# CHAPTER 6

# ATMOSPHERE

Photo: Rob Tucker

## AIR QUALITY

Taranaki people enjoy clean fresh air and this is an important and valued part of our quality of life. In summary:

- on the basis of national guidelines, air quality in Taranaki is rated as excellent, enabling the Taranaki community to enjoy one of the healthiest regions in New Zealand in terms of air quality;
- there are no significant widespread pressures on air quality in the region so levels of monitoring of general air quality have been reduced, although the Council still carries out comprehensive monitoring of consented activities;
- 306 air discharge permits are held in Taranaki (compared with 230 in 2003);
- consent conditions are generally more stringent, reflecting better control options and heightened community expectations;
- major air discharge permit holders continue to make significant investments in emission controls and production technology; and
- a few concerns exist about specific discharges to air, primarily involving odours, but these are managed to reduce effects on neigh-bours as far as possible.

The Council's *Regional Air Quality Plan*, made operative in 1997, contains policies, methods and controls to maintain and enhance air quality in Taranaki. It is in the process of being formally reviewed.

## CLIMATE

Gases such as carbon dioxide, methane and nitrous oxide have the ability to trap infra-red energy that would otherwise be radiated off the earth's surface. The accumulation of these greenhouse gases in the upper atmosphere is leading to global warming and global climate change. Average New Zealand temperatures have increased by 0.3-0.7ºC since 1950. In Taranaki:

- the significant sources of greenhouse gases are agriculture, energy and petrochemical industries;
- industry is the largest source of carbon dioxide emissions and agriculture is the largest source of methane;
- emissions from industry and livestock are decreasing but emissions from soil and fuel use are increasing;
- climate in Taranaki is expected to become marginally wetter overall, with increased frequency of extreme weather events; and
- climate change is expected to result in an increase in pasture productivity and an increase in cropping in the region.

The Government and members of the international community are addressing climate change through a range of initiatives including those to implement the Kyoto Protocol. Initiatives at the regional level include management of point source emissions through the *Regional Air Quality Plan*, and advocacy for sustainable land management which may lead to increased tree planting which will mitigate greenhouse gas emissions, and better management of fertiliser (which will reduce greenhouse gas emissions).


Taranaki has excellent air quality.

## OUR ATMOSPHERE

Clean fresh air is an important and valued part of Taranaki's environment and quality of life. To Māori, the air is a taonga and odours and other contaminants can affect wāhi tapu sites.

Overall, Taranaki has excellent air quality. This is because of Taranaki's windy and exposed nature, together with its dispersed and low population, absence of heavy industry and its low number of vehicles. However, air quality in some locations is reduced through point source discharges or diffuse discharges of contaminants to air.

Diffuse sources of emissions are the biggest contributors of emissions to air. These include natural sources (sea spray, vegetation, landcover and farm animals) and human sources such as industries, homes or motor vehicles. Natural sources emit far greater quantities than human sources.

Point source emissions such as from industry are more obvious than diffuse source discharges. Point source discharges in Taranaki come from a range of sources such as the petroleum industry, pig and poultry farming and abrasive blasting. Many point source emissions are located in the industrial parts of the region's urban centres, particularly New Plymouth and Hāwera. Increased levels of hydrocarbon exploration and production have led to increased consents for air discharges.

Emissions to air, in the form of odours, smoke, dusts or toxic contaminants, may affect air quality. The effects of such emissions range from visual effects and offensive odours to actual or potential effects on human and ecosystem health.

Greenhouse gases are gases such as carbon dioxide, methane and nitrous oxide, which have the ability to trap infra-red energy that would otherwise be radiated off the earth's surface.

There is now a very strong consensus of scientific opinion that the accumulation of greenhouse gases in the upper atmosphere is warming the lower atmosphere. Over time this will result in rising sea temperatures and sea levels, the melting of glaciers and ice caps (which will also increase sea level) and greater extremes in weather patterns such as storms of greater intensity and longer droughts. Paradoxically, some parts of the planet may in fact become cooler, as wind patterns and sea currents shift their distribution. Temperatures in New Zealand have increased by 0.3-0.7°C since 1950.

# 6.1 AIR QUALITY

## 6.1.1 WHAT IS THE STATE OF AIR QUALITY IN TARANAKI?

The relatively windy and exposed nature of Taranaki, together with its dispersed population and the absence of heavy industry and high motor vehicle densities, means that the region enjoys naturally high standards of air quality. The main influence on regional air quality is natural – sea spray drift from our energetic coastline and volatile emissions from vegetation.

In the past the Council monitored key indicators of ambient, or overall, air quality in the region at up to 30 representative sites, including urban areas, rural and coastal areas and pristine areas. The indicators reflected emission sources of particular interest in those areas. These included: sulphur oxides, nitrogen oxides, carbon monoxide, formaldehyde, suspended particulates and inhalable particulates.

Monitoring was reported on in detail in the *2003 State of the Environment Report*[1]. The results, indicating high air quality, have reduced the need for extensive air quality monitoring, and therefore over the past five years the Council has scaled down the state of the environment monitoring programme and concentrated instead on compliance monitoring. Information below on the current state of air quality in the region is therefore largely summarised from the 2003 report with additional comments from compliance monitoring undertaken since then. The categories used to describe air quality, and recommended actions for each category, are set out in Table 6.1.


Monitoring air quality in Stratford.



1 Taranaki Regional Council, 2003. *Taranaki – Our Place, Our Future. Report on the State of the Environment of the Taranaki Region.*