

## Air quality summary report – July to September (Q3) 2015

Issued November 2015

### 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. This data, where applicable, is compared to the standards and goals set out in the National Environment Protection (Ambient Air Quality) Measure (NEPM).

Details on the NEPM, along with locations of monitoring stations and the parameters measured at each site can be found on the EPA [website](#):

To assist in interpreting the information provided the following formats have been implemented.

- Values represented in the graphs are the maximum concentration recorded for each day for the given averaging period. Concentrations that are larger than the maximum allowed in the standard are recorded as exceedences. Each parameter that is measured has a target goal of a maximum number of exceedences allowed, with the aim being to not breach the goal.
- Exceedence days in **BLACK** provide the total number of exceedence days for the year.
- Exceedence days in **RED** indicate an exceedence of the NEPM standard this current quarter.
- Exceedence days in **BOLD** indicate the total number of exceedence days for the year and indicate a breach of the NEPM goal. Bold can be either black or red and once a site has breached the goal all subsequent results for the year will be reported this way.

### 1 Adelaide region

Of the pollutants defined in the Air NEPM, 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 the primary focus of a National Clean Air Agreement, which is being developed by Environment Ministers and is due for finalisation in 2016. The Agreement will progress work undertaken as part of the National Plan for Clean Air.

Fine particles are often a complex mixture of materials arising from many sources, but are generally grouped into two categories, called PM<sub>10</sub> and PM<sub>2.5</sub>, 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 (see [glossary](#) for further information on the nature and effects of particles).

[Nitrogen dioxide](#) (NO<sub>2</sub>) 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 (see [glossary](#) for further information).

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 day. For example, very still conditions over the city for several days allow pollutants to build up, leading at times to concentrations above the national standards. In contrast, very windy conditions across the State can raise dust into the air, resulting in exceedences of standards in Adelaide and regional population centres.

## 1.1 Southern Adelaide

Air quality in Southern Adelaide was generally good this quarter.

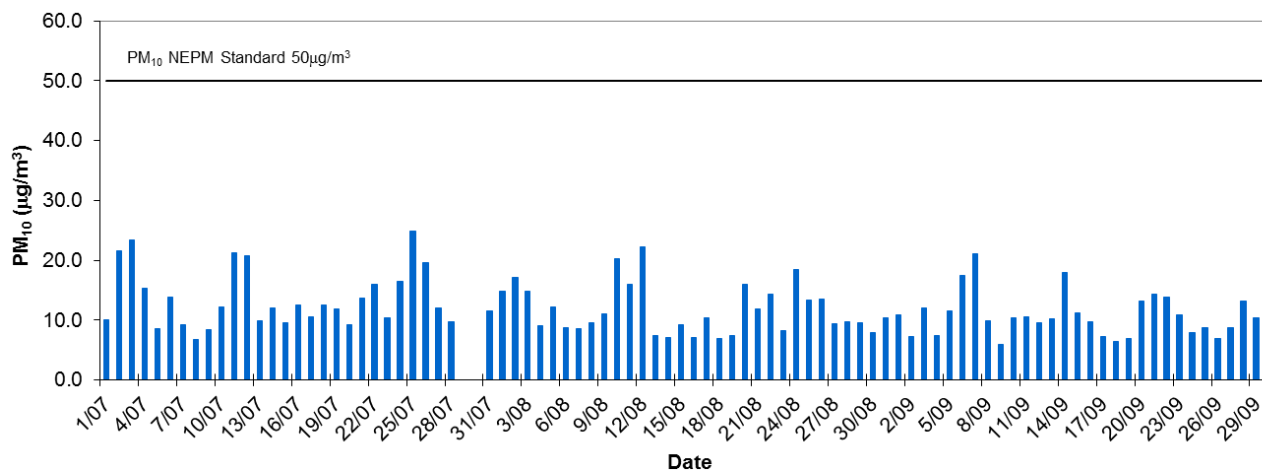
### 1.1.1 Particles (PM<sub>10</sub>)

- The 24-hour NEPM Standard for PM<sub>10</sub> particles was NOT exceeded at Southern Adelaide this quarter.
- Total NEPM Exceedence days for 2015

Southern Adelaide: 0

- This is less than the NEPM Goal of 5 per year.

Southern Adelaide Daily Average PM10 - Quarter 3, 2015



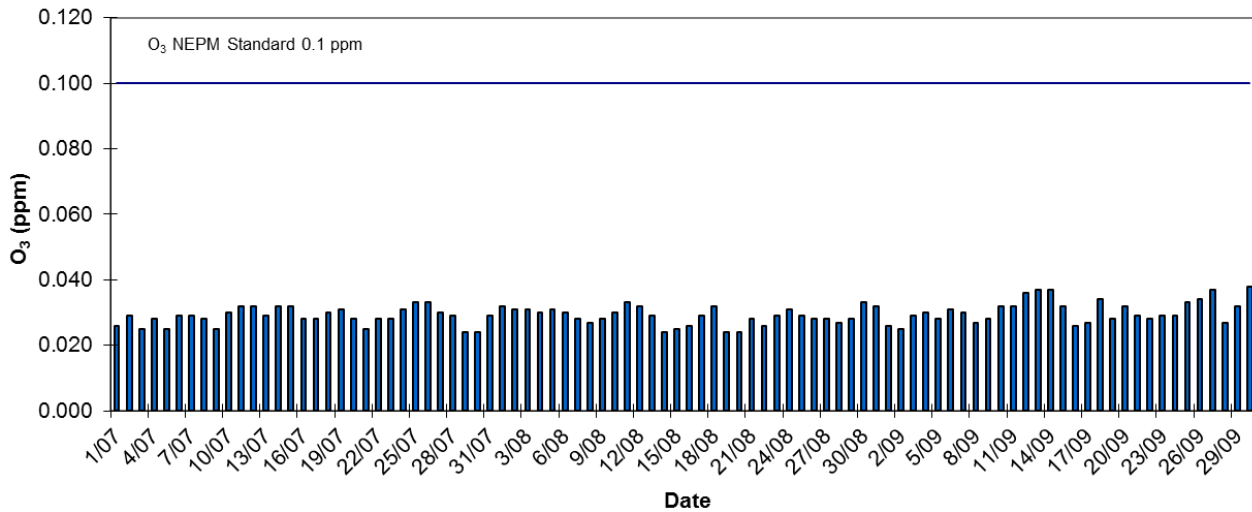
### 1.1.2 Ozone

- The 1-hour NEPM Standard for ozone was NOT exceeded on at Southern Adelaide in this quarter.
- Total NEPM Exceedence days for 2015

Southern Adelaide: 0

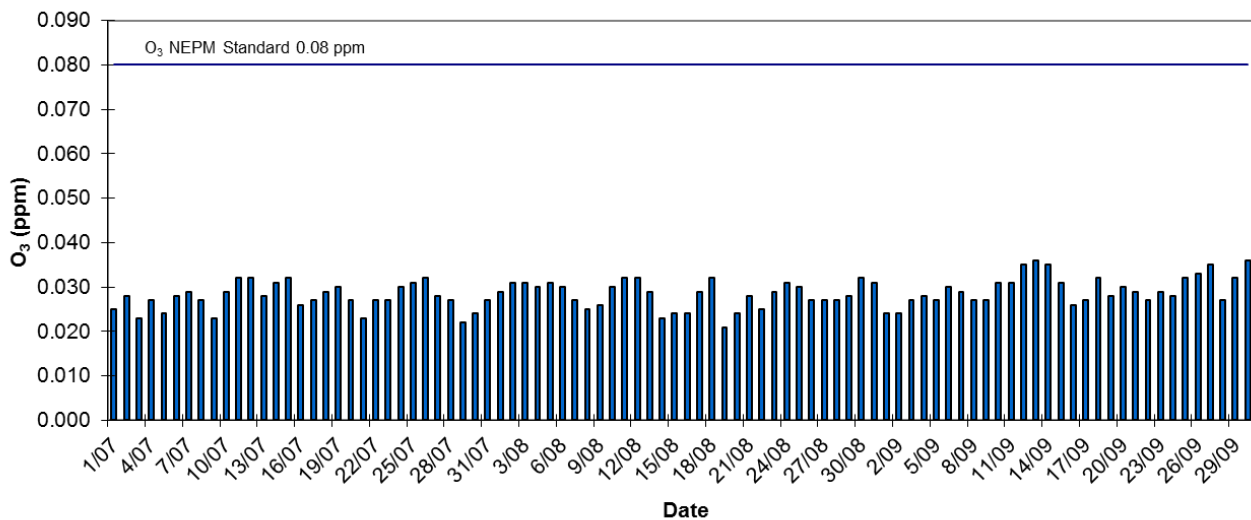
- This is less than the NEPM Goal of once per year.

## Southern Adelaide 1 Hr Daily Maxima O3 - Quarter 3, 2015



- The 4-hour NEPM Standard for ozone was NOT exceeded at Southern Adelaide in this quarter.
- Total NEPM Exceedence days for 2015  
Southern Adelaide: 0
- This is less than the NEPM Goal of once per year.

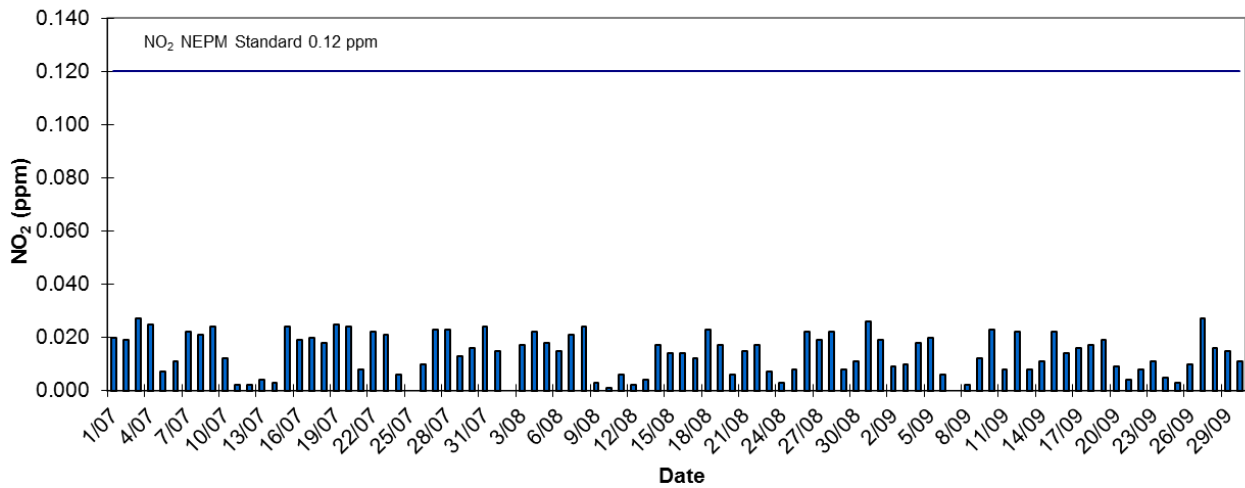
## Southern Adelaide 4 Hr Daily Maxima O3 - Quarter 3, 2015



## 1.1.3 Nitrogen dioxide

- The 1-hour NEPM Standard for nitrogen dioxide was NOT exceeded at Southern Adelaide in this quarter.
- Total NEPM Exceedence days for 2015  
Southern Adelaide: 0
- This is less than the NEPM Goal of once per year.

**Southern Adelaide 1 Hr Daily Maxima NO2 - Quarter 3, 2015**



**1.2 Northern Adelaide**

Air quality in Northern Adelaide was generally good this quarter.

**1.2.1 Particles (PM<sub>10</sub>)**

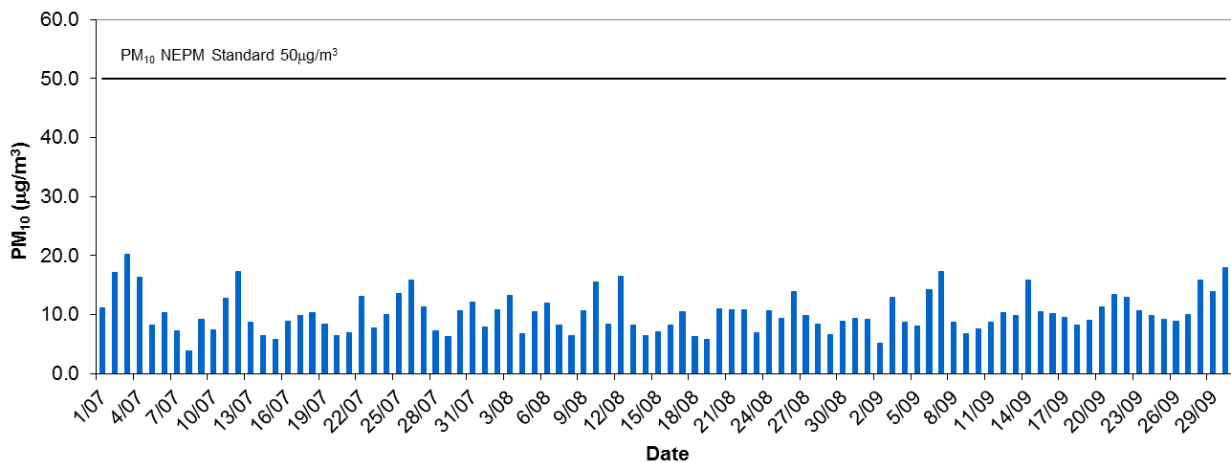
- The 24hr NEPM Standard for PM<sub>10</sub> particles was NOT exceeded at Northern Adelaide this quarter

- Total NEPM Exceedence days for 2015

Northern Adelaide: 1

- This is less than the NEPM Goal of 5 per year.

**Northern Adelaide Daily Average PM10 - Quarter 3, 2015**



**1.2.2 Ozone**

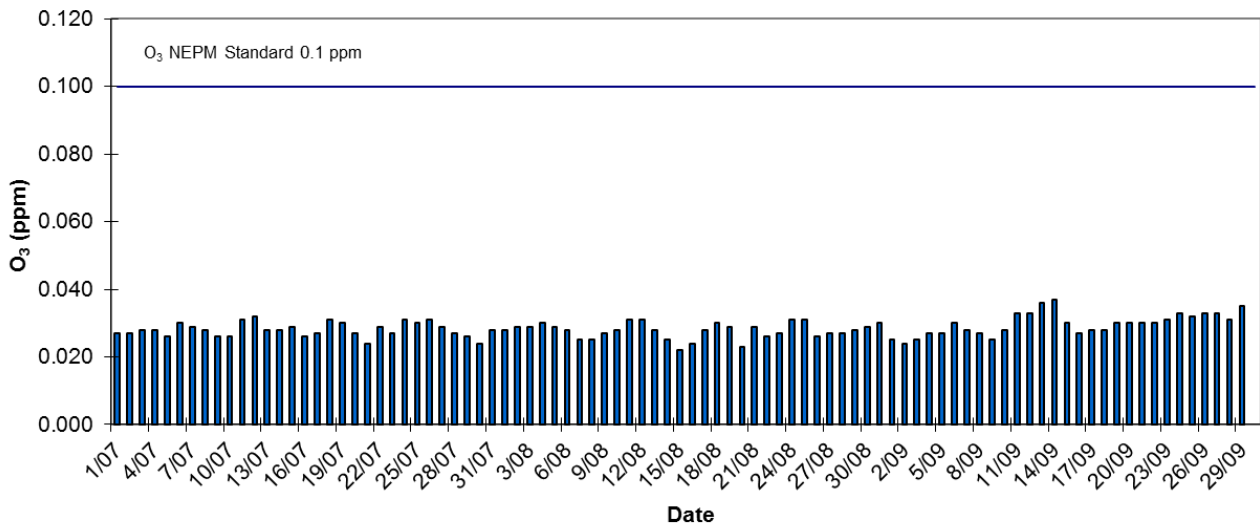
- The 1-hour NEPM Standard for ozone was NOT exceeded at Northern Adelaide in this quarter.

- Total NEPM Exceedence days for 2015

Northern Adelaide: 0

- This is less than the NEPM Goal of once per year.

### Northern Adelaide 1 Hr Daily Maxima O<sub>3</sub> - Quarter 3, 2015

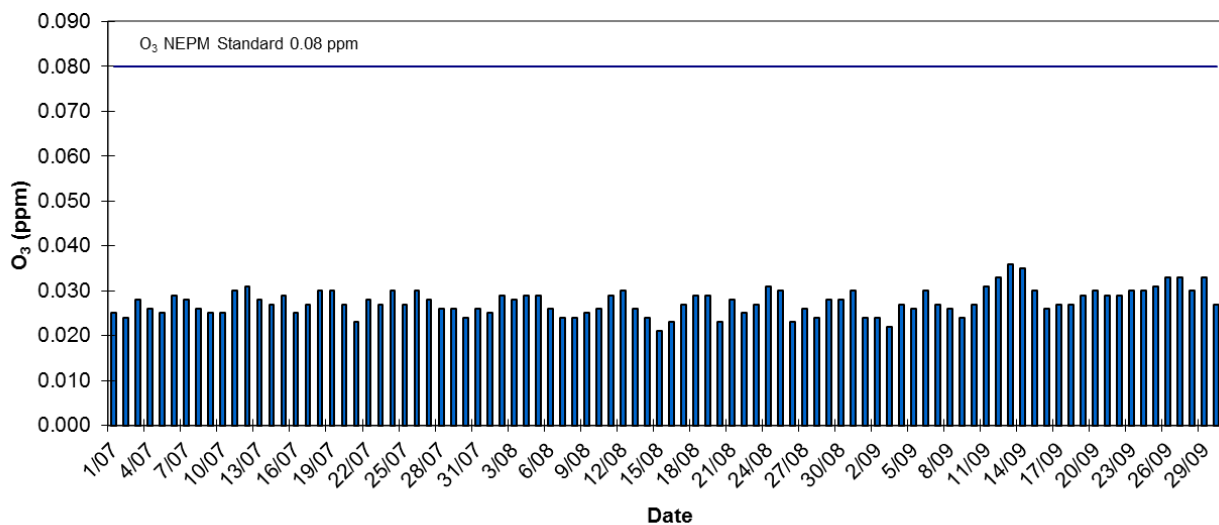


- The 4-hour NEPM Standard for ozone was NOT exceeded at Northern Adelaide in this quarter.
- Total NEPM Exceedence days for 2015

Northern Adelaide: 0

This is less than the NEPM Goal of once per year.

### Northern Adelaide 4 Hr Daily Maxima O<sub>3</sub> - Quarter 3, 2015



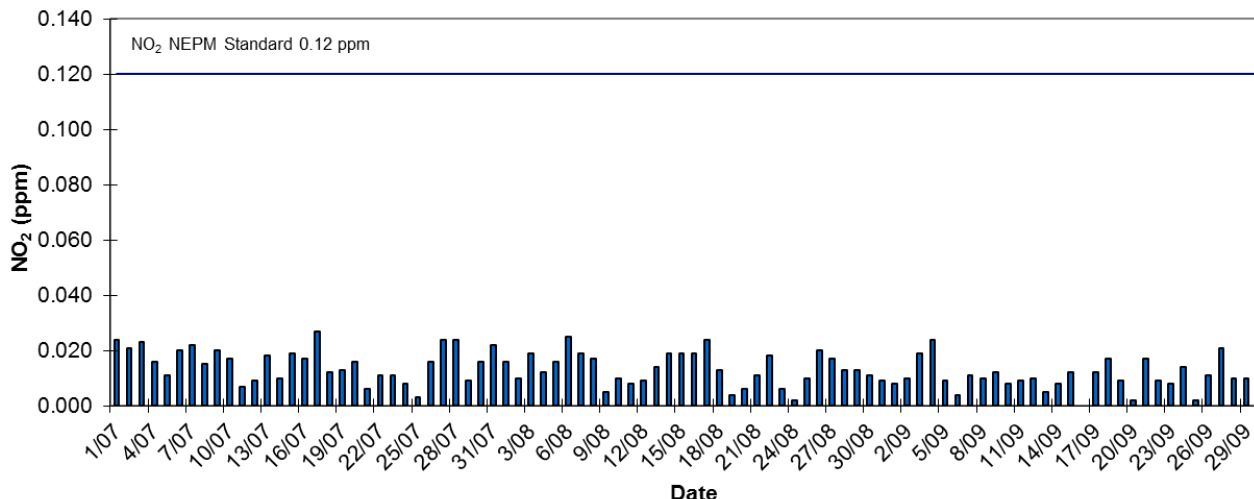
#### 1.2.3 Nitrogen dioxide

- The 1-hour NEPM Standard for nitrogen dioxide was NOT exceeded at Northern Adelaide in this quarter.
- Total NEPM Exceedence days for 2015

Northern Adelaide: 0

- This is less than the NEPM Goal of once per year.

### Northern Adelaide 1 Hr Daily Maxima NO2 - Quarter 3, 2015



#### 1.2.4 Carbon monoxide

- The 8-hour NEPM Standard for carbon monoxide was NOT exceeded at Northern Adelaide in this quarter. The concentration is consistently very low hence the 8-hour daily maxima graph is not shown unless a significant event occurs.
- Total NEPM Exceedence days for 2015
  - Northern Adelaide: 0
- This is less than the NEPM Goal of once per year.

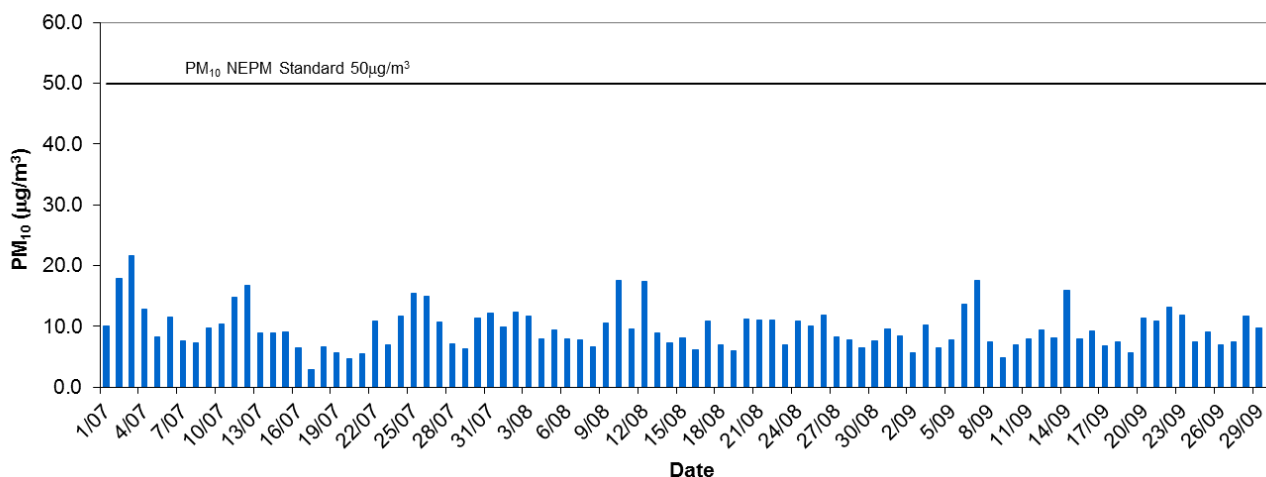
### 1.3 Eastern Adelaide

Air quality in Eastern Adelaide was good this quarter.

#### 1.3.1 Particles (PM<sub>10</sub>)

- The 24-hour NEPM Standard for PM<sub>10</sub> particles was NOT exceeded at Eastern Adelaide this quarter.
- NEPM Exceedence days for 2015
  - Eastern Adelaide: 1
- This is less than the NEPM Goal of 5 per year.

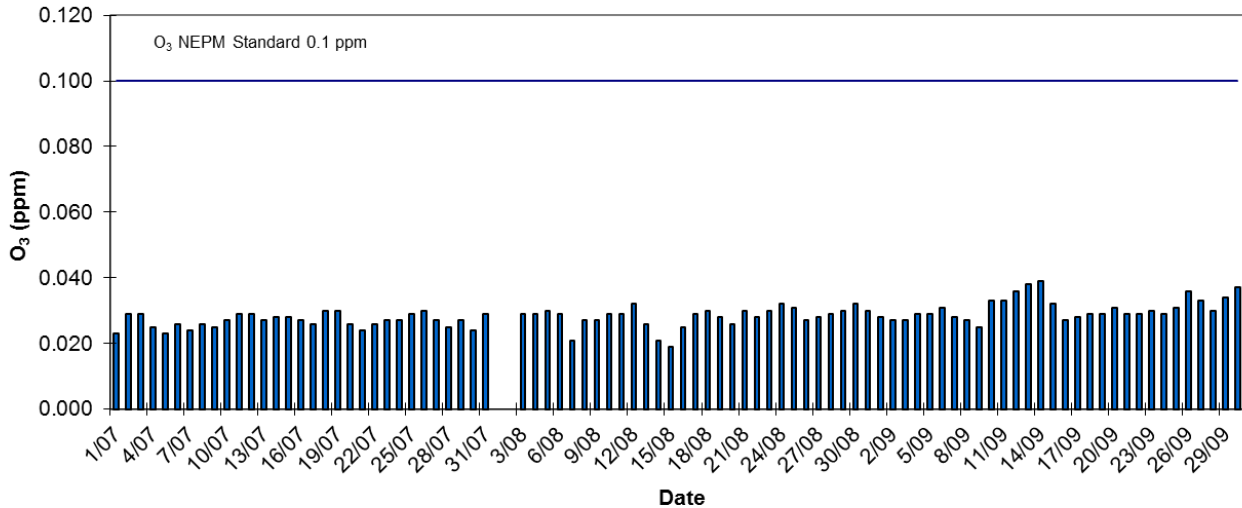
### Eastern Adelaide Daily Average PM10 - Quarter 3, 2015



### 1.3.2 Ozone

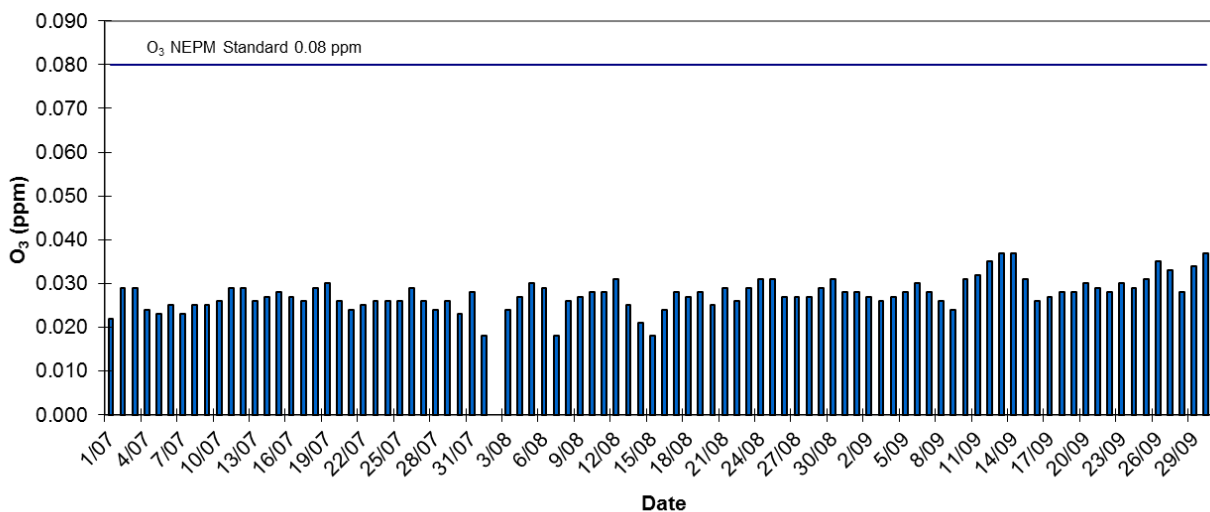
- The 1-hour NEPM Standard for ozone was NOT exceeded at Eastern Adelaide in this quarter.
- Total NEPM Exceedence days for 2015  
Eastern Adelaide: 0
- This is less than the NEPM Goal of once per year.

**Eastern Adelaide 1 Hr Daily Maxima O3 - Quarter 3, 2015**



- The 4-hour NEPM Standard for ozone was NOT exceeded at Eastern Adelaide in this quarter.
- Total NEPM Exceedence days for 2015  
Eastern Adelaide: 0
- This is less than the NEPM Goal of once per year.

**Eastern Adelaide 4 Hr Daily Maxima O3 - Quarter 3, 2015**



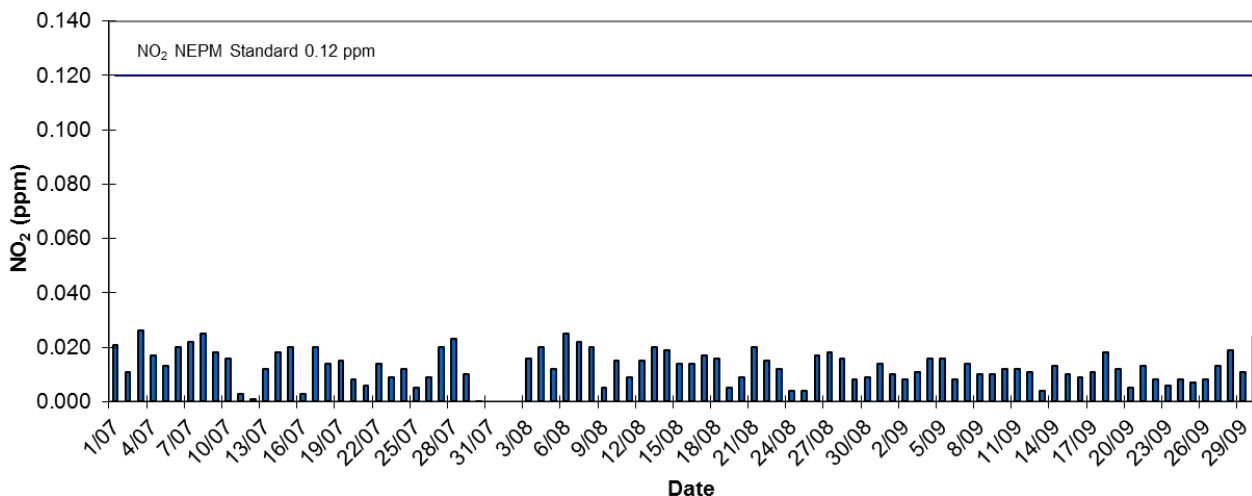
### 1.3.3 Nitrogen dioxide

- The 1-hour NEPM Standard for nitrogen dioxide was NOT exceeded at Eastern Adelaide in this quarter.
- Total NEPM Exceedence days for 2015

Eastern Adelaide: 0

- This is less than the NEPM Goal of once per year.

**Eastern Adelaide 1 Hr Daily Maxima NO<sub>2</sub> - Quarter 3, 2015**



### 1.4 Northwestern Adelaide

A new site was established in March 2013 in the Northwestern region. As a result the original station has been renamed Le Fevre 1 with the new station named Le Fevre 2.

Air quality in Northwestern Adelaide was generally good this quarter.

#### Le Fevre 1

##### 1.4.1 Particles (PM<sub>10</sub>)

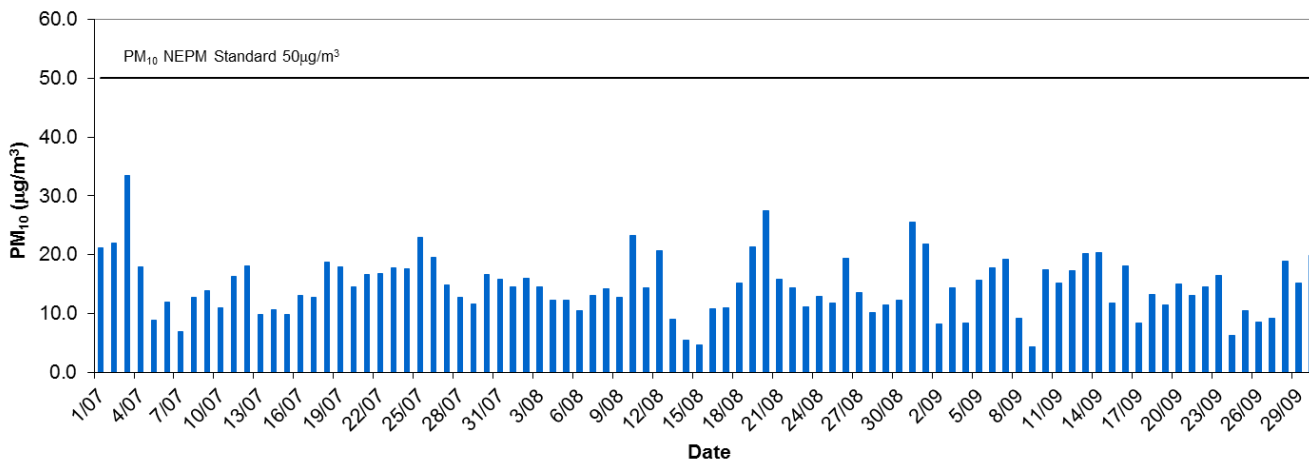
The 24-hour NEPM Standard for PM<sub>10</sub> particles was NOT exceeded at Le Fevre 1 this quarter.

- Total NEPM Exceedence days for 2015

Le Fevre 1<sup>1</sup>: 1

- This is less than the NEPM Goal of 5 per year.

**Le Fevre 1 Daily Average PM<sub>10</sub> - Quarter 3, 2015**



<sup>1</sup> The number provided here is for information/comparison purposes only and does not contribute to the NEPM assessment of the air quality of the region.



## Le Fevre 2

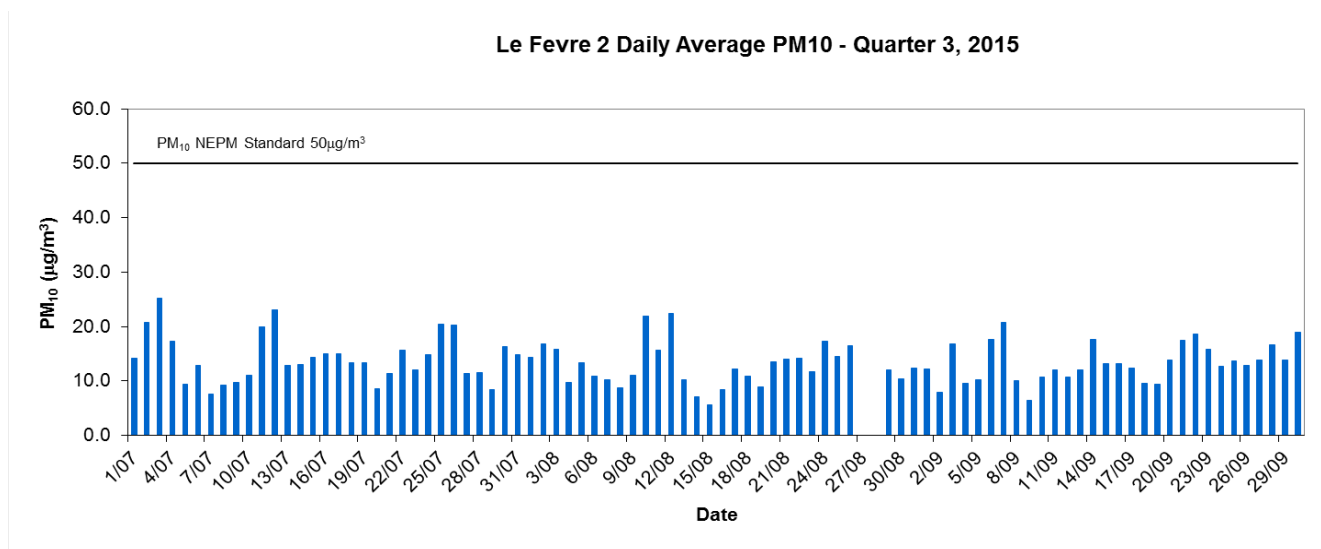
### 1.4.2 Particles (PM<sub>10</sub>)

The 24-hour NEPM Standard for PM<sub>10</sub> particles was NOT exceeded at Le Fevre 2 this quarter.

Total NEPM Exceedence days for 2015

Le Fevre 2: 1

This is less than the NEPM Goal of 5 per year.

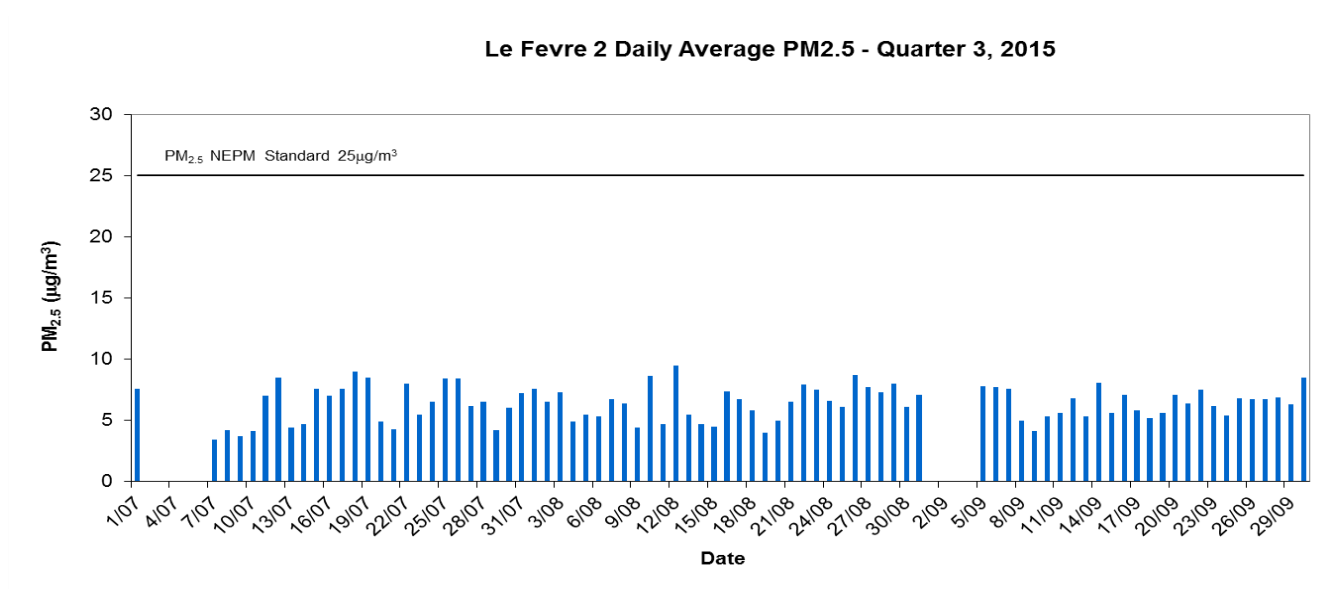


### 1.4.3 Particles (PM<sub>2.5</sub>)

- The 24-hour NEPM Advisory Standard for PM<sub>2.5</sub> particles was NOT exceeded at Le Fevre 2 this quarter.
- Total NEPM Exceedence days for 2015

Le Fevre 2: 0

This is less than the NEPM Goal of 5 per year.



### 1.4.4 Ozone

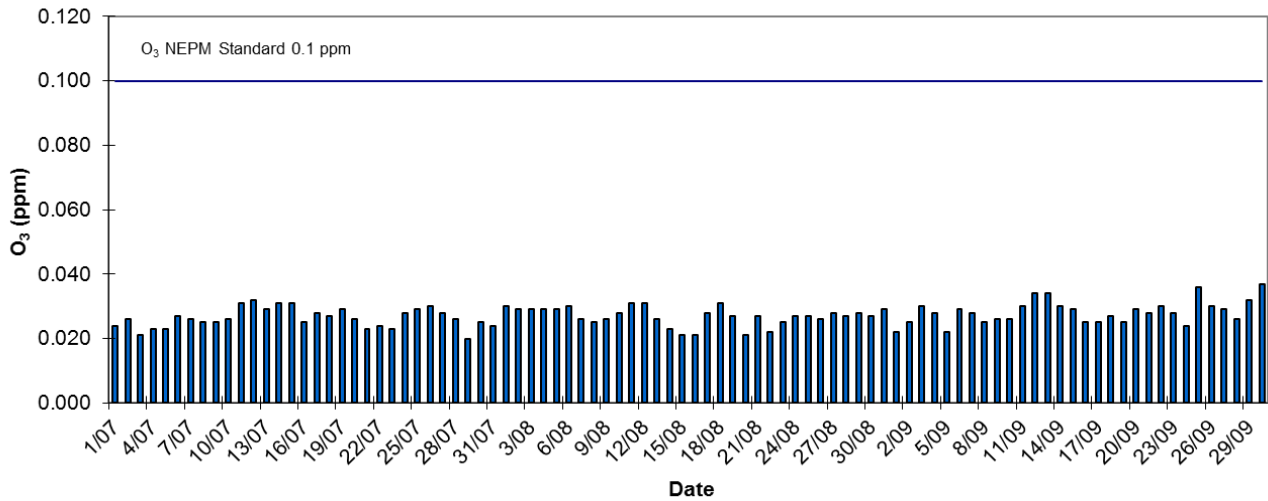
- The 1-hour NEPM Standard for ozone was NOT exceeded at Le Fevre 2 in this quarter.

- Total NEPM Exceedence days for 2015

Le Fevre 2: 0

- This is less than the NEPM Goal of once per year.

**Le Fevre 2 1 Hr Daily Maxima O3 - Quarter 3, 2015**



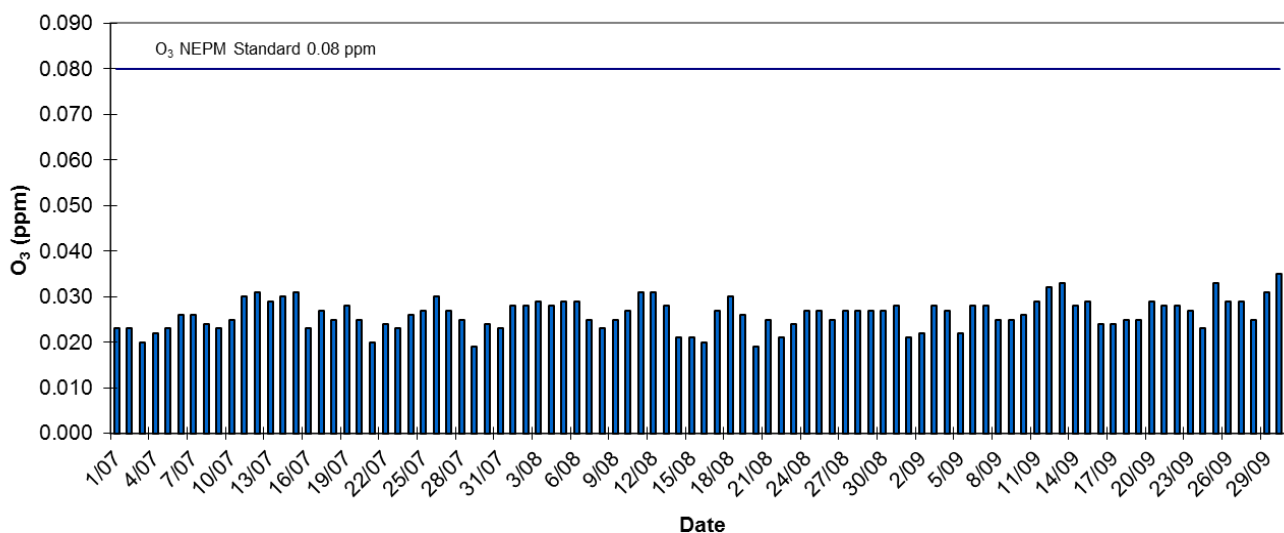
The 4-hour NEPM Standard for ozone was NOT exceeded at Le Fevre 2 in this quarter.

- Total NEPM Exceedence days for 2015

Le Fevre 2: 0

- This is less than the NEPM Goal of once per year.

**Le Fevre 2 4 Hr Daily Maxima O3 - Quarter 3, 2015**



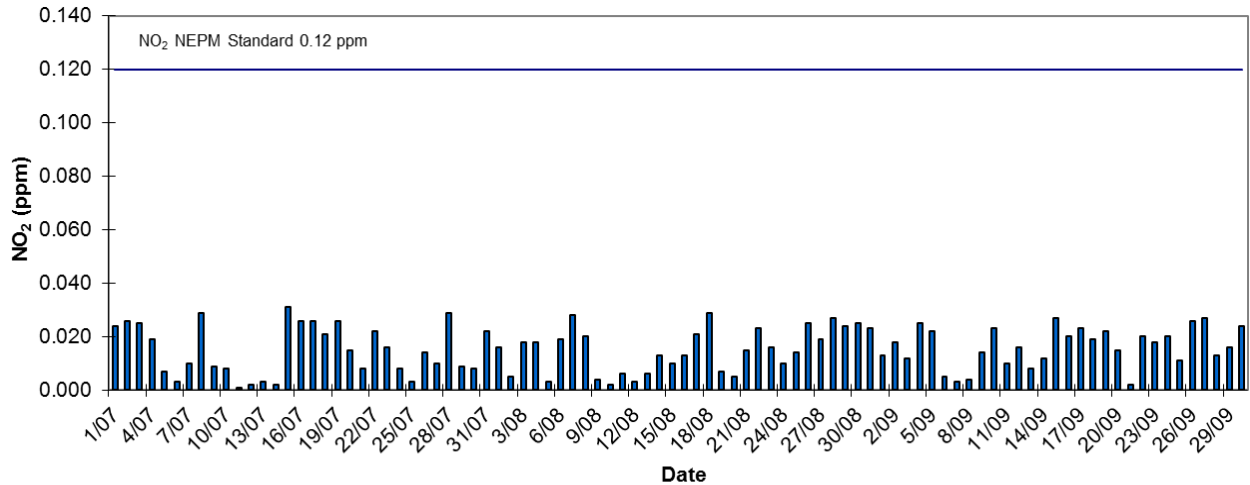
### 1.4.5 Nitrogen dioxide

- The 1-hour NEPM Standard for nitrogen dioxide was NOT exceeded at Le Fevre 2 in this quarter.

- Total NEPM Exceedence days for 2015

Le Fevre 2: 0

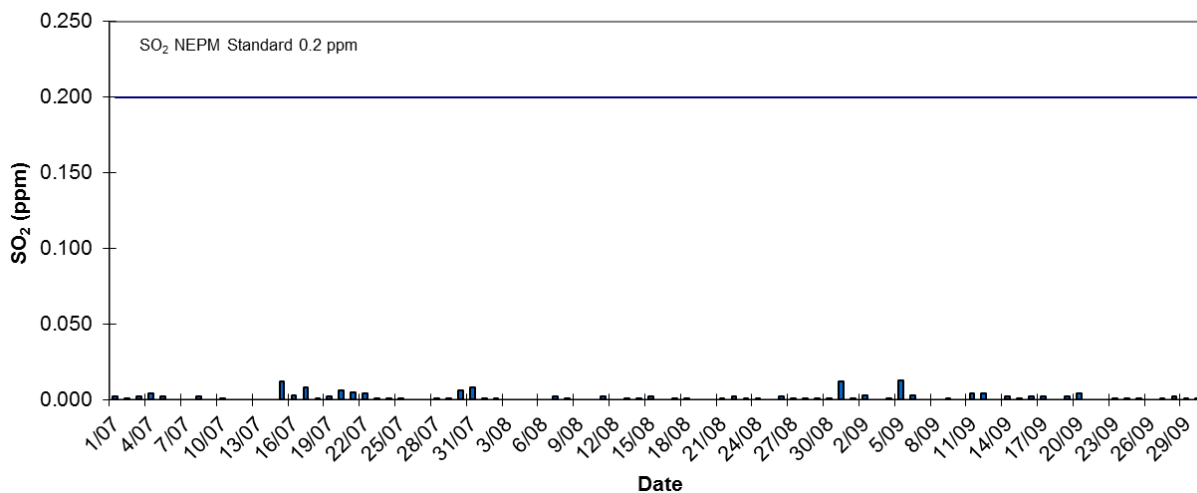
- This is less than the NEPM Goal of once per year.

Le Fevre 2 1 Hr Daily Maxima NO<sub>2</sub> - Quarter 3, 2015

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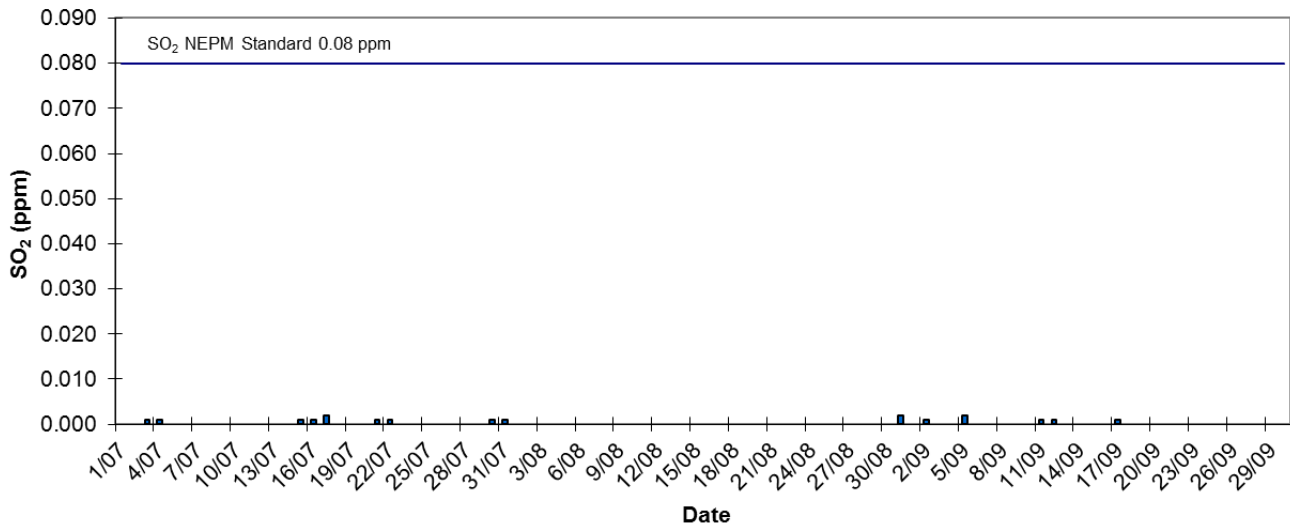
## 1.4.6 Sulfur dioxide

- The 1-hour NEPM Standard for sulfur dioxide was NOT exceeded at Le Fevre 2 in this quarter.
- Total NEPM Exceedence days for 2015  
Le Fevre 2: 0
- This is less than the NEPM Goal of once per year.

Le Fevre 2 1 Hr Daily Maxima SO<sub>2</sub> -Quarter 3, 2015

- The 24-hour NEPM Standard for sulfur dioxide was NOT exceeded at Le Fevre 2 in this quarter.
- Total NEPM Exceedence days for 2015  
Le Fevre 2: 0
- This is less than the NEPM Goal of once per year.

### Le Fevre 2 Daily Average SO<sub>2</sub> - Quarter 3, 2015



## 1.5 Western Adelaide

Air quality in Western Adelaide was generally good this quarter.

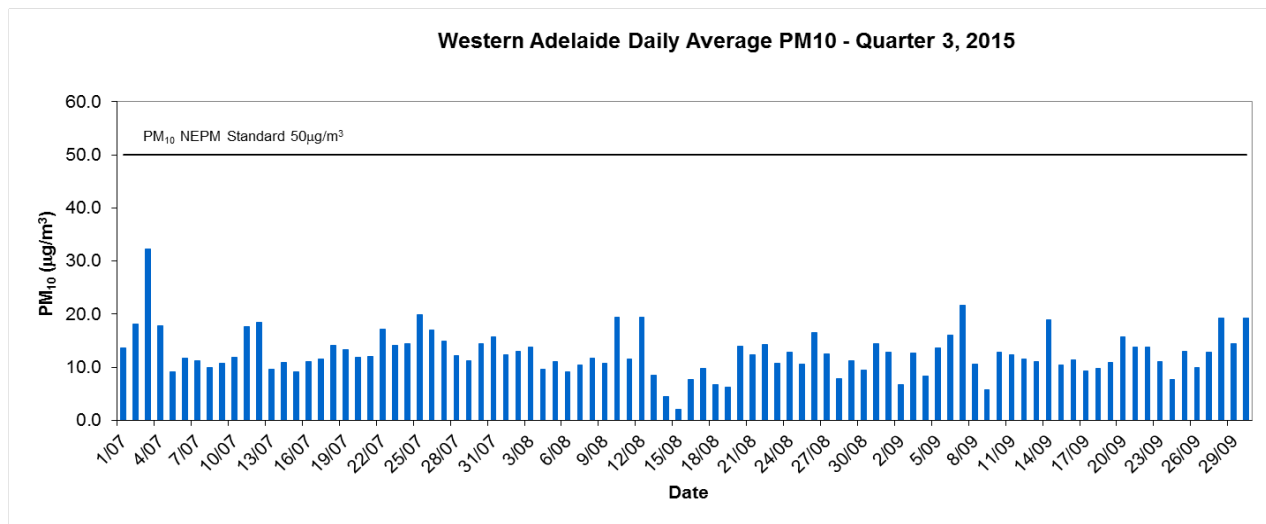
### 1.5.1 Particles (PM<sub>10</sub>)

The 24-hour NEPM Standard for PM<sub>10</sub> particles was NOT exceeded at Western Adelaide this quarter.

- Total NEPM Exceedence days for 2015

Western Adelaide: 0

- This is less than the NEPM Goal of 5 per year.



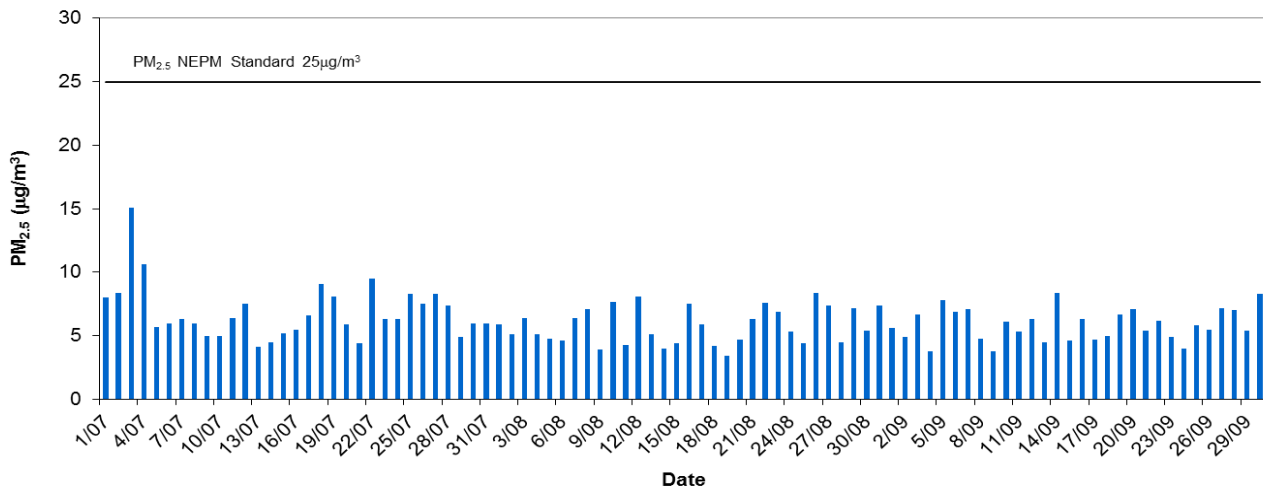
### 1.5.2 Particles (PM<sub>2.5</sub>)

- The 24-hour NEPM Advisory Standard for PM<sub>2.5</sub> particles was NOT exceeded at Western Adelaide this quarter.

- Total NEPM Exceedence days for 2015

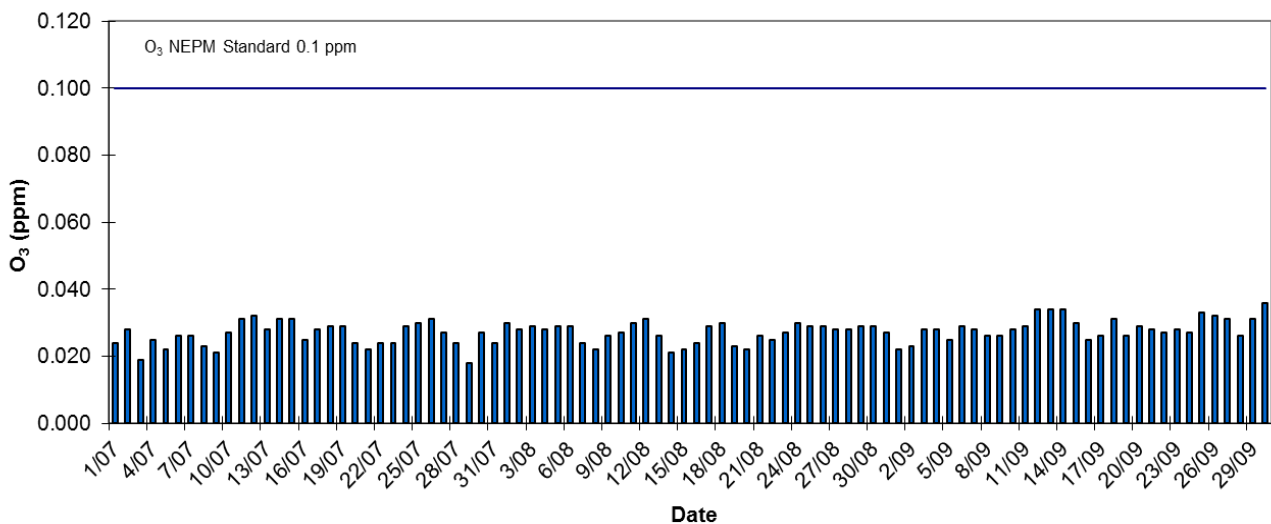
Western Adelaide: 0

- This is less than the NEPM Goal of once per year.

Western Adelaide Daily Average PM<sub>2.5</sub> - Quarter 3, 2015

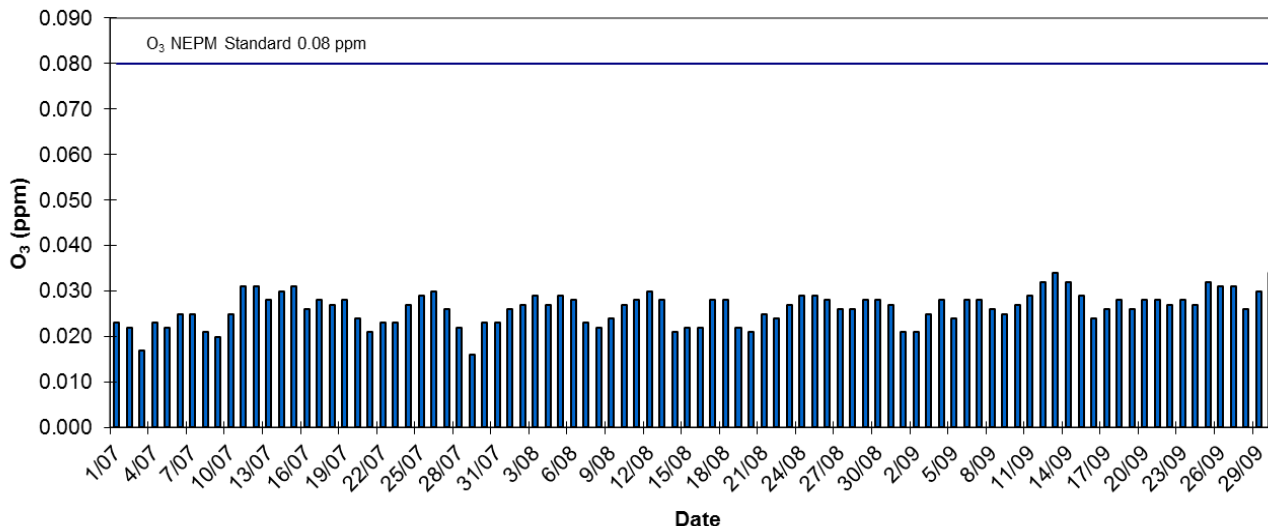
## 1.5.3 Ozone

- The 1-hour NEPM Standard for ozone was NOT exceeded at Western Adelaide in this quarter.
- Total NEPM Exceedence days for 2015  
Western Adelaide: 0
- This is less than the NEPM Goal of once per year.

Western Adelaide 1 Hr Daily Maxima O<sub>3</sub> - Quarter 3, 2015

- The 4-hour NEPM Standard for ozone was NOT exceeded at Western Adelaide in this quarter.
- Total NEPM Exceedence days for 2015  
Western Adelaide: 0
- This is less than the NEPM Goal of once per year.

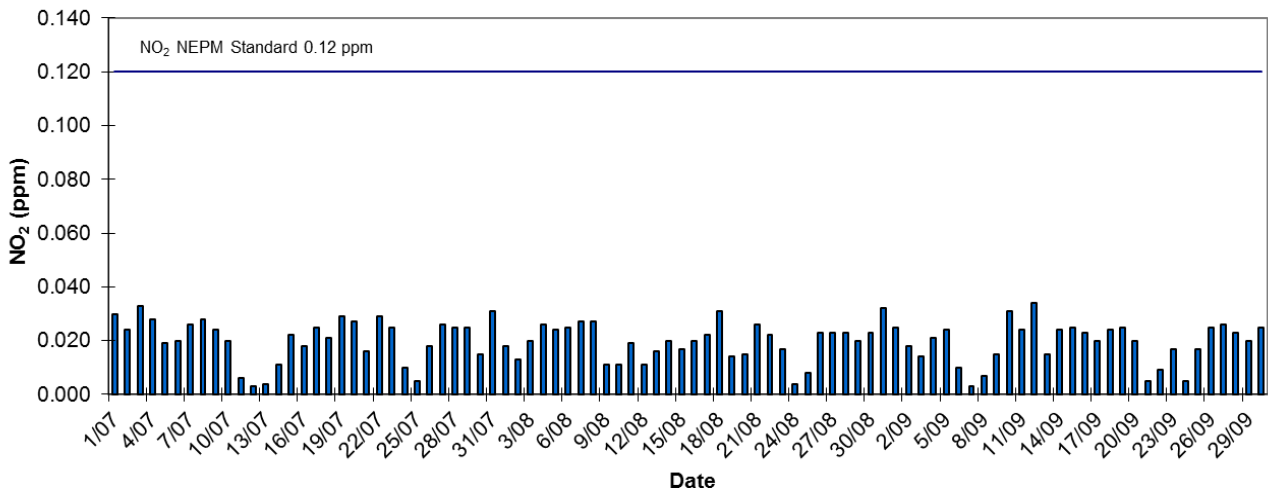
### Western Adelaide 4 Hr Daily Maxima O3 - Quarter 3, 2015



#### 1.5.4 Nitrogen dioxide

- The 1-hour NEPM Standard for nitrogen dioxide was NOT exceeded at Western Adelaide in this quarter.
- Total NEPM Exceedence days for 2015  
 Western Adelaide: 0
- This is less than the NEPM Goal of once per year.

### Western Adelaide 1 Hr Daily Maxima NO2 - Quarter 3, 2015



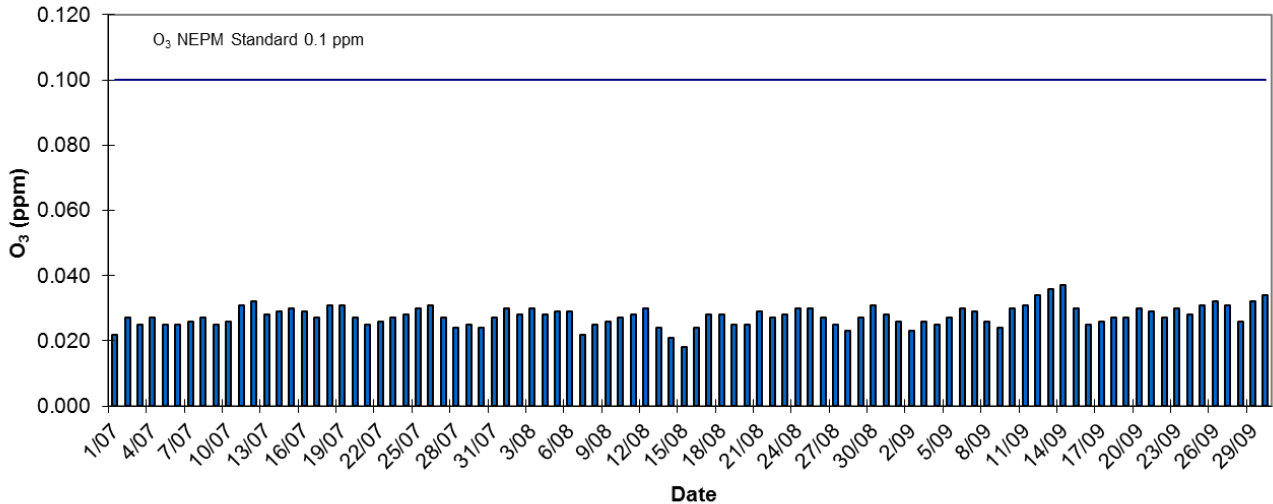
#### 1.6 Northeastern Adelaide

Air quality in Northeastern Adelaide was good this quarter

##### 1.6.1 Ozone

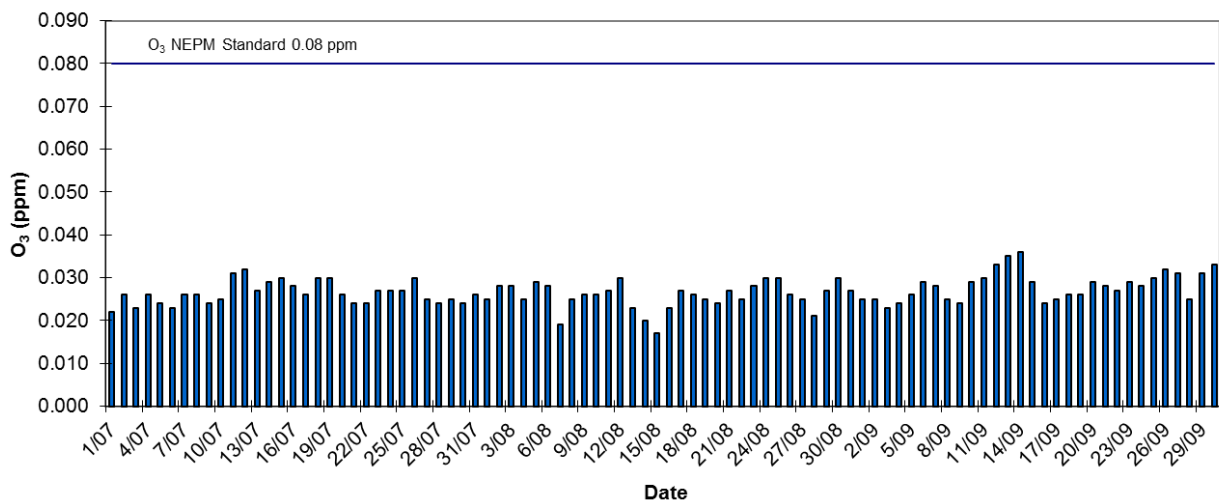
- The 1-hour NEPM Standard for ozone was NOT exceeded at Northeastern Adelaide in this quarter.
- Total NEPM Exceedence days for 2015  
 Northeastern Adelaide: 0
- This is less than the NEPM Goal of once per year.

### Northeastern Adelaide 1 Hr Daily Maxima O<sub>3</sub> - Quarter 3, 2015



- The 4-hour NEPM Standard for ozone was NOT exceeded at Northeastern Adelaide in this quarter.
- Total NEPM Exceedence days for 2015  
Northeastern Adelaide: 0
- This is less than the NEPM Goal of once per year.

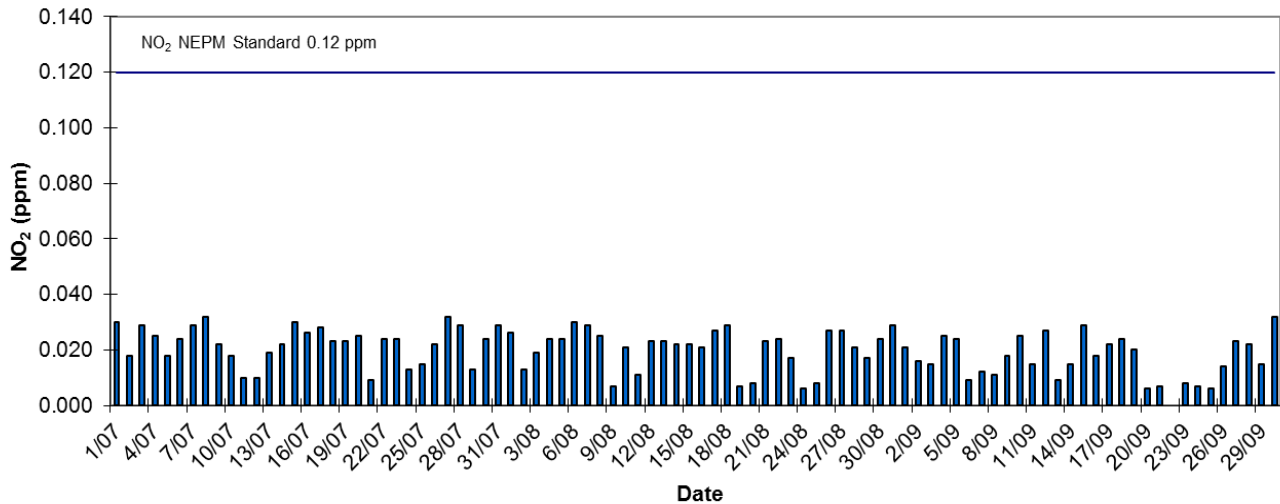
### Northeastern Adelaide 4 Hr Daily Maxima O<sub>3</sub> - Quarter 3, 2015



#### 1.6.2 Nitrogen dioxide

- The 1-hour NEPM Standard for nitrogen dioxide was NOT exceeded at Northeastern Adelaide in this quarter.
- Total NEPM Exceedence days for 2015  
Northeastern Adelaide: 0
- This is less than the NEPM Goal of once per year.

### Northeastern Adelaide 1 Hr Daily Maxima NO2 - Quarter 3, 2015



#### 1.6.3 Sulfur dioxide

Sulfur dioxide is continuously monitored at Northeastern Adelaide. However, the concentration is consistently very low hence the 1-hour daily maxima and daily average graphs are not shown unless a significant event occurs.

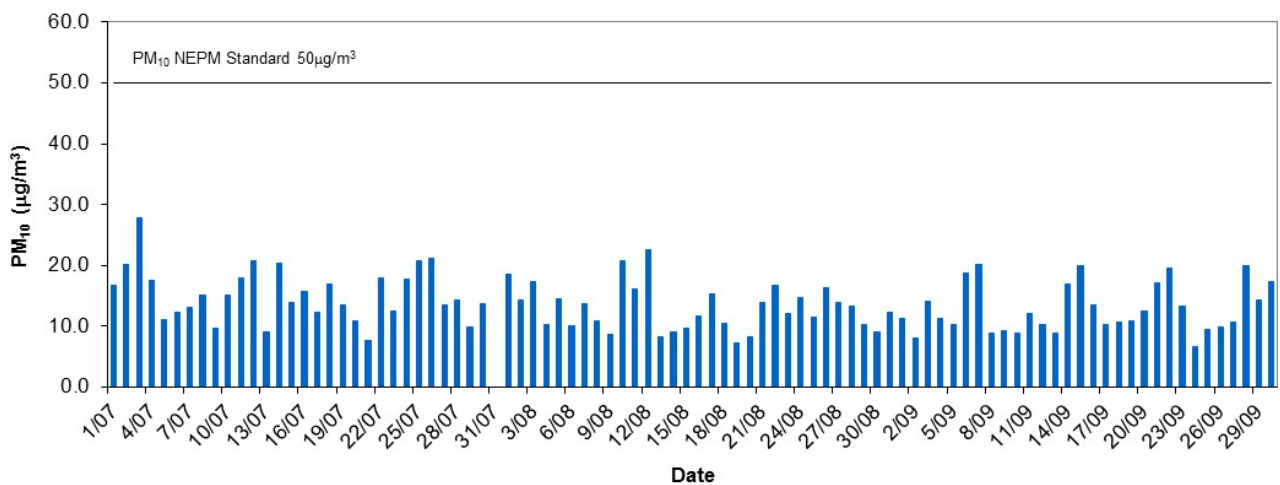
### 1.7 Adelaide CBD

The Adelaide CBD station was established in May 2014. Air quality in Adelaide CBD was generally good this quarter

#### 1.7.1 Particles (PM<sub>10</sub>)

- The 24-hour NEPM Standard for PM<sub>10</sub> particles was NOT exceeded at Adelaide CBD this quarter.
- Total NEPM Exceedence days for 2015  
Adelaide CBD: 1
- This is less than the NEPM Goal of 5 per year.

#### Adelaide CBD Daily Average PM10 - Quarter 3, 2015



#### 1.7.2 Particles (PM<sub>2.5</sub>)

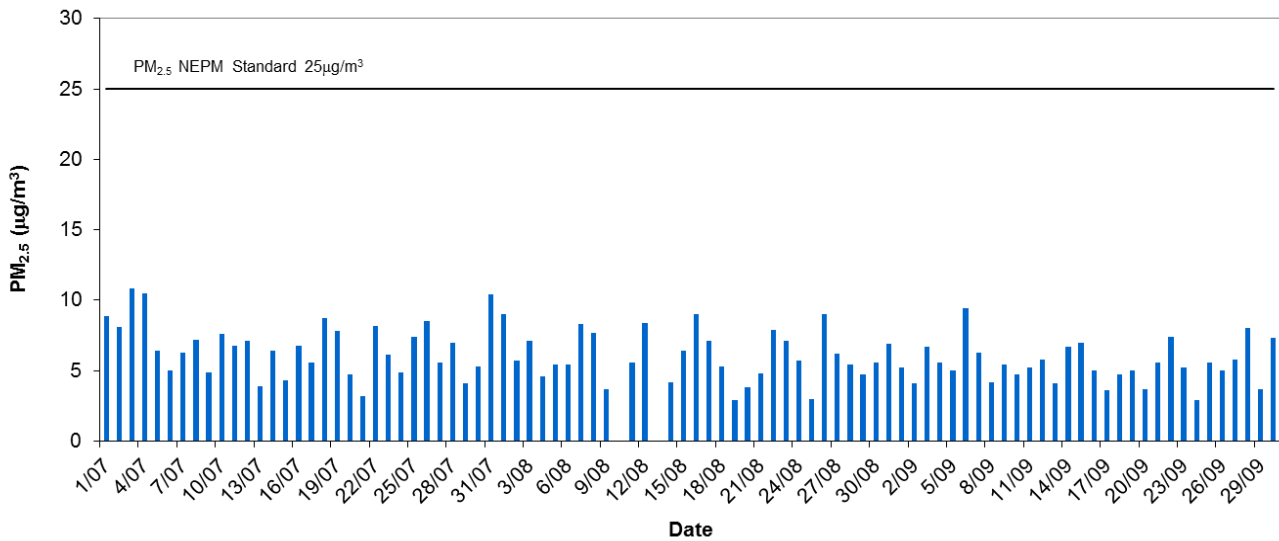
- The 24-hour NEPM Advisory Standard for PM<sub>2.5</sub> particles was NOT exceeded at Adelaide CBD this quarter.



- Total NEPM Exceedence days for 2015

Adelaide CBD: 0

**Adelaide CBD Daily Average PM<sub>2.5</sub> - Quarter 3, 2015**



### 1.7.3 Nitrogen dioxide

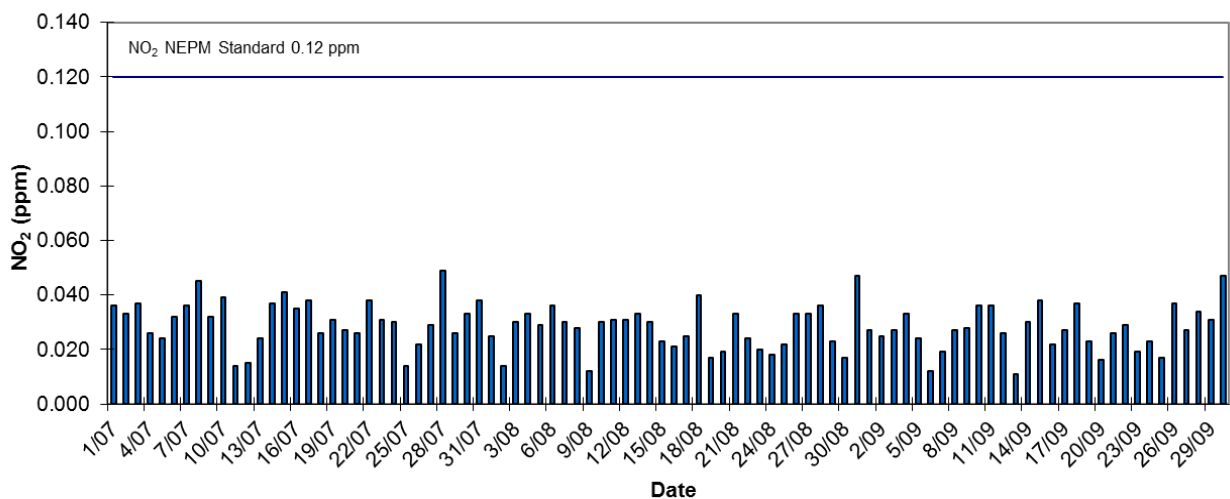
- The 1-hour NEPM Standard for nitrogen dioxide was NOT exceeded at Adelaide CBD in this quarter.

- Total NEPM Exceedence days for 2015

Adelaide CBD: 0

- This is less than the NEPM Goal of once per year.

**Adelaide CBD 1 Hr Daily Maxima NO<sub>2</sub> - Quarter 3, 2015**



### 1.7.4 Carbon monoxide

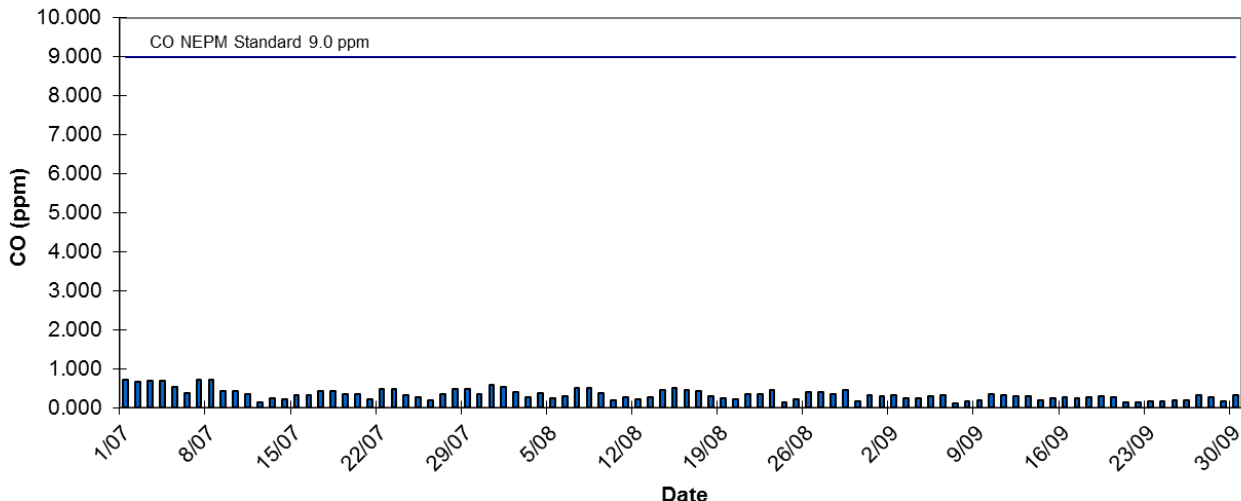
- The 8-hour NEPM Standard for carbon monoxide was NOT exceeded at Adelaide CBD in this quarter.

- Total NEPM Exceedence days for 2015

Adelaide CBD: 0

- This is less than the NEPM Goal of once per year.

**Adelaide CBD 8 Hr Daily Maxima CO - Quarter 3, 2015**



**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 here.

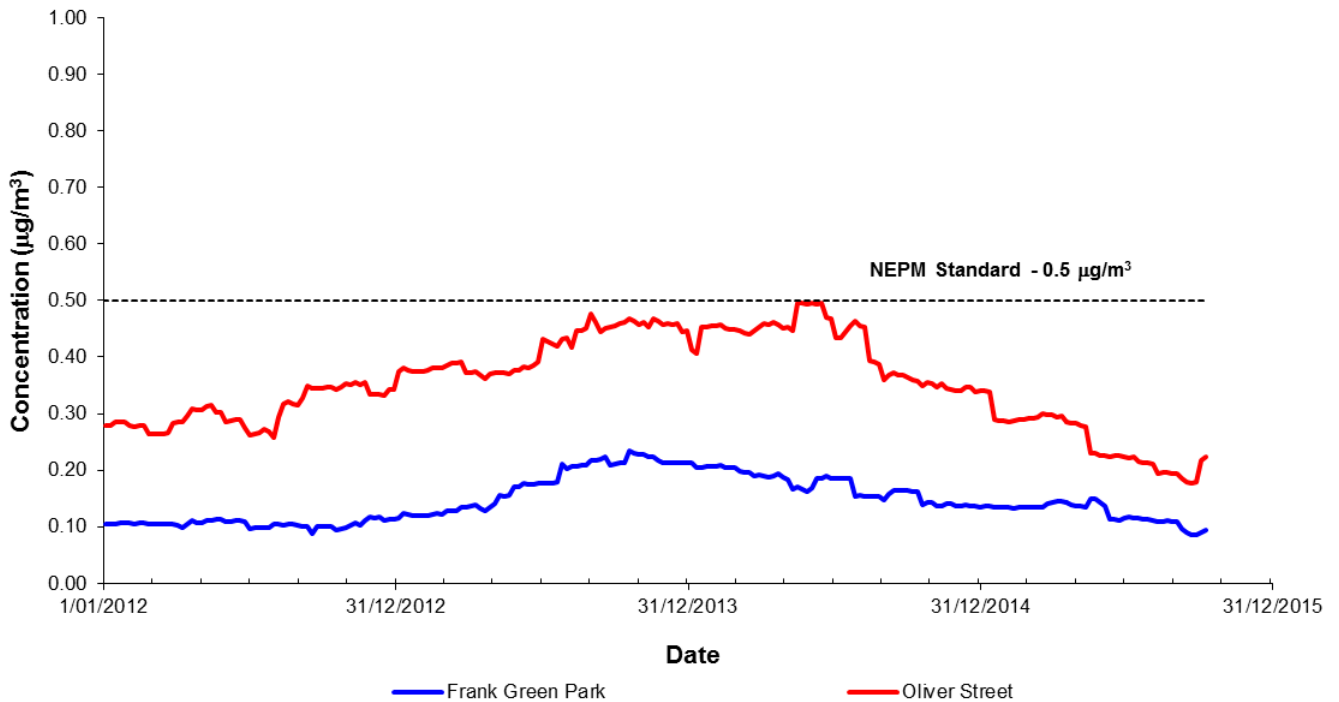
Monitoring is undertaken at 4 sites in Port Pirie. All sites monitor for lead whilst Oliver St also monitors sulfur dioxide and particles as well. Oliver St along with Frank Green Park, report against the Air NEPM with the other two sites, Pirie West Primary and Ellen St, used, historically along with Oliver St, to monitor industry licence targets. These two sites are now used to monitor the trend in concentration of lead over time.

**2.1.1 Lead**

The rolling annual average of lead in air at Frank Green Park and Oliver Street sites to 9 October 2015 are shown below. There has been an increasing trend at Oliver Street since January 2012, however since June 2014 the concentration average has been decreasing.

- The rolling annual average of lead in air at Frank Green Park was decreasing prior to October 2012. There was an increasing average from November 2012 to October 2013, however since November 2013 the average has been showing a decreasing trend.

## Pt Pirie Rolling 365 Day Average TSP Lead NEPM Sites - Quarter 3, 2015



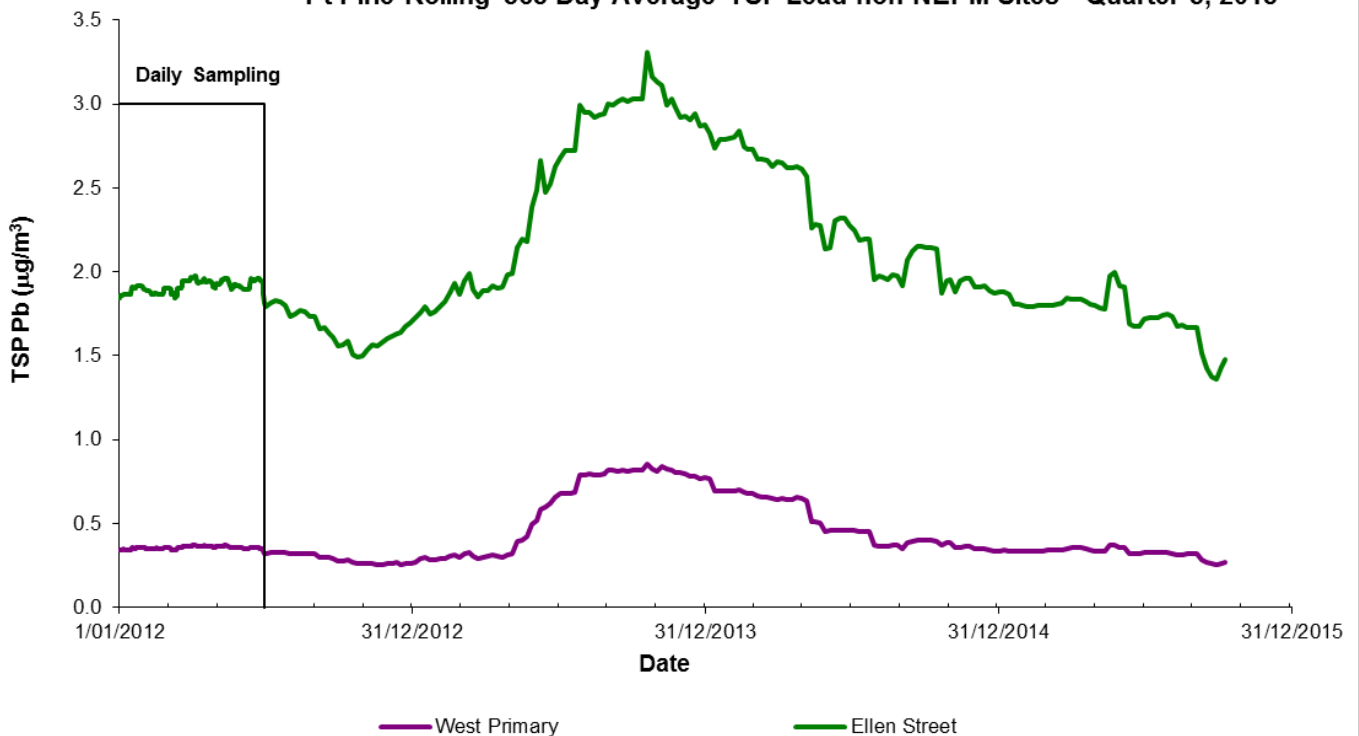
The rolling annual averages of lead in air at the Ellen Street and Pirie West sites to 9 October 2015 are shown below.

- From the end of April 2013 to October 2013 there was a marked increase in rolling annual average values at both sites, however since October 2013 they have been showing a decrease in average values.

Notes:

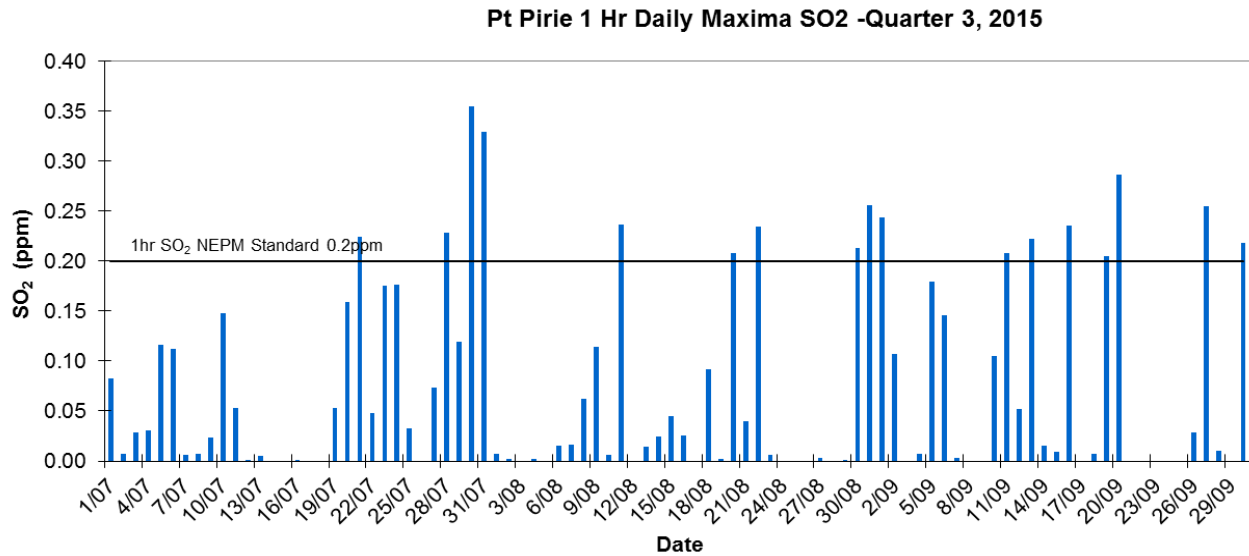
- Daily sampling has been conducted at the Ellen Street and West Primary sites since 28 October 2010 until 30 June 2012 and these data are incorporated into the rolling averages for those sites.
- From 1 November 2011 a 365-day rolling average has been used.

## Pt Pirie Rolling 365 Day Average TSP Lead non NEPM Sites - Quarter 3, 2015



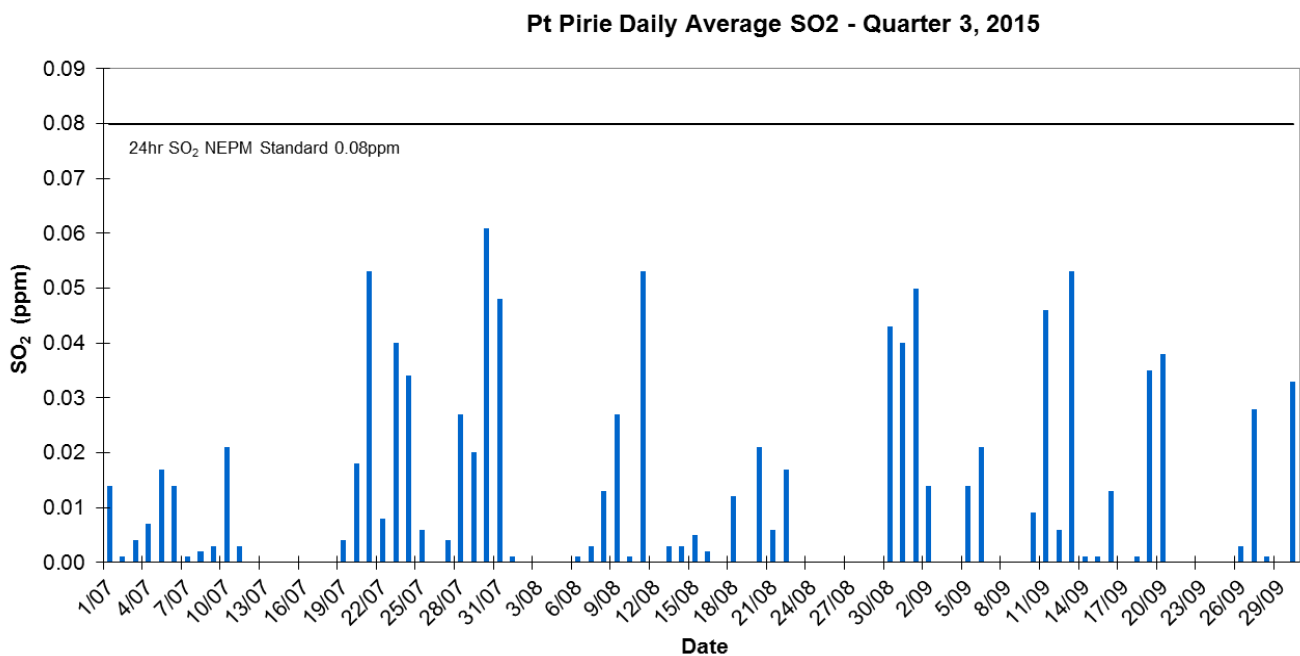
### 2.1.2 Sulfur dioxide

- The 1-hour NEPM Standard for sulfur dioxide was exceeded on **17** occasions at Pt Pirie in this quarter.
- Total NEPM Exceedence days for 2015  
 Oliver St: **46**
- This is greater than the NEPM Goal of once per year.



The 24-hour NEPM Standard for sulfur dioxide NOT was exceeded at Pt Pirie in this quarter.

- Total NEPM Exceedence days for 2015  
 Oliver St: **2**
- This is greater than the NEPM Goal of once per year.



### 2.1.3 Particles (PM<sub>10</sub>)

The 24-hour NEPM Standard for PM<sub>10</sub> particles was NOT exceeded at either site this quarter. The EPA operates a station on behalf of Dept of Health (The Terrace).

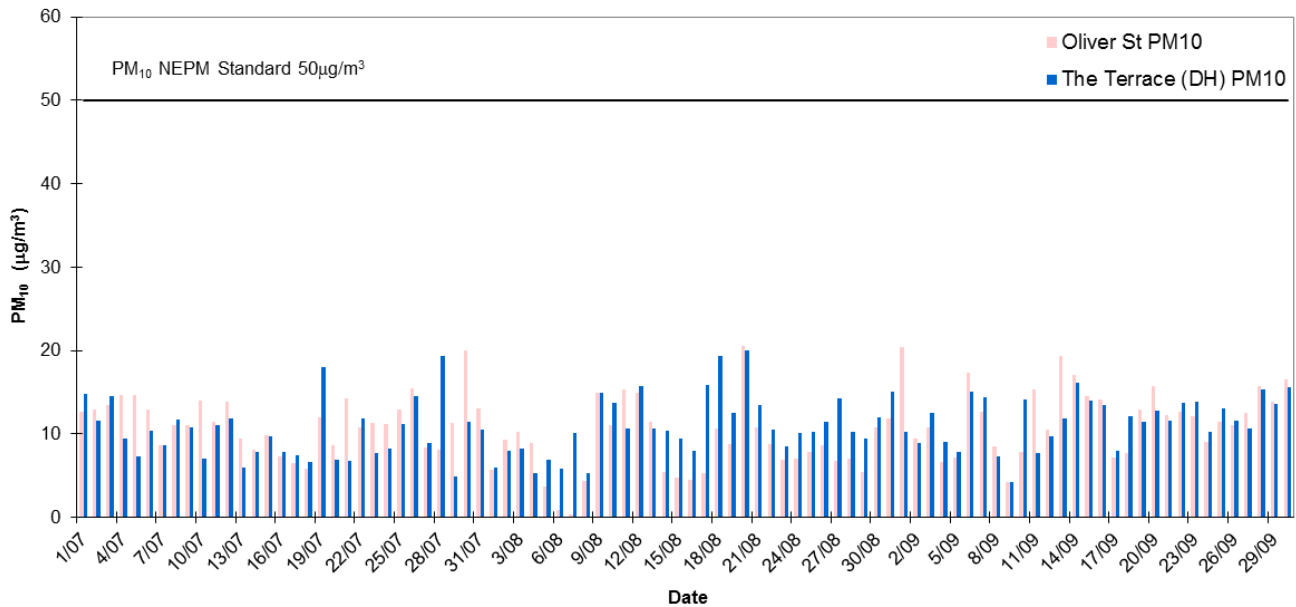
Total NEPM Exceedence days for 2015

Oliver St: 1

The Terrace<sup>2</sup>: 0

This is less than the NEPM Goal of 5 per year at Oliver Street.

Pt Pirie Daily Average PM<sub>10</sub> - Quarter 3, 2015



## 2.2 Whyalla

In Whyalla 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 affect air quality in Whyalla. Monitoring is undertaken at 2 sites in Whyalla; Schulz Reserve and Walls St. Schulz Reserve reports against the Air NEPM with Walls St monitoring industry licence conditions in conjunction with Schulz Reserve.

### 2.2.1 Particles (PM<sub>10</sub>)

- The 24-hour NEPM Standard (PM<sub>10</sub>) was exceeded on **2** occasions at the Walls St site this quarter.
- Total NEPM Exceedence days for 2015

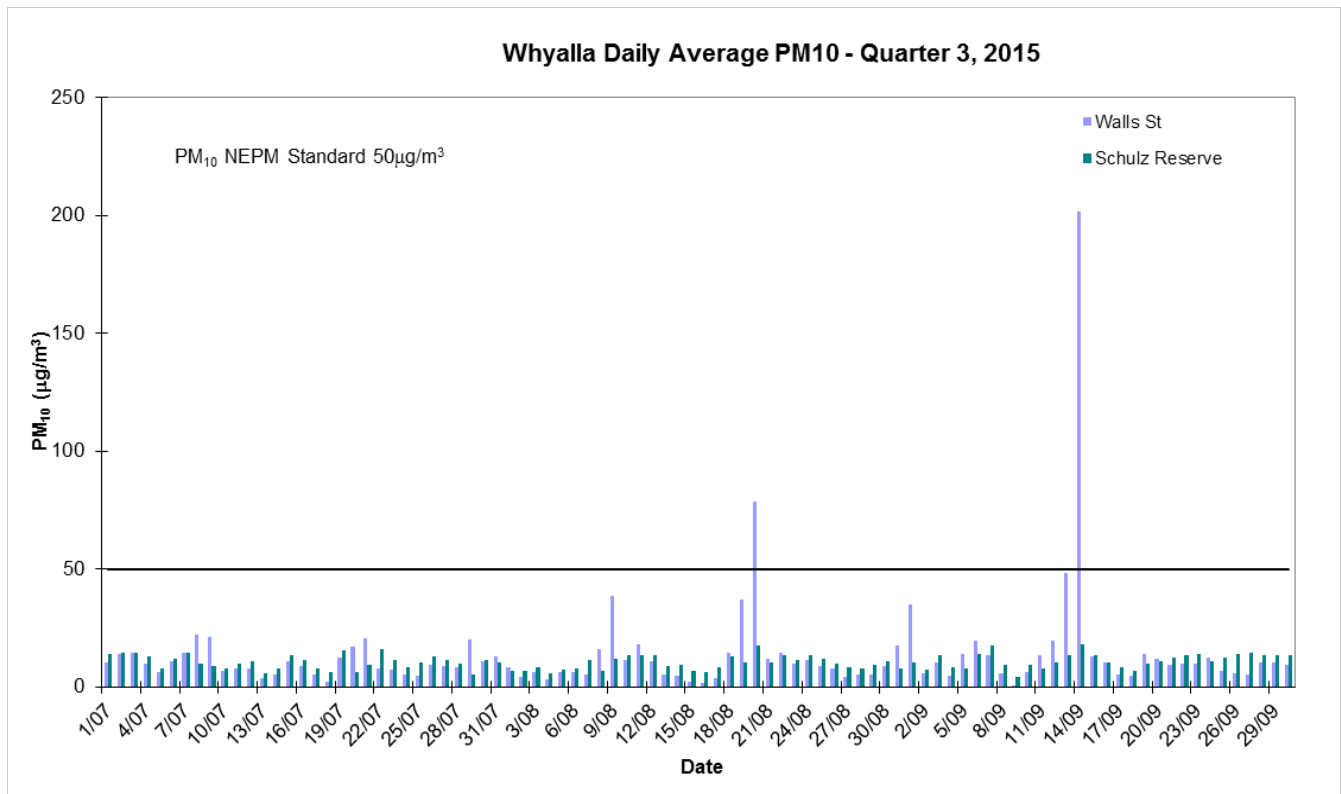
Walls St<sup>3</sup>: **3**

Schulz Reserve: 0

- This is less than the NEPM Goal of 5 per year for Schulz Reserve.

<sup>2</sup> The number provided here is for information/comparison purposes only and does not contribute to the NEPM assessment of the air quality of the region.

<sup>3</sup> The number provided here is for information/comparison purposes only and does not contribute to the NEPM assessment of the air quality of the region.



## 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](http://shop.service.sa.gov.au)>  
 Email: <[ServiceSAcustomerservice@sa.gov.au](mailto:ServiceSAcustomerservice@sa.gov.au)>

### General information

Environment Protection Authority  
 GPO Box 2607  
 Adelaide SA 5001

Telephone: (08) 8204 2004  
 Facsimile: (08) 8124 4670  
 Freecall: 1800 623 445 (country)  
 Website: <[www.epa.sa.gov.au](http://www.epa.sa.gov.au)>  
 Email: <[epainfo@epa.sa.gov.au](mailto:epainfo@epa.sa.gov.au)>