April due to a regional dust storm. This resulted in an exceedence of the PM₁₀ ground level concentration criterion.

1.4.1 Particles (PM_{2.5})

The station at Northern Adelaide was upgraded in early December 2015 to include monitoring for particles as PM_{2.5}.

- There were no exceedences of the 24-hour ground level concentration criterion for PM_{2.5} at Northern Adelaide this quarter.

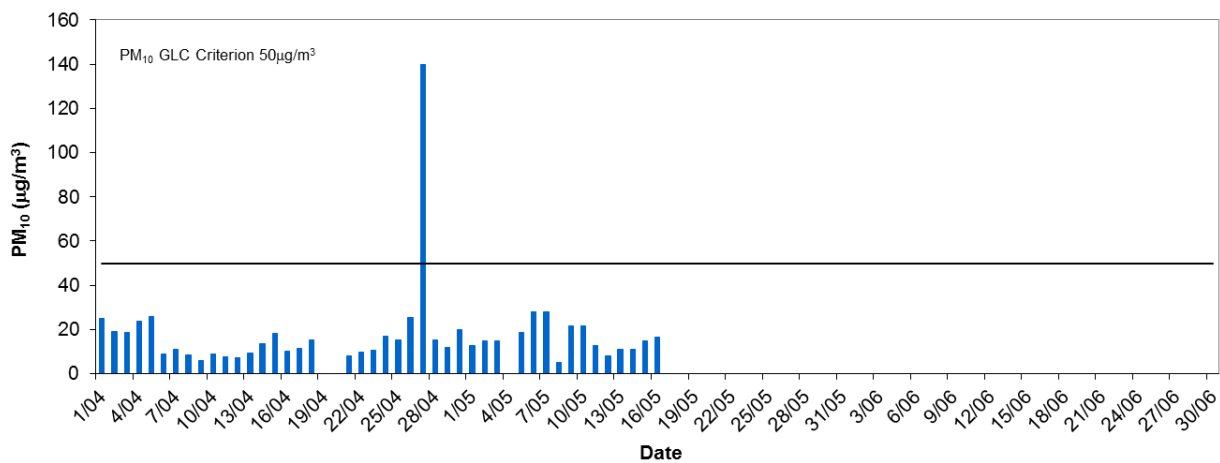
Northern Adelaide Daily Average PM2.5 - Quarter 2, 2016



1.4.2 Particles (PM10)

- There was **1** exceedence of the 24-hour ground level concentration criterion for PM10 at Northern Adelaide this quarter due to a regional dust storm. The gap in data from the 17th May to the 30th June was due to technical issues with the instrument.

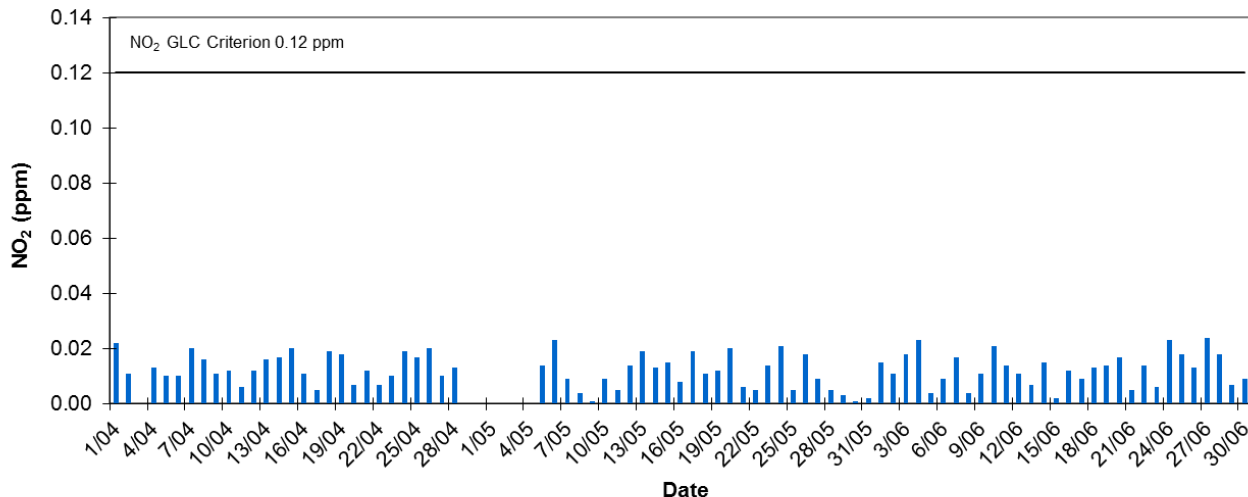
Northern Adelaide Daily Average PM10 - Quarter 2, 2016



1.4.3 Nitrogen dioxide

- There were no exceedences of the 1-hour ground level concentration criterion for nitrogen dioxide at Northern Adelaide this quarter.

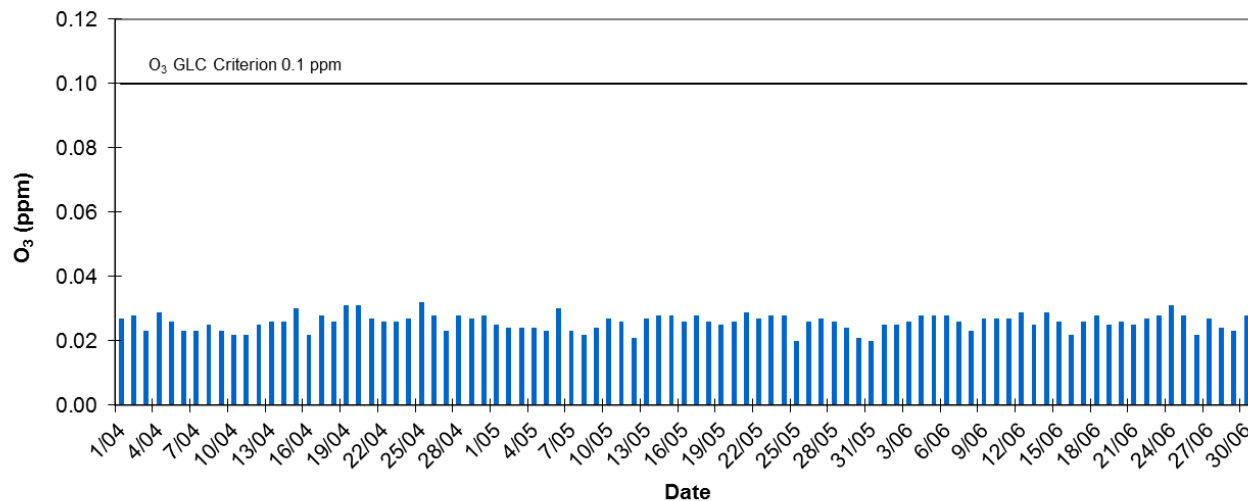
Northern Adelaide 1 Hr Daily Maxima NO2 - Quarter 2, 2016



1.4.4 Ozone

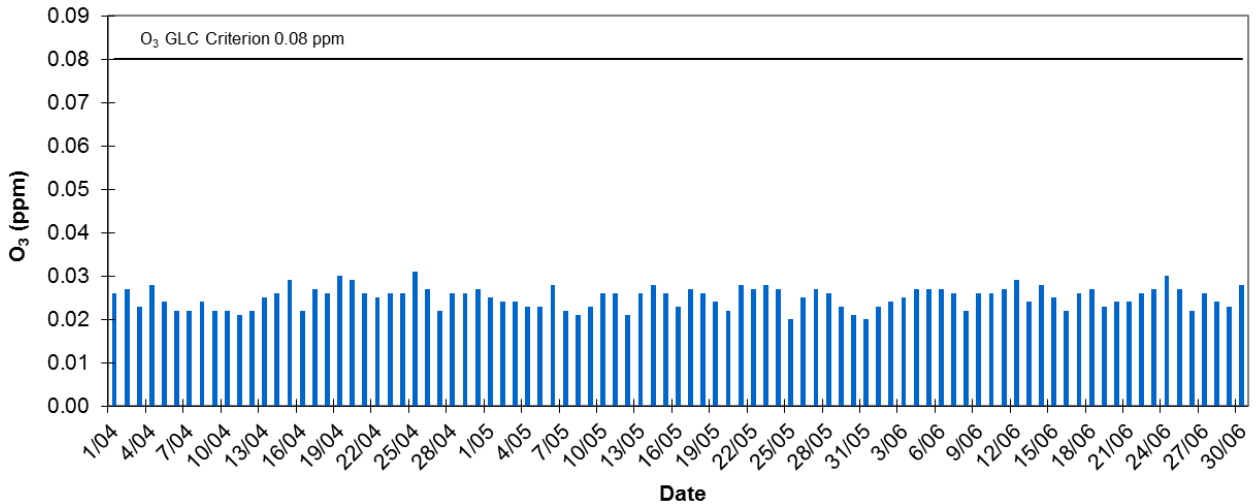
- There were no exceedences of the 1-hour ground level concentration criterion for ozone at Northern Adelaide this quarter.

Northern Adelaide 1 Hr Daily Maxima O3 - Quarter 2, 2016



- There were no exceedences of the 4-hour ground level concentration criterion for ozone at Northern Adelaide this quarter.

Northern Adelaide 4 Hr Daily Maxima O3 - Quarter 2, 2016



1.4.5 Carbon monoxide

- The concentration of carbon monoxide at Northern Adelaide is consistently very low and well below the relevant ground level concentration criterion, hence the 8-hour daily maxima graph is only shown if a significant event occurs.

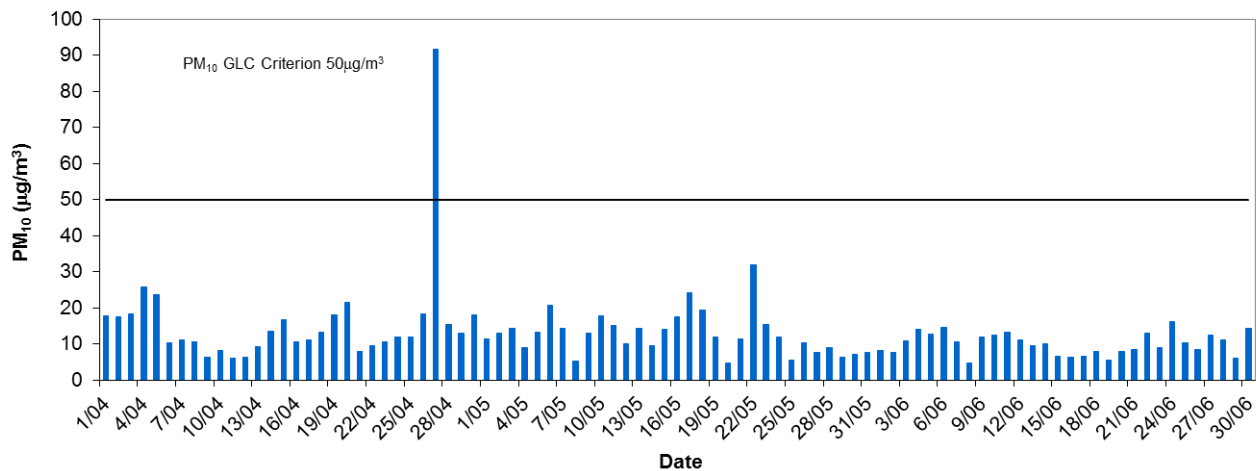
1.5 Eastern Adelaide

Air quality in Eastern Adelaide was generally good this quarter, however elevated particle levels were recorded on the 27th April due to a regional dust storm. This resulted in an exceedence of the PM₁₀ ground level concentration criterion.

1.5.1 Particles (PM₁₀)

- There was **1** exceedence of the 24-hour ground level concentration criterion for PM₁₀ at Eastern Adelaide this quarter due to a regional dust storm.

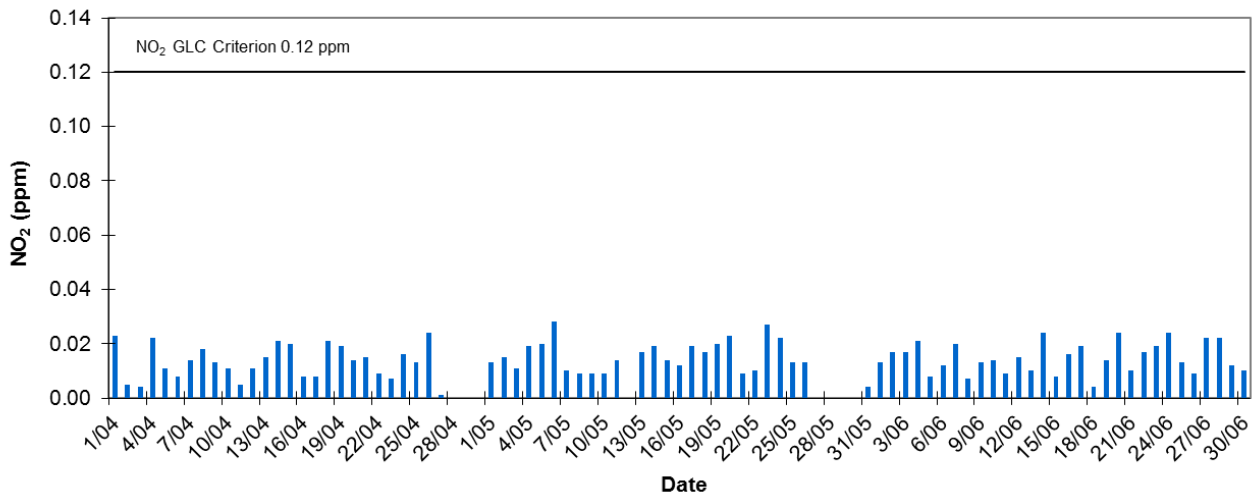
Eastern Adelaide Daily Average PM10 - Quarter 2, 2016



1.5.2 Nitrogen dioxide

- There were no exceedences of the 1-hour ground level concentration criterion for nitrogen dioxide at Eastern Adelaide this quarter.

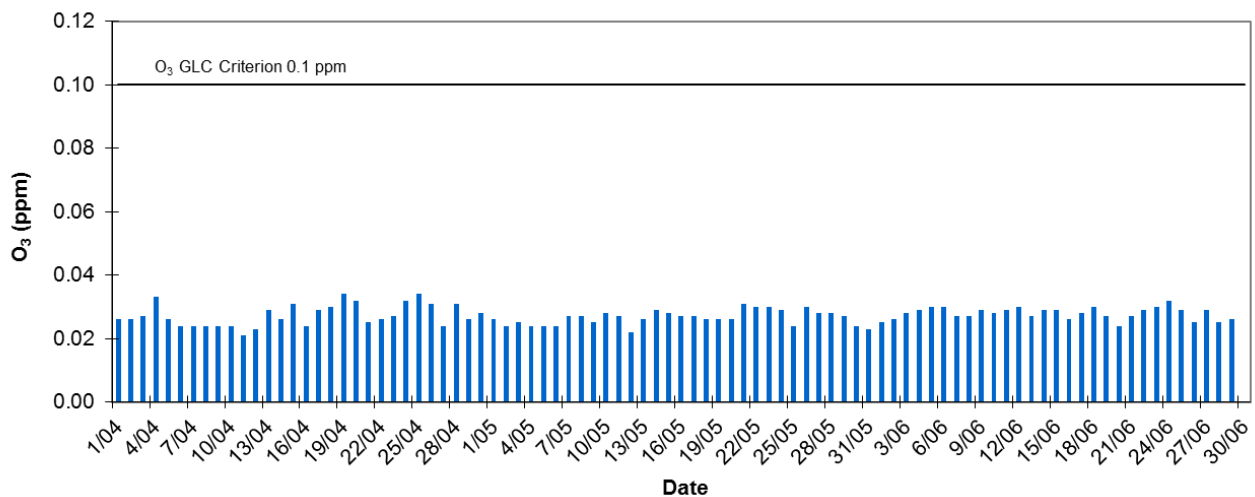
Eastern Adelaide 1 Hr Daily Maxima NO₂ - Quarter 2, 2016



1.5.3 Ozone

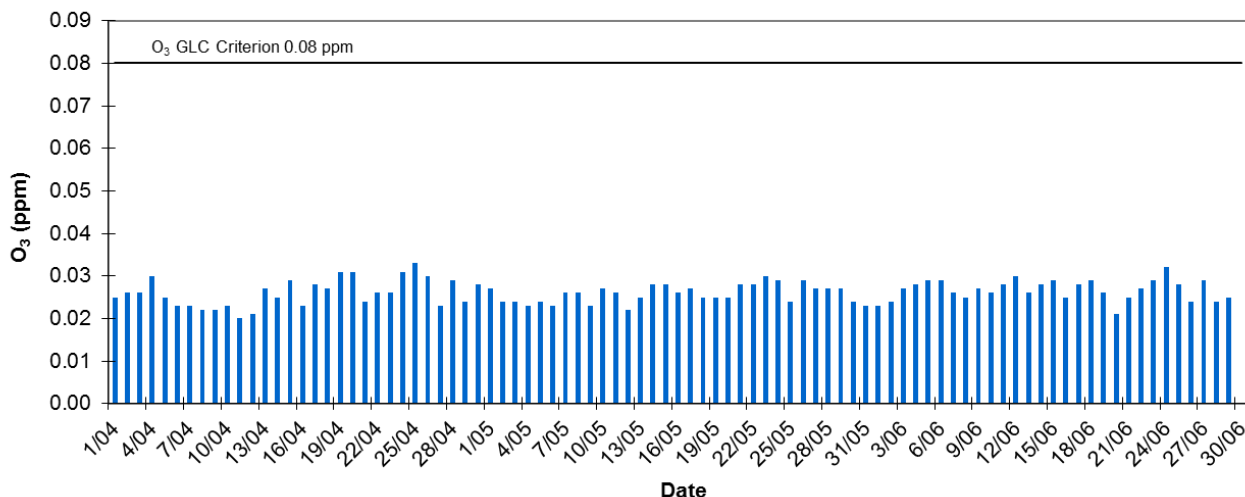
- There were no exceedences of the 1-hour ground level concentration criterion for ozone at Eastern Adelaide this quarter.

Eastern Adelaide 1 Hr Daily Maxima O₃ - Quarter 2, 2016



- There were no exceedences of the 4-hour ground level concentration criterion for ozone at Eastern Adelaide this quarter.

Eastern Adelaide 4 Hr Daily Maxima O3 - Quarter 2, 2016



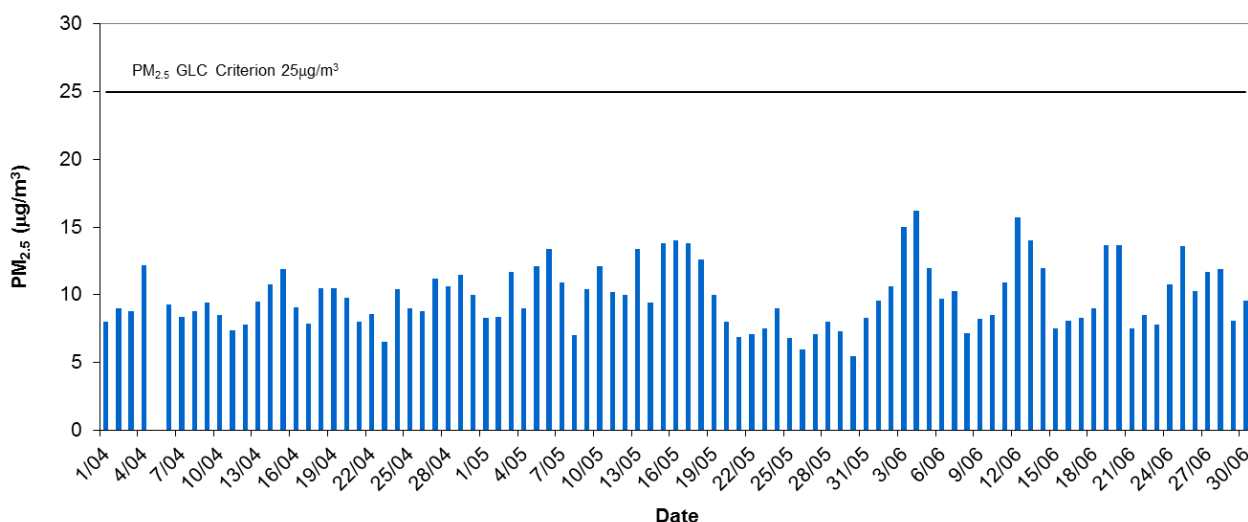
1.6 Western Adelaide

Air quality in Western Adelaide was generally good this quarter. There was a regional dust storm on the 27th April that resulted in exceedences of the PM₁₀ ground level concentration criterion at the other metropolitan sites. However, this wasn't seen at Western Adelaide due to the instrument being off-line at the time.

1.6.1 Particles (PM_{2.5})

- There were no exceedences of the 24-hour ground level concentration criterion for PM_{2.5} at Western Adelaide this quarter.

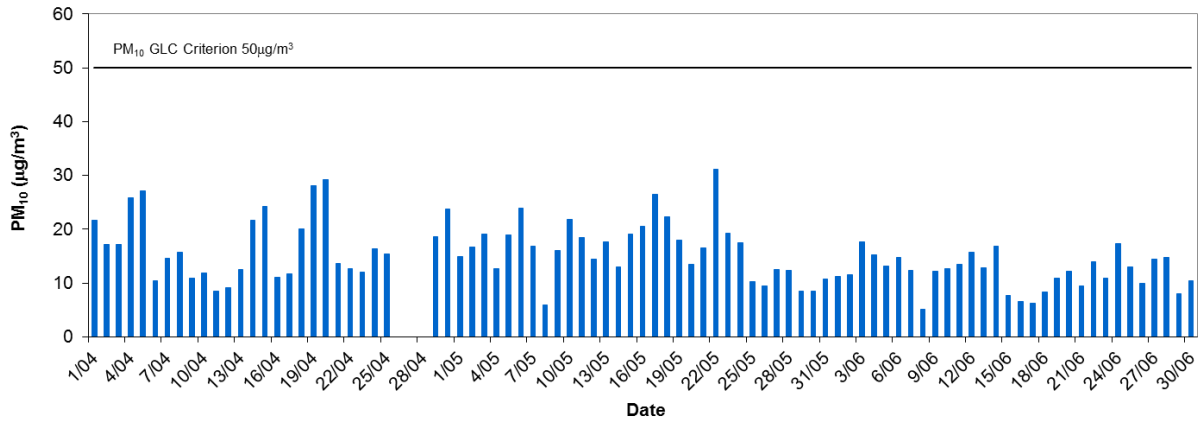
Western Adelaide Daily Average PM2.5 - Quarter 2, 2016



1.6.2 Particles (PM₁₀)

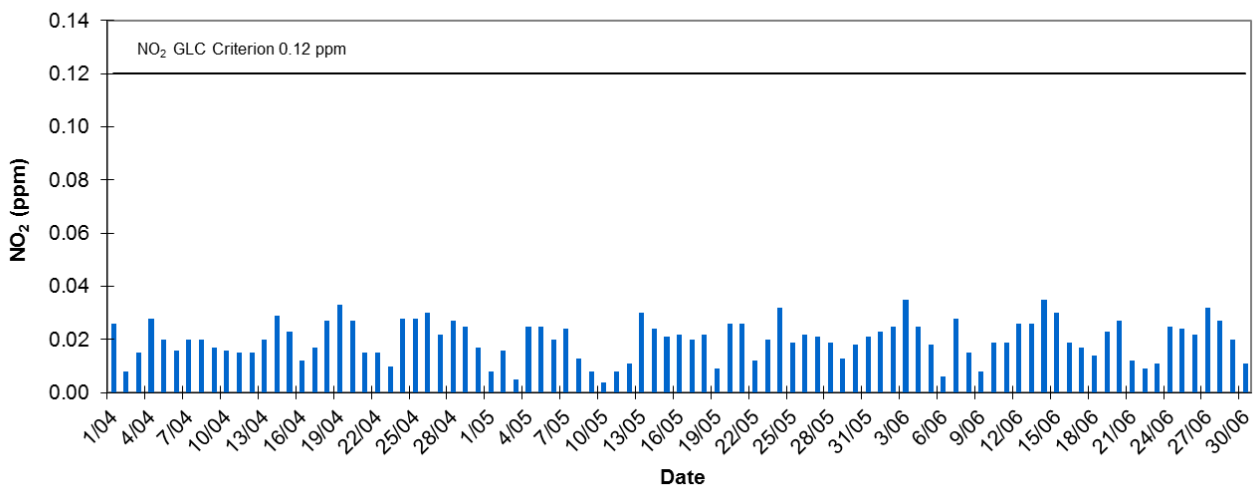
- There were no exceedences of the 24-hour ground level concentration criterion for PM₁₀ at Western Adelaide this quarter. The gap in data from the 26th to 28th April was due to the PM₁₀ monitor being off-line for servicing.

Western Adelaide Daily Average PM10 - Quarter 2, 2016



1.6.3 Nitrogen dioxide

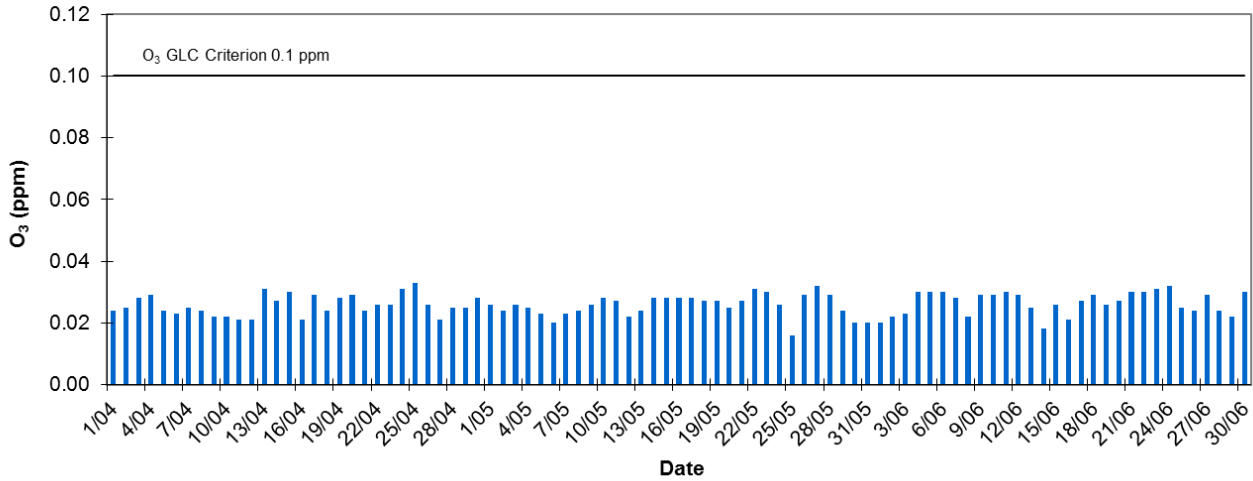
- There were no exceedences of the 1-hour ground level concentration criterion for nitrogen dioxide at Western Adelaide this quarter.

Western Adelaide 1 Hr Daily Maxima NO₂ - Quarter 2, 2016

1.6.4 Ozone

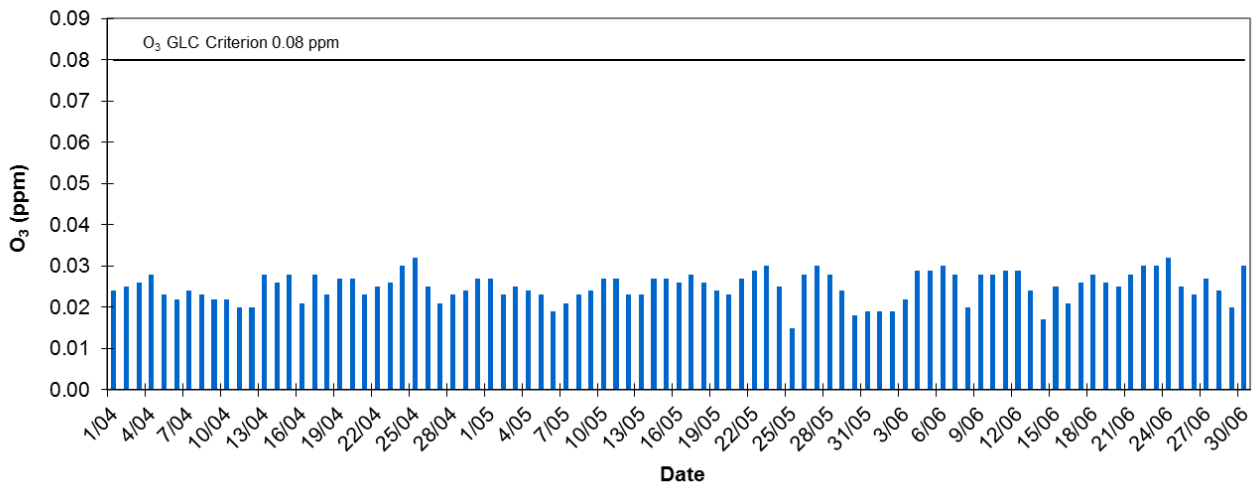
- There were no exceedences of the 1-hour ground level concentration criterion for ozone at Western Adelaide this quarter.

Western Adelaide 1 Hr Daily Maxima O3 - Quarter 2, 2016



- There were no exceedences of the 4-hour ground level concentration criterion for ozone at Western Adelaide this quarter.

Western Adelaide 4 Hr Daily Maxima O3 - Quarter 2, 2016



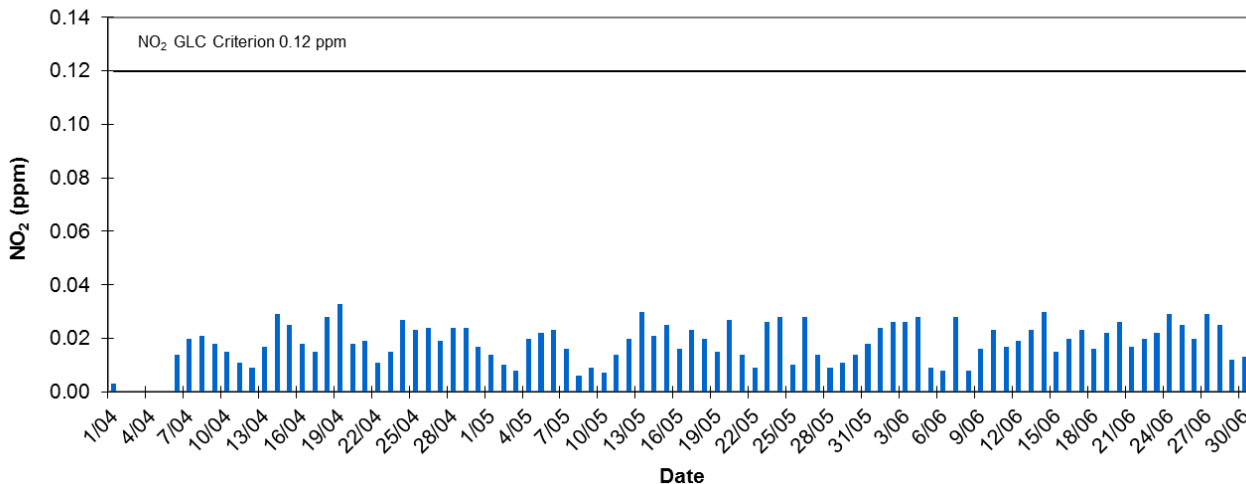
1.7 Northeastern Adelaide

Air quality in Northeastern Adelaide was generally good this quarter

1.7.1 Nitrogen dioxide

- There were no exceedences of the 1-hour ground level concentration criterion for nitrogen dioxide at Northeastern Adelaide this quarter.

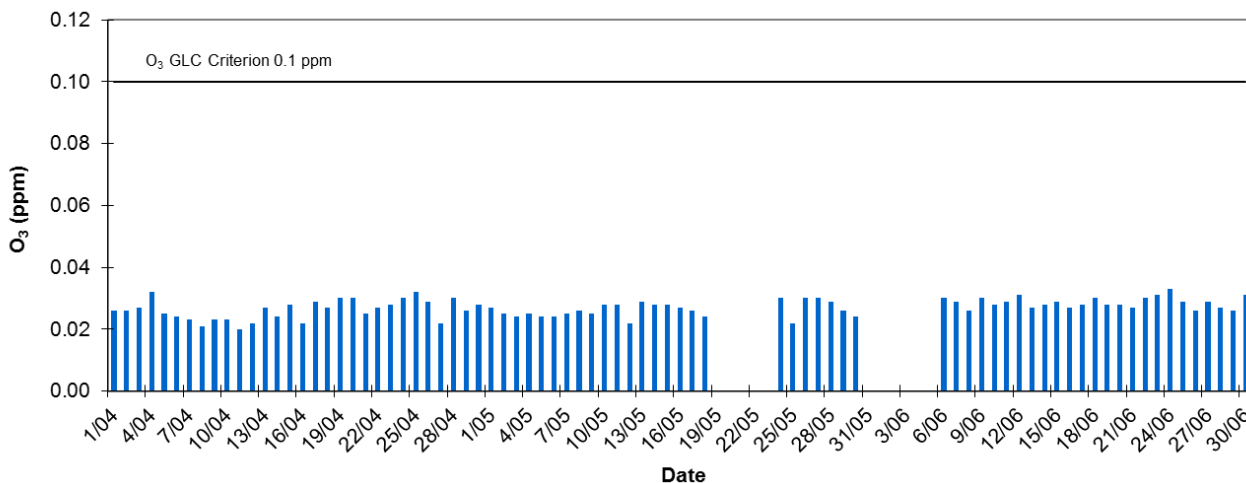
Northeastern Adelaide 1 Hr Daily Maxima NO₂ - Quarter 2, 2016



1.7.2 Ozone

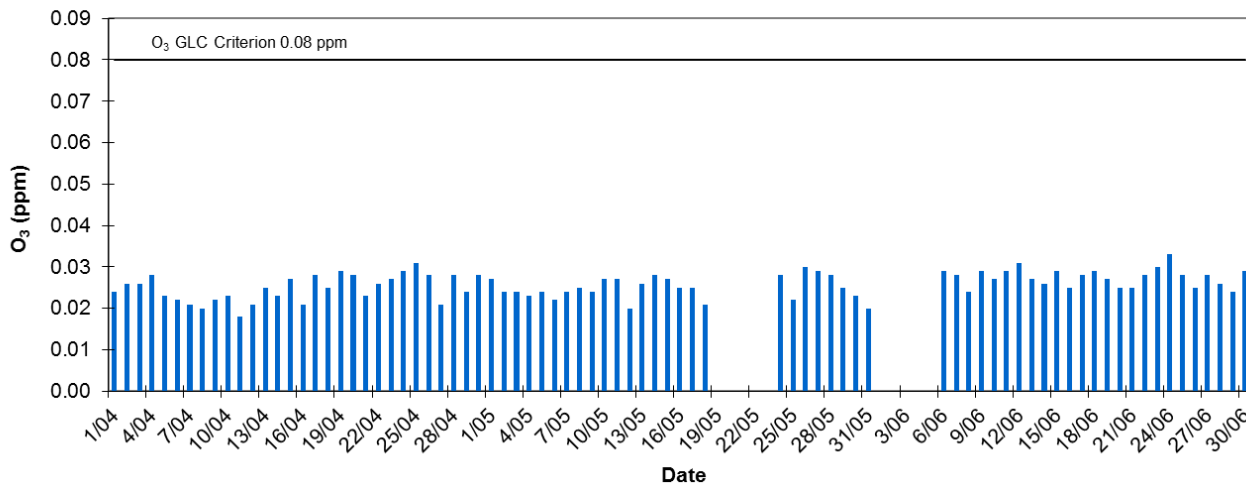
- There were no exceedences of the 1-hour ground level concentration criterion for ozone at Northeastern Adelaide this quarter.

Northeastern Adelaide 1 Hr Daily Maxima O₃ - Quarter 2, 2016



- There were no exceedences of the 4-hour ground level concentration criterion for ozone at Northeastern Adelaide this quarter.

Northeastern Adelaide 4 Hr Daily Maxima O₃ - Quarter 2, 2016



1.7.3 Sulfur dioxide

The concentration of sulfur dioxide at Northeastern Adelaide is consistently very low and well below the relevant ground level concentration criteria, hence the 1-hour daily maxima and daily average graphs are only shown if a significant event occurs.

2 Spencer Gulf region

2.1 Port Pirie

Port Pirie is the location of one of the world’s largest primary lead smelters which has a major impact on air quality in the area, particularly in regards to lead and sulfur dioxide. Particles are also an issue with industry and domestic solid fuel burning being the main anthropogenic sources. Naturally occurring windblown dust and agricultural sources are also known to affect air quality in the region.

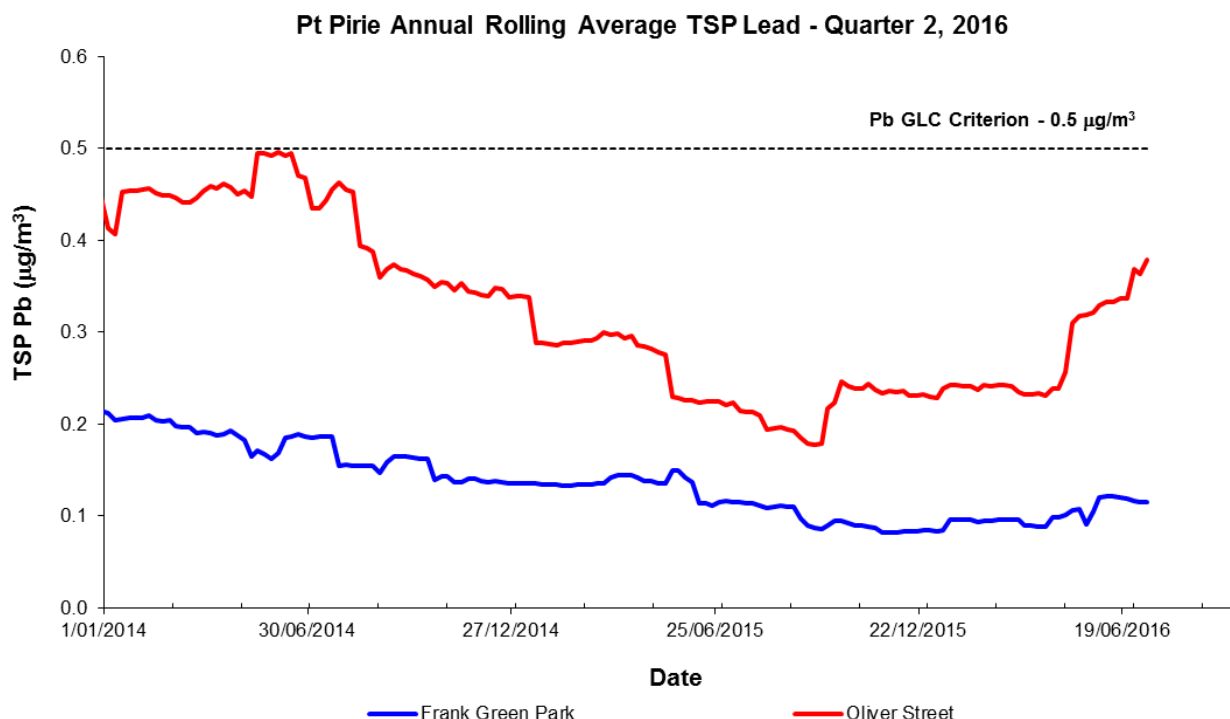
The Nyrstar smelter is the single largest source of lead in Port Pirie. The smelter is currently undergoing a major transformation to establish new technology to process raw materials (lead concentrates). It is anticipated that the transformation project will significantly reduce lead in air and sulfur dioxide concentrations in the city, mainly due to reduced emissions from the new technology and significant reductions predicted from fugitive sources.

The EPA undertakes monitoring at 4 sites in Port Pirie. All sites monitor for lead whilst Oliver St also monitors sulfur dioxide and particles. At Ellen St, Oliver St and Pirie West lead in air concentrations are monitored for trends against license limits/targets. The EPA also operates a station on behalf of SA Health (The Terrace), which monitors particles as PM₁₀.

2.1.1 Lead from EPA’s monitoring sites

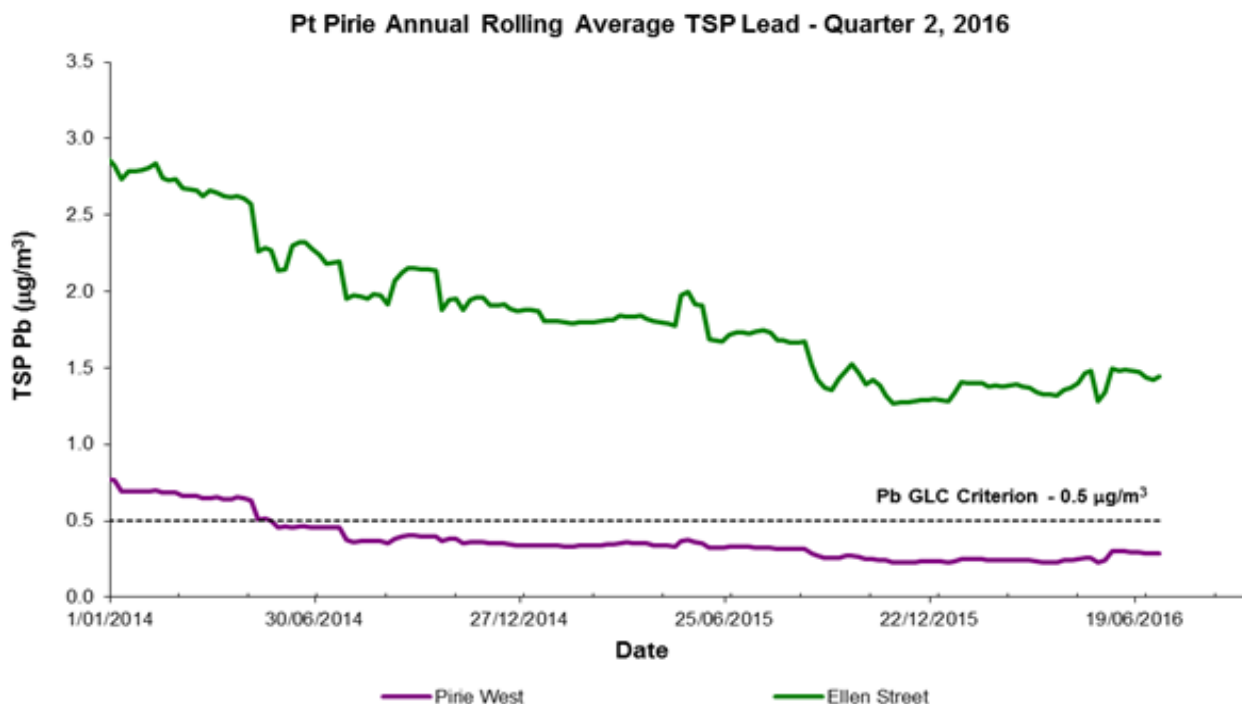
The annual rolling averages of lead in air at Frank Green Park and Oliver Street sites from 1 January 2014 to 11 July 2016 are shown below.

- Since early 2014 the annual average lead in air concentrations have been showing a decreasing trend at both sites. The increase from May 2016 is likely due to changes in meteorological conditions in Port Pirie.



The annual rolling averages of lead in air at the Ellen Street and Pirie West sites from 1 January 2014 to 11 July 2016 are shown below.

- Since early 2014 the annual average lead in air concentrations have been showing a decreasing trend at both sites.



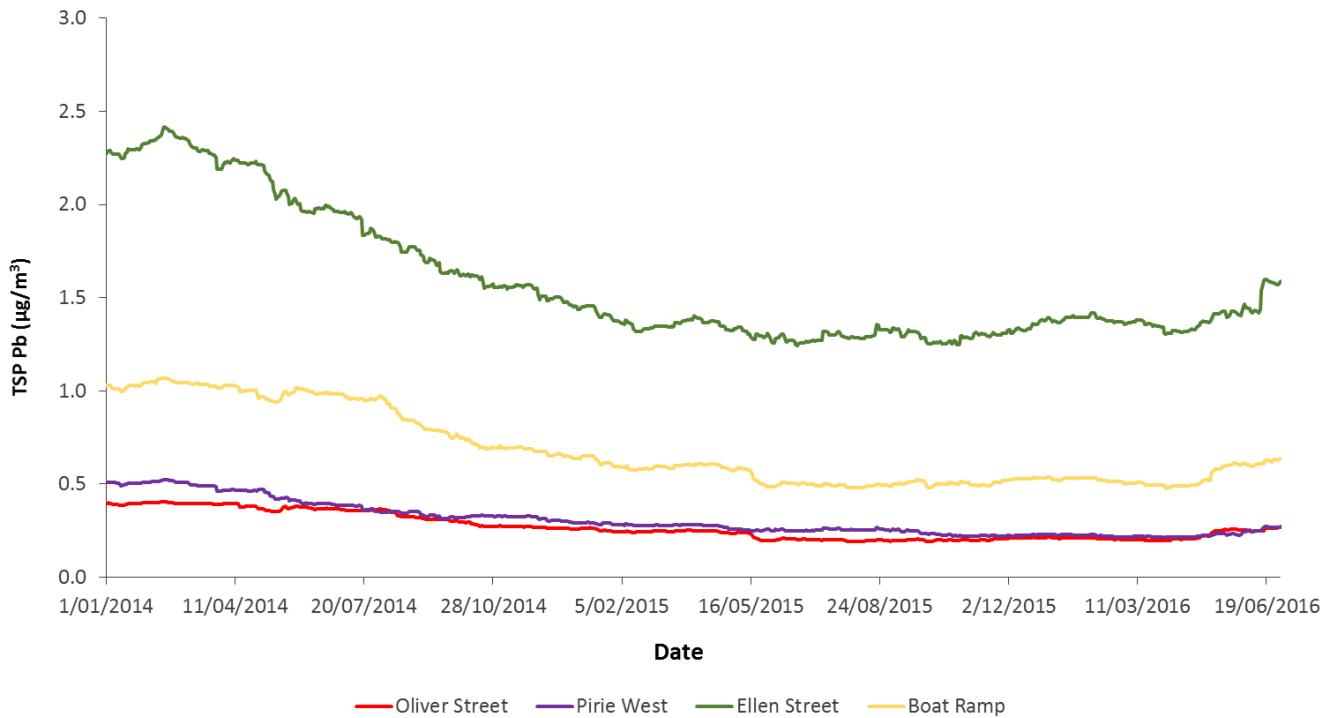
2.1.2 Lead from Nyrstar's monitoring sites

Nyrstar undertakes lead in air monitoring as a condition of their EPA license. The purpose of these monitoring stations is to measure emissions from the smelting facilities operated by Nyrstar in Port Pirie. These measurements allow Nyrstar to take steps to adjust its operations to minimise lead in air emissions where possible. Nyrstar conducts their lead in air sampling on a daily basis whereas EPA's sampling frequency is 1 day in every 6.

The rolling annual average concentrations of lead in air at Nyrstar's monitoring locations exhibit a similar trend to EPA's lead in air monitoring data. In general, since early 2014 the lead in air concentrations are decreasing at Nyrstar's Oliver St, Pirie West, Ellen St and Boat Ramp monitoring sites.

The annual rolling averages of lead in air at Nyrstar sites from 1 January 2014 to 30 June 2016 are shown below.

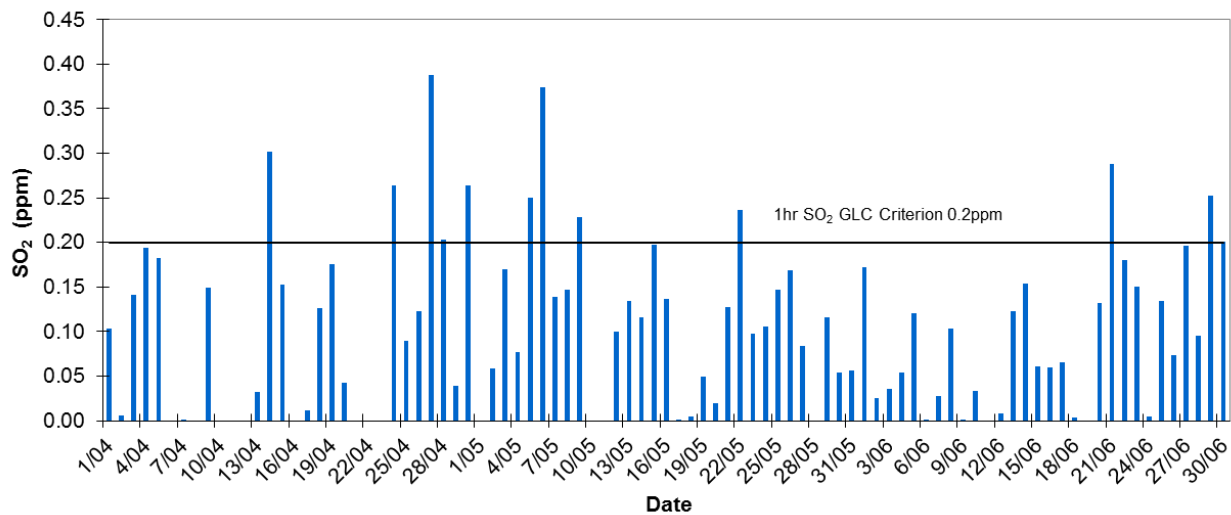
Pt Pirie Annual Rolling Average TSP Lead Nyrstar Sites - 2nd Quarter 2016



2.1.3 Sulfur dioxide

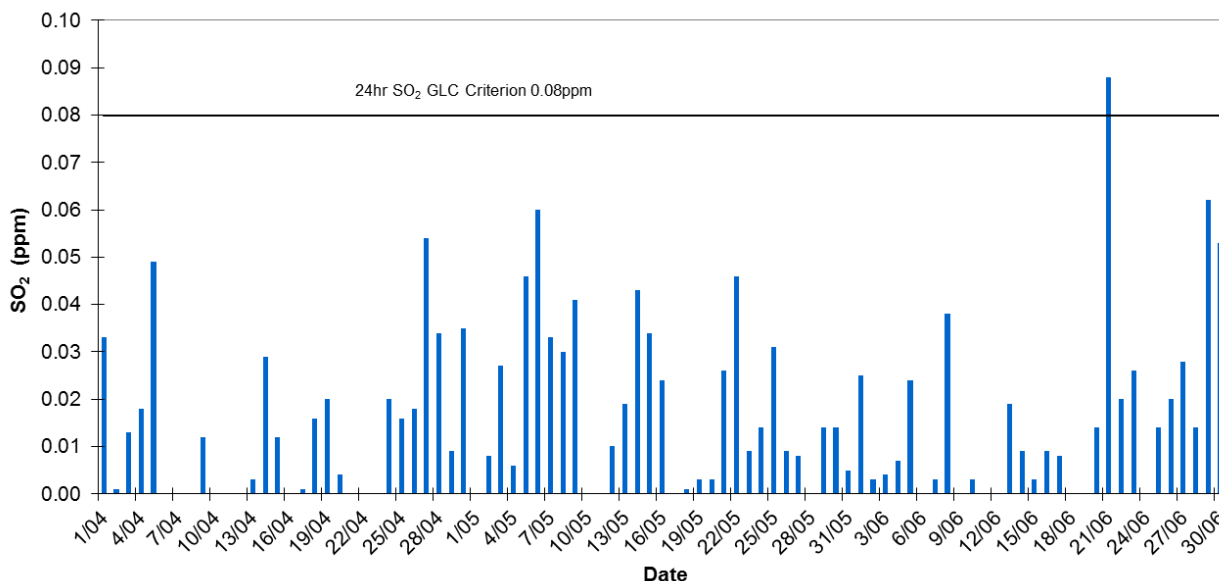
- There were **12** exceedences (days) of the 1-hour ground level concentration criterion for sulfur dioxide at Pt Pirie this quarter.
 - There have been **20** exceedences (days) so far this year.

Pt Pirie 1 Hr Daily Maxima SO₂ - Quarter 2, 2016



- There was **1** exceedence of the 24-hour ground level concentration criterion for sulfur dioxide at Pt Pirie this quarter.

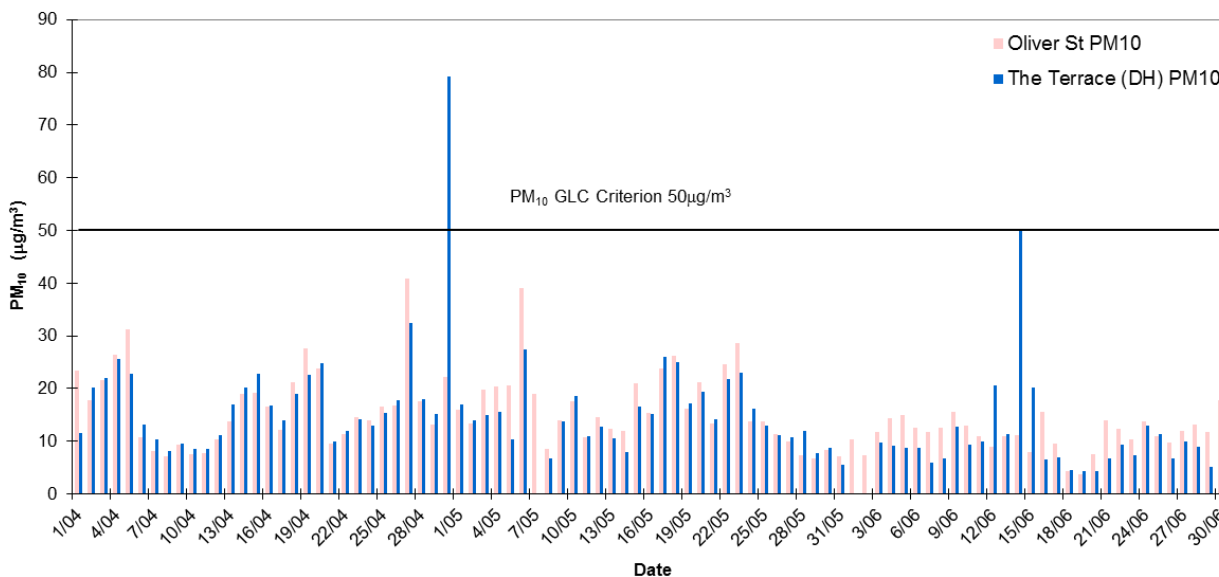
Pt Pirie Daily Average SO2 - Quarter 2, 2016



2.1.4 Particles (PM₁₀)

- There were **2** exceedences of the 24-hour ground level concentration criterion for PM₁₀ at The Terrace and no exceedences at Oliver Street this quarter.
 - There have been **3** exceedences at The Terrace so far this year.

Pt Pirie Daily Average PM10 - Quarter 2, 2016

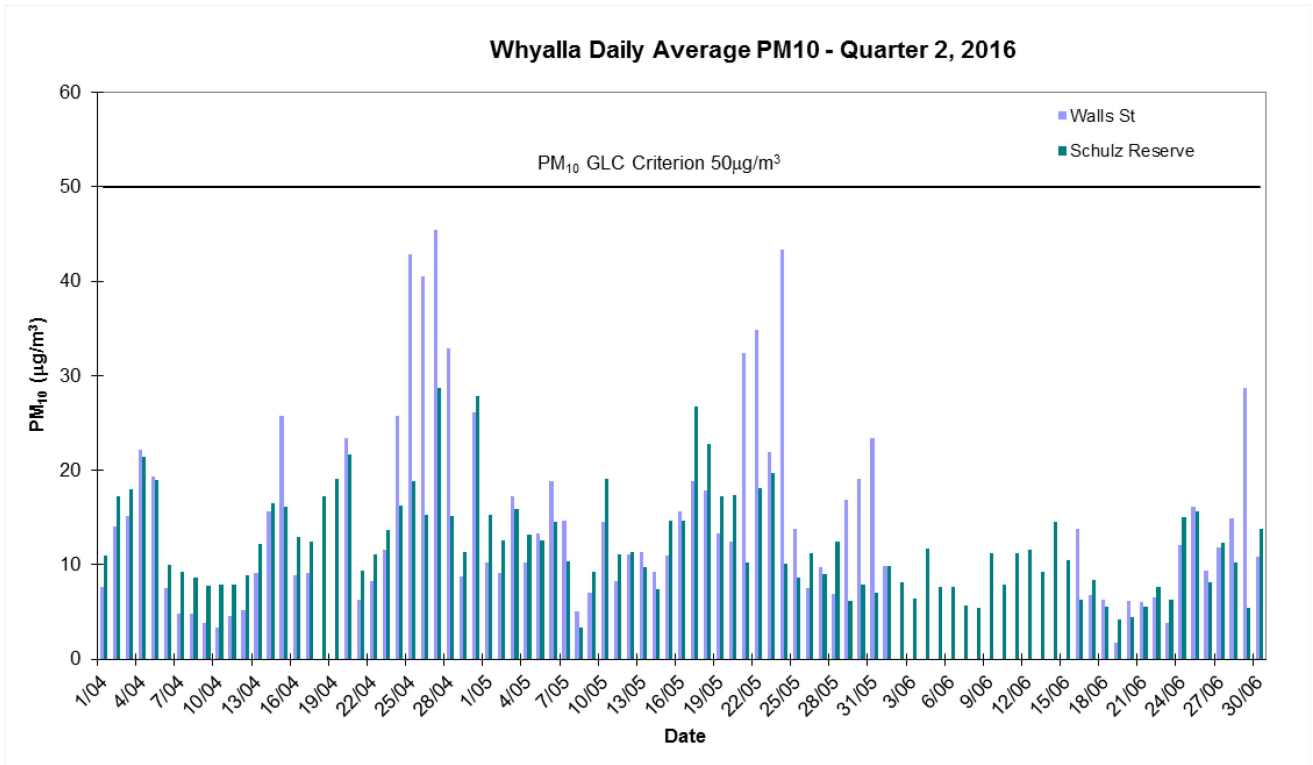


2.2 Whyalla

In Whyalla one of the major impacts on air quality are particle emissions from the local steelworks. Windblown dust and particles from other natural sources are other factors that can affect air quality in Whyalla. Monitoring is undertaken at 2 sites; Schulz Reserve and Walls St.

2.2.1 Particles (PM₁₀)

- There were no exceedences of the 24-hour ground level concentration criterion for PM₁₀ at either site this quarter.



Further information

Legislation

[Online legislation](#) is freely available. Copies of legislation are available for purchase from:

Service SA Government Legislation Outlet
Adelaide Service SA Centre
108 North Terrace
Adelaide SA 5000

Telephone: 13 23 24
Facsimile: (08) 8204 1909
Website: <shop.service.sa.gov.au>
Email: <ServiceSAcustomerservice@sa.gov.au>

General information

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GPO Box 2607
Adelaide SA 5001

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Facsimile: (08) 8124 4670
Freecall: 1800 623 445 (country)
Website: <www.epa.sa.gov.au>
Email: <epainfo@epa.sa.gov.au>
