

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 anthropogenic activities – things humans do – particularly around urban areas.

In order to protect our air quality, the Northland Regional Council developed the Regional Air Quality Plan (RAQP) for Northland. The 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 (PM₁₀) and sulphur dioxide (SO₂) in places that are suspected of having occasional poor air quality.

In addition to ambient air monitoring, the Council monitors activities that involve a discharge to air and investigates environmental incidents where the main resource affected is air.

2009-2010 results

Particulate matter (PM₁₀)

Particulate matter (PM₁₀) is a collective term used to describe very small solid or liquid particles in the air, such as dust, fumes, smoke and fog.

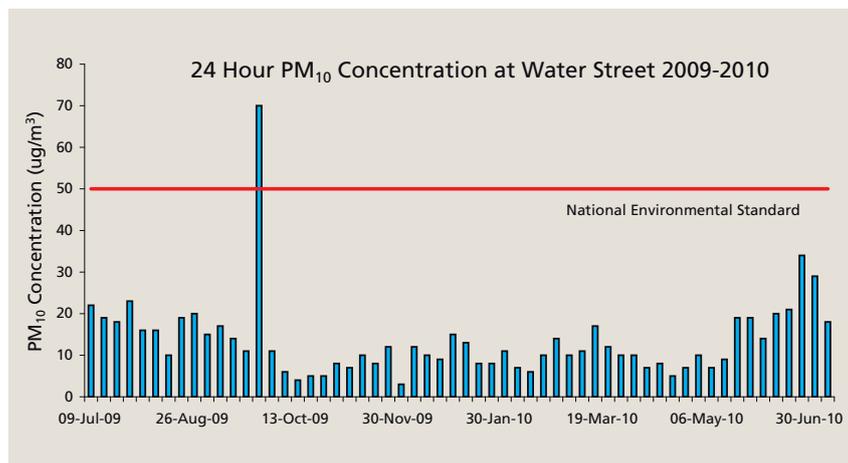
PM₁₀ originates from both natural (wind blown dust, forest fires or pollen) and manmade sources (including automobile exhausts, solid fuel burning and industrial emissions). In Whāngārei, the main source of PM₁₀ in winter is wood burning fires used for home heating.

Smoke has high levels of PM₁₀, which is easily inhaled and can harm people's health. People most susceptible to the effects of inhaling PM₁₀ include the elderly, those with existing lung problems, weak hearts or infections such as pneumonia, and children.

PM₁₀ was sampled at two locations in Northland during 2009-2010; Water Street and Robert Street in central Whāngārei. The results collected are compared to the National Environmental Standard (NES) for PM₁₀, which is not exceeding the limit of 50 micrograms per cubic metre more than once in a twelve month period.

Water Street, Whāngārei

Monitoring results from 2009-2010 for Water Street indicated that ambient PM₁₀ concentration exceeded the NES on 25 September 2009. This was due to pollution from the Australian dust storm that engulfed Sydney and Brisbane on 23 September 2009. Other than this occasion PM₁₀ levels were slightly higher a number of times over the winter months, most likely due to cool, calm conditions that allowed air pollution from domestic fires to build up. This can be seen in the graph below.



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 the Regional Air Quality Plan (20% achieved).
- 100% compliance with the national environmental standards.
- Report the results from the SoE monitoring programmes in the annual monitoring report and make available on the Council's website at www.nrc.govt.nz/soe by 31 October each year (loaded six weeks late).

Future monitoring

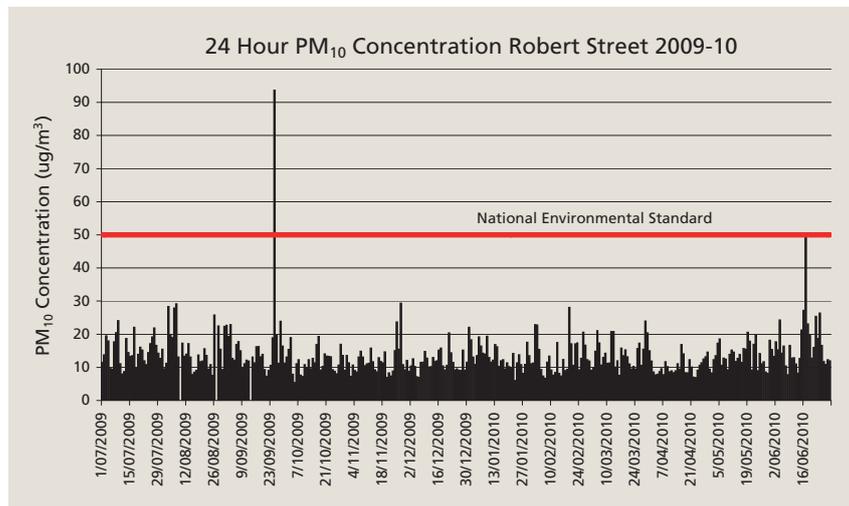
The Council is investigating the establishment of a continuous particulate monitoring site in Kaitiāia. Trial screening started in July 2010 at North Road, Kaitiāia. Further monitoring will be decided on the basis of results obtained from this trial monitoring.

In July 2010 the Council also started carbon monoxide (CO) and sulphur dioxide (SO₂) monitoring at Robert Street in Whāngārei. Carbon monoxide is a colourless and odourless, yet highly toxic gas which is found in, among other things, car exhaust fumes.



Robert Street, Whāngārei

Monitoring results from 2009-2010 for Robert Street, Whāngārei also showed similar trends to Water Street results even though these results were obtained using completely different instruments. PM₁₀ concentration on 25 September 2009 was recorded at 94 µg/m³ due to the Australian dust storms. The second highest value recorded was 50 µg/m³ on 17 June 2010 and was most likely due to smoke from home heating fires on a very cold, calm and clear day. Results from Robert Street are presented below.



Sulphur dioxide (SO₂)

Sulphur dioxide (SO₂) is a colourless 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.

SO₂ 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 SO₂ inhalation include wheezing, chest tightness, shortness of breath and coughing.

Results from SO₂ monitoring

In Northland, the most significant industrial source of SO₂ 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 ambient SO₂ concentration using a continuous monitor stationed at Taurikura Bay.

In 2009-2010, results from the monitoring station at Taurikura indicated 100% compliance of SO₂ concentrations with the National Environmental Standard of 350 µg/m³ one hour average and also well below the current 24-hour ambient air quality standard of 120 µg/m³.

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; and
- Compost vegetation and recycle other materials.

Find out more...

www.nrc.govt.nz/backyardburning or for more information on the Regional Air Quality Plan go to www.nrc.govt.nz/raqp

