AIR QUALITY

Annual Monitoring Summary 2014/15

What drives air pollution in Nelson?

Nelson is surrounded by hills and has a settled climate with little wind to blow smoke away.

Under clear skies during winter the air near the ground can be colder than the air above and smoke from domestic chimneys, factories and vehicle exhausts gets trapped. Winter is also the time when smoke emissions from home heating sources are at their maximum.The combined effect is that in Nelson during winter smoke concentrations can be much higher than normal for a city of this size.

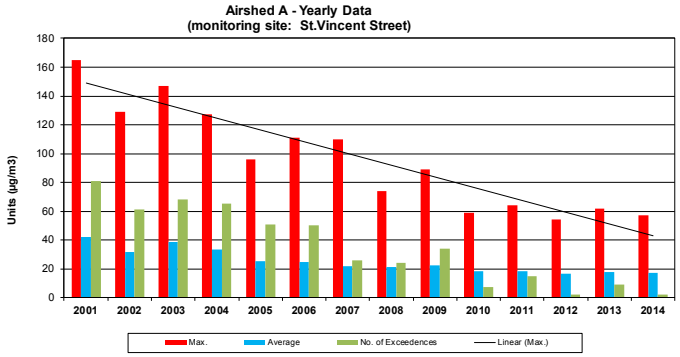
Analysis of air particles showed that during winter in 2014 domestic heating contributed 73% of the smoke (there are local variations in sources).

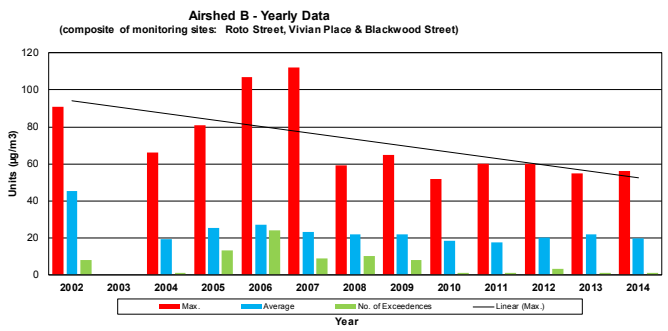
By contrast vehicles contribute around 10% and natural sources such as sea aerosol and windblown soil about 10%. The remainder mainly comprises road dust and shipping emissions.

Different types of fires produce different amounts of smoke. Generally the hotter the fire burns the less smoke it produces. Open fires and outdoor burning tend to produce the most smoke (per piece of wood) and modern enclosed wood burners and pellet fires the least.

Natural sources such as sea salt and dust can comprise a significant proportion of fine particles during the spring and summer periods.

Air quality in Nelson can also be affected by chemical pollution not related to burning. Standards are in place for these pollutants and their levels are monitored.





Key Results

Nelson City Council started monitoring small smoke particles (PM_{10}) in the Victory Square area (Airshed A) during 2001. In 2001 maximum concentrations reached 165 micrograms (µg/m^3) per cubic metre and the National Environmental Standard (NES) of 50 µg/m^3 was exceeded on 81 days. The annual average concentration was 42 µg/m^3.

During 2014 the maximum smoke concentration in Airshed A reached 57 µg/m^3 and the NES was only exceeded on 2 days. The annual average concentration was 17 µg/m^3.

During 2014 air quality in the Tahunanui area (Airshed B) only exceeded the NES on one day which was during spring (56 µg/m^3). Investigations indicate this was likely to be a result of contribution of dust particles from roads and yards.

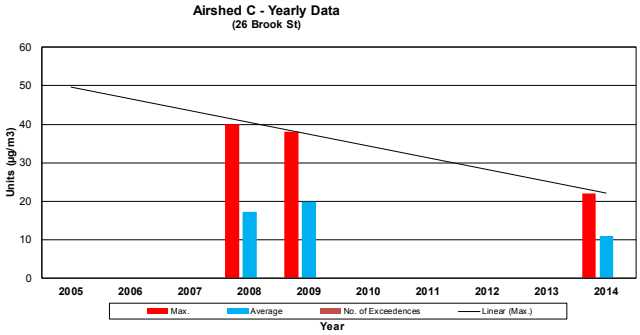
During 2014 monitoring in the Brook area (Airshed C) did not show any NES breaches with a maximum concentration of 22 µg/m^3.

Nelson's worst air quality usually occurs during June and July when cold and still conditions occur. Average wind speed during June-July 2014 was above the 8 year average. More wind tends to blow smoke away and stops it from concentrating. Temperatures during June were also warmer than average which tends to allow the smoke to rise and mix more which also reduces concentrations. Therefore meteorological conditions experienced during 2014 are likely to have resulted in lower smoke concentrations than normal.

While the raw 2014 monitoring results suggest that Victory (Airshed A) is on track to comply with the requirements of the NES this result should be treated with caution due to the unusual meteorological conditions experienced during 2014.

Tahunanui (Airshed B) also showed a marked reduction in both smoke concentrations and number of days the Standards were breached, and may now comply with the NES.

Airshed C including the Brook, Atawhai, and the Wood appear to meet the NES for air quality.



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03 546 0200 **www.nelson.govt.nz**

Nelson City Council
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What are we doing about it?

Nelson Air Quality Plan

Nelson City Council has an operative Air Quality Plan which places controls on activities affecting air pollution.

Plan rules prohibit outdoor burning in urban areas, the use of open fires and the installation of enclosed burners in houses that do not already have an enclosed burner.

Council decided to start a review of the Air Plan in 2015 given the significant improvements to Nelson's air quality and concern that people are living in cold homes. A key focus for the review is to consider whether there are opportunities to provide a wider range of home heating options.

Council has contributed to the Nelson Tasman Healthy Homes Scheme that seeks to install insulation into homes where residents have high health needs. There is the potential to insulate approximately 600 houses across the Nelson Tasman region over the next three years, through this scheme.

Other measures

Even clean burners contribute to air pollution when poor fuel is used.

Burning wet wood produces more smoke, burning treated timber can release arsenic, and burning plastic produces dioxins.

Nelson City Council established the Good Wood scheme to encourage people to buy and burn dry, untreated timber. There are currently eight wood merchants registered with the Good Wood scheme.

Council also runs a community education programme to improve how people operate their woodburners.

Council's Eco-Design Advisor provides a fee service giving advice about keeping our houses warm.

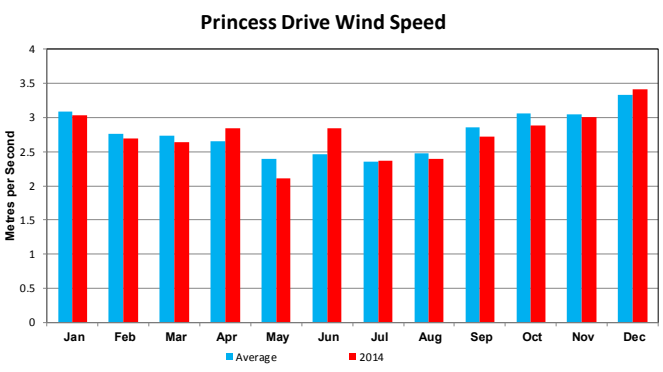
To make an appointment, contact him via email, richard.popenhagen@ncc.govt.nz or call 03 546 0251.

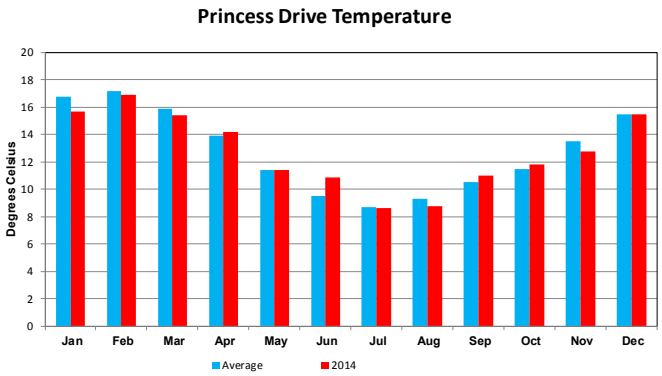
Industrial emissions

The Council is working with industry to reduce its contribution to air pollution through the resource consents process.

Improvements are being made with many emitters installing cleaner burner technology such as at Nelson College for Girls, Nelson Hospital and Alsco Laundry.

Good Wood





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