

## Introduction

Air is a life-supporting resource that needs to be protected. Although Northland's air is generally of a high quality, there is air pollution from human activities – particularly around urban areas.

In order to protect our air quality, the Northland Regional Council developed the **Regional Air Quality Plan** for Northland. This plan gives guidance to those using our air resource, in addition to specifying rules on what discharges into air are allowed.

The Council has been monitoring air quality in the region since 1996. The main purpose of air quality monitoring is to find out where air pollution might affect human health. The Council has an ongoing programme monitoring pollutants such as particulate matter (PM<sub>10</sub>) and sulphur dioxide (SO<sub>2</sub>) in places that are suspected of having occasional poor air quality. In addition, the Council monitors activities that involve a discharge to air and attends environmental incidents where the main resource affected is air.

## Particulate matter (PM<sub>10</sub>)

Particulate matter (PM<sub>10</sub>) is a collective term used to describe very small solid or liquid particles in the air, such as dust, fumes, smoke and fog.

PM<sub>10</sub> originates from both natural (wind blown dust, forest fires or pollen) and manmade sources (including automobile exhausts, solid fuel burning and industrial emissions). In Whāngārei, the main source of PM<sub>10</sub> in winter is solid fuel burning for home heating.

Smoke has high levels of PM<sub>10</sub>, which is easily inhaled and can harm people's health. People most susceptible to the effects of inhaling PM<sub>10</sub> include the elderly, people with existing lung problems, weak hearts or infections such as pneumonia, and children.

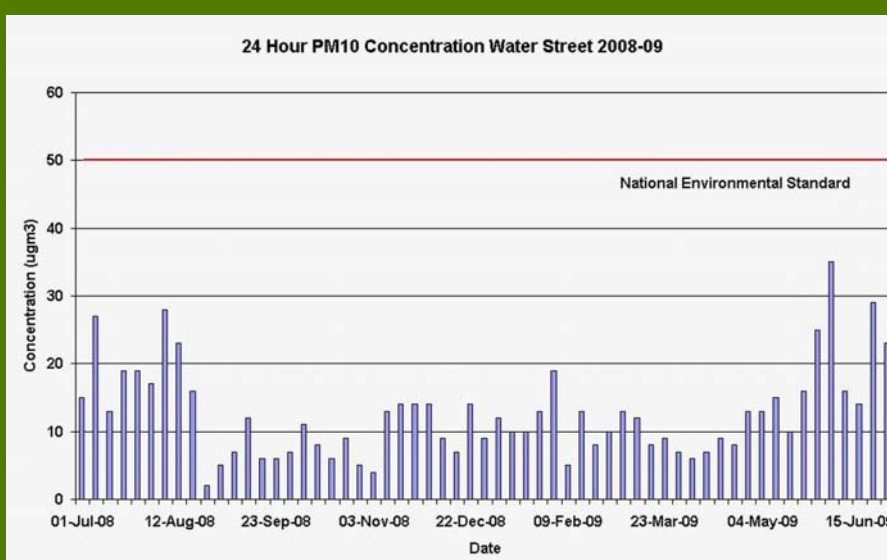
PM<sub>10</sub> was sampled at two locations in Northland during 2008-09; Water Street and Robert Street in central Whāngārei. The results collected are compared to the National Environmental Standard (NES) for PM<sub>10</sub>, which is not exceeding the limit of 50 micrograms per cubic metre more than once in a twelve month period.

## Air quality performance targets

Continue to implement and improve a prioritised State of the Environment monitoring programme based on the Regional Policy Statement and Regional Plans:

- Monitor ambient air quality in line with the priorities of the National Environmental Standard for Air and Regional Air Quality Plan, including background levels of dust, carbon monoxide and sulphur dioxide.
- Report to the Council annually on environmental monitoring activities within three months of the end of the financial year.
- Making the results from the annual SOE monitoring programmes available on the Council's website at [www.nrc.govt.nz/soe](http://www.nrc.govt.nz/soe).

## Water Street, Whāngārei monitoring results



*The main source of particulate matter in winter is solid fuel burning for home heating.*

Monitoring results from 2008-09 for Water Street (Whāngārei) indicated that levels of PM<sub>10</sub> in the air did not exceed the NES on any occasion. This can be seen in the graph (left).

PM<sub>10</sub> levels were slightly higher on a number of occasions in winter due to cool, calm conditions that allowed air pollution from domestic fires to build up.

## Future monitoring

In addition to existing monitoring programmes, the Council is planning to establish a carbon monoxide monitoring programme in Whāngārei city. Carbon monoxide is a colourless and odourless, yet highly toxic gas which is found in, amongst other things, car exhaust fumes.

For more information on the Regional Air Quality Plan go to [www.nrc.govt.nz/raqp](http://www.nrc.govt.nz/raqp)



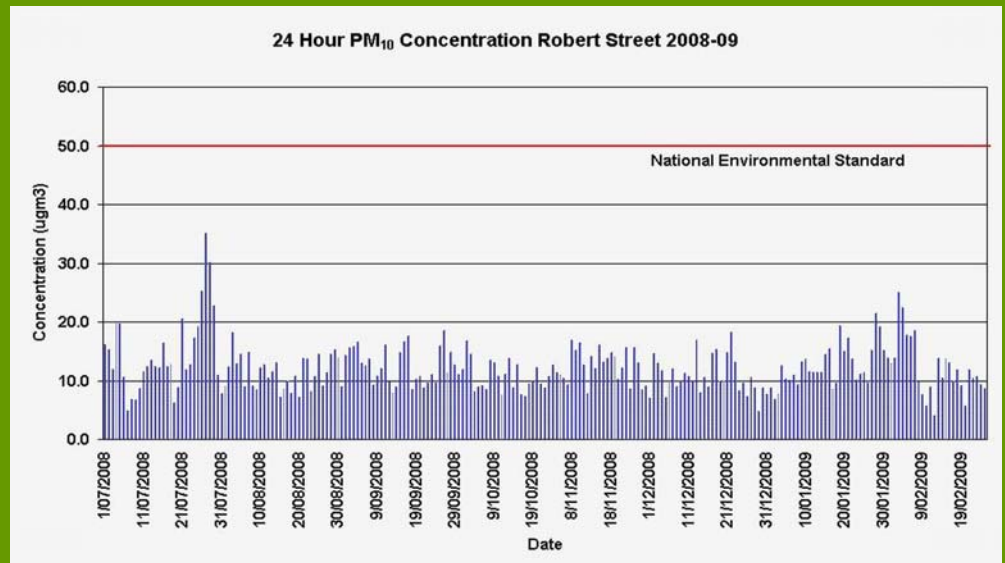
You can help reduce the amount of air pollution in our region by :

- ◆ Using low emission burners;
- ◆ Cleaning your chimney at least once a year;
- ◆ Never burning rubbish, plastics or treated wood in your wood fire;
- ◆ Never using coal in a wood burner;
- ◆ Avoid burning rubbish and vegetation in your backyard;
- ◆ Compost vegetation and recycle other materials

Find out more [www.nrc.govt.nz/backyardburning](http://www.nrc.govt.nz/backyardburning)

In 2008-09, results from the monitoring station at Taurikura indicated that peak concentrations of SO<sub>2</sub> from the refinery were well below the National Environmental Standard of 350 ug/m<sup>3</sup>, and also well below the current 24-hour ambient air quality standard of 120 ug/m<sup>3</sup>. These results can be seen in the graph (right).

## Robert Street, Whāngārei monitoring results



Monitoring results from 2008-09 for Robert Street (Whāngārei) indicated that levels of PM<sub>10</sub> in the air did not exceed the NES on any occasion. However, PM<sub>10</sub> levels were again higher on several occasions in winter due to cool, calm conditions that allowed air pollution from domestic fires to build up.

## Sulphur Dioxide (SO<sub>2</sub>)

Sulphur dioxide (SO<sub>2</sub>) is a colourless, soluble gas that has a strong smell. It is mainly produced by the burning of fossil fuels containing sulphur, however it can also be produced by some industrial processes.

SO<sub>2</sub> is harmful when inhaled at high concentrations and acts directly on the upper airways (nose, throat and lungs) producing a response within minutes. It is particularly harmful to people with existing respiratory problems, such as asthmatics or people suffering from lung disease. Symptoms of SO<sub>2</sub> inhalation include wheezing, chest tightness, shortness of breath and coughing.

## Results from SO<sub>2</sub> monitoring

In Northland, the most significant industrial source of SO<sub>2</sub> is the New Zealand Refining Company Limited, located at Marsden Point. The prevailing wind in this area frequently blows emissions from the refinery towards the Whāngārei Heads, a largely rural, residential area. The Council monitors SO<sub>2</sub> levels produced by the refinery using a continuous monitoring station based at Taurikura Bay.

