

NELSON CITY COUNCIL

## **Nelson Air Quality Plan**

Proposed Plan Change A2  
Alignment with NES for Air Quality

### **Proposed Plan Amendments**

**Notification Date**  
24 September 2011

**Submissions Close**  
5pm Friday 28 October 2011



## **1.0 Introduction (not part of the Plan Change)**

### **1.1 Description of the proposed Plan Change**

This Plan Change has been introduced because of changes made by the Government to the National Environmental Standards for Air Quality (NES)<sup>1</sup>.

In June 2011 the Government amended the NES. Part of the amendment changed the target date for achievement of the NES for particle matter smaller than 10 microns (PM<sub>10</sub>).

The current operative Nelson Air Quality Plan is predicated on complying with the NES air quality standard for PM<sub>10</sub> by 1 September 2013, as was required by the NES prior to its amendment and at the time the Air Quality Plan was finalised. Compliance in the current Air Quality Plan means not more than 1 exceedance per year of the PM<sub>10</sub> standard of 50µg.m<sup>-3</sup>, measured as a 24 hour average.

In order to help achieve this, the current operative Air Quality Plan included in the urban area rules that phase out the use of all domestic open fires, and, depending on the airshed concerned (air catchment), many of enclosed burners that existed at the time the Air Quality Plan was notified in August 2003.

All open fires in urban Nelson had to cease operation by 1 January 2008. For enclosed burners in Airsheds A and B a series of phase-out dates were mandated. These targeted the oldest group of burners first (by 1 January 2010), the next group by 1 January 2012, and the final cohort (installed in Airsheds A and B1 in the period 2000-2003) by 1 January 2013. In Airshed C, mandatory phase out of enclosed burners was not necessary as 'natural attrition', i.e. natural replacement, of these burners was sufficient to achieve the PM<sub>10</sub> air quality standard.

The effect of the amended NES is that for more contaminated airsheds, like Nelson's Airsheds A and B, a two step regime for compliance with the PM<sub>10</sub> standard has been introduced. By 1 September 2016 there must be not more than 3 exceedances per year through to 31 August 2020, and from 1 September 2020 onwards not more than one exceedance per year.

Amendments to the NES also provide a new ability for breaches not to be counted in 'exceptional circumstances' (e.g. due to Australian bushfires). Prior to the amendment, any breach counted, even if it was due to an accident or event outside the normal control of the council. The effect of this amendment is that complying with the standard can be slightly easier.

The Nelson Air Quality Plan is not in conflict with the amended NES – it can be more stringent than the NES. The Council therefore is not legally

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<sup>1</sup> Resource Management (National Environmental Standards for Air Quality) Regulations 2004 (SR2004/309)

obliged to amend its Air Quality Plan to align with the revised NES. However, it is good practice to consider whether rules and other provisions in a plan remain the most appropriate way of achieving the objectives, and are efficient and effective methods. The section 32 analysis accompanying this proposed Plan Change concludes that

*“it is very difficult to justify the large economic cost associated with achieving the PM<sub>10</sub> standard at a date earlier than is now required in the NES as there are no regional circumstances that warrant taking a different approach than the standard to be applied nationally”.*

In response to the amended NES this Plan Change proposes to:

- i) Amend the target dates for compliance with the NES in Policy A5-1.4 to align them with the new NES dates, and
- ii) Remove the clause in rule AQr.24.1 that requires use to cease of those domestic burners in Airsheds A and B1 installed after 1 January 2000 and which are not compliant with the emission requirements in the Air Quality Plan i.e. burners installed from 2000 to August 2003 (when the Air Quality Plan was notified).

The reasons for proposing to remove the mandatory phase-out rule for these burners are as follows:

- This group of burners is relatively modern and much cleaner burning than burners installed in the 1970s, 80s and even 90s.
- Mandated replacement or stopping of use cannot be justified in terms of reductions in emissions needed to meet the revised NES, - neither the 2016 target nor the 2020 one. ‘Natural attrition’ of these burners over time will achieve the required air quality improvements.
- Removing this group of burners produces ‘diminishing returns’. That is, some of the burners are very close to complying with the current woodburner standards in the Air Quality Plan/NES. Not much improvement in air quality is gained replacing such burners with NES-compliant ones.
- A burner installed in 2003 would only be 9 years old when removed, about half way through its recommended life. That can be justified if removal is absolutely necessary to meet the target. However, if it is not necessary, then it is not justifiable.
- With compulsory replacement, comes the need for financial assistance to avoid hardship and, in the case of a relatively modern burner, to help compensate for replacement before the end of its economic life. There is a significant cost to the ratepayer from the Clean Heat-Warm Homes assistance scheme. If mandatory replacement is not necessary, the Clean Heat-Warm Homes scheme can be ended a year earlier (June 2012 compared to June 2013).

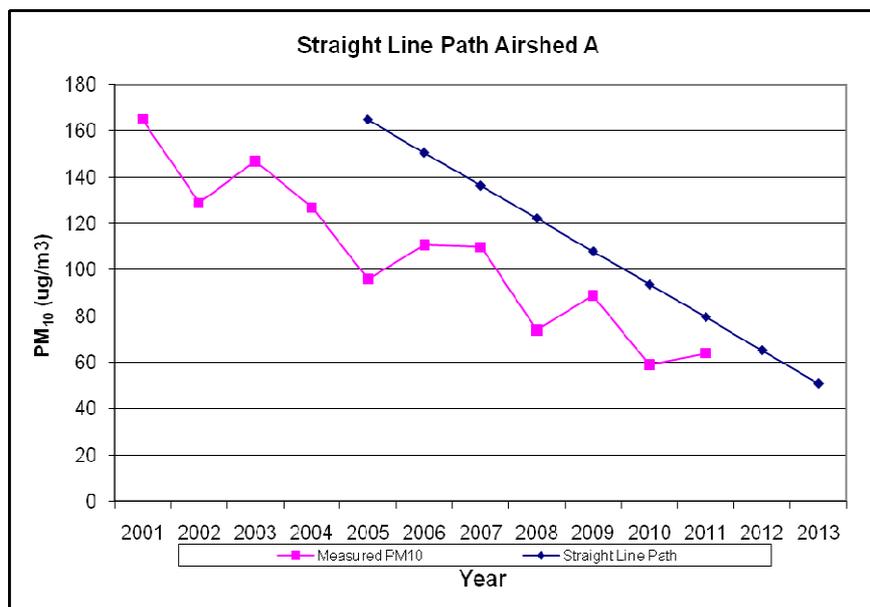
The replacement of some of the burners installed in the years 2000-2003 is still necessary to achieve the ultimate NES target of one exceedance by 2020. However, ‘natural attrition’ is sufficient to achieve this. This occurs as some of the burners are replaced with more modern burners or with

cleaner heating alternatives when they wear out, the home owners renovate or their needs change.

### Health Impacts

Achieving full NES compliance more slowly - by 2020 instead of the original date of 2013 - will have effects on human health. In Nelson's case the impact will be a small.

That is because the city is substantially along the path towards meeting the NES standard. The graph below shows that for Airshed A (Hospital Valley, Victory, Washington Valley), there has been a significant improvement in PM<sub>10</sub> levels since 2001. Peak measured levels have trended down comfortably below the straight line path required by the previous version of the NES.



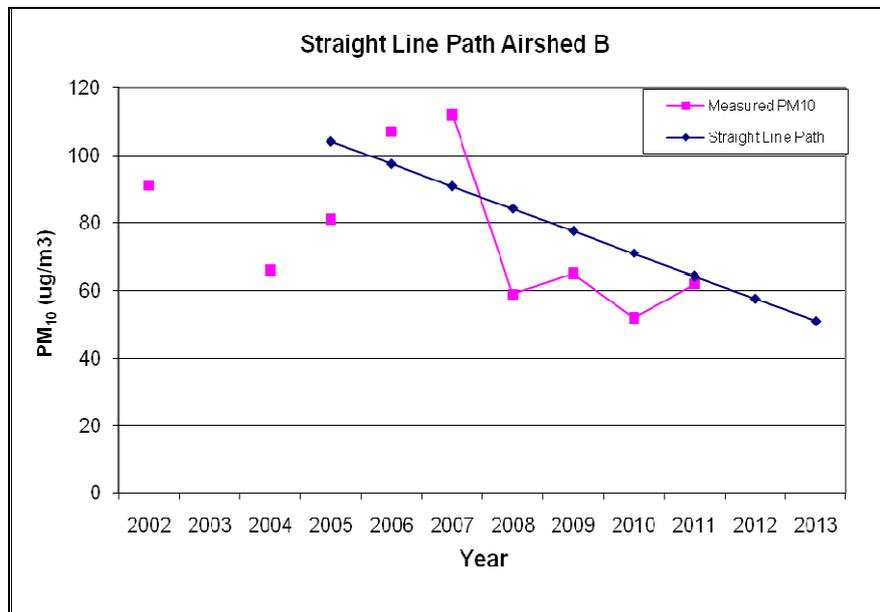
As the concentration of pollution has fallen, so too has the number of times the air standard has been breached in any year. Exceedances have fallen from the 81 in 2001, to 51 in 2005, to 34 in 2009. In 2010 there were 7 breaches, but 2010 was a reasonably mild winter. At the time of this report there have been 15 breaches in 2011, with a highest reading of  $64\mu\text{g.m}^{-3}$  compared to  $59\mu\text{g.m}^{-3}$  in 2010.

The trend is less clear in Airshed B (Tahunanui, Wakatu, Stoke) (see graph next page), partly because of problems with the continuity of the data. Unfortunately the data over the years comes from monitoring stations at different locations<sup>2</sup>, but since 2007 there has been continuous monitoring at Blackwood St.

Over the last four years the maximum concentrations of PM<sub>10</sub> have fluctuated between  $52\mu\text{g.m}^{-3}$  and  $65\mu\text{g.m}^{-3}$ . The number of exceedances was 11 and 8 in 2008 and 2009, and one in each of 2010 and 2011. The

<sup>2</sup> 2002, 2004 - Roto St; 2005 - Roto St/Vivian Pl; 2006 - Vivian Pl; 2007 onwards Blackwood St.

last two years would comply with the NES ultimate target of one exceedance in any 12 month period. However, given the short period of quality data from the Blackwood St monitoring site, it is not clear how representative this is, and whether this could be sustained without further initiatives to reduce discharge levels into this airshed.



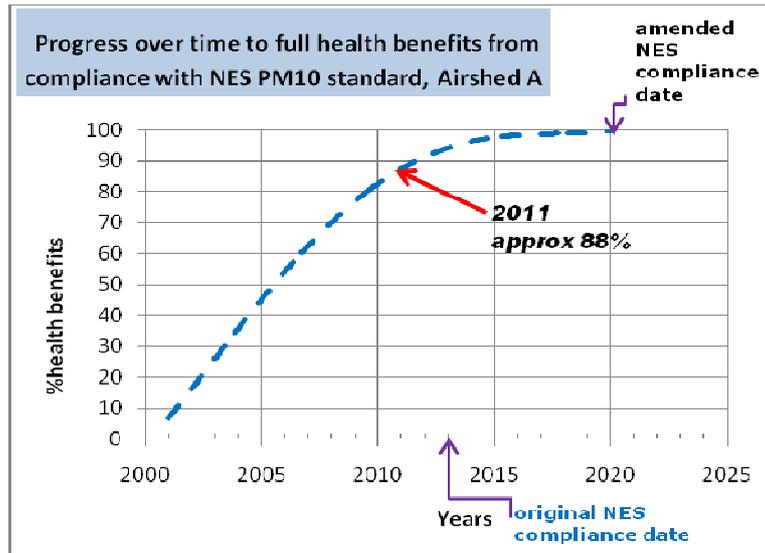
A significant further improvement in air quality in both Airshed A and B is expected over the winter of 2012, due to the compulsory phasing out at the end of 2011 of over 700 burners. With those burners being replaced, and 'natural attrition' of other burners, air quality is expected to achieve not more than 3 breaches of the standard by 1 September 2016, and not more than one exceedance by 1 September 2020.

There is a direct relationship between higher PM<sub>10</sub> concentrations and greater health impacts<sup>3</sup>. Using the better long-term monitoring data from Airshed A, it is possible to develop a graph of 'health gains' over time – both the gains so far, and the projected future gains when compliance with the 2016 and 2020 dates in the NES is achieved.

In the graph on the next page the PM<sub>10</sub> concentration in 2001 for Airshed A is taken as the starting point – essentially zero health gains. Full achievement of the PM<sub>10</sub> standard in 2020 will be 100% of the health gains. Actual measured PM<sub>10</sub> concentrations in-between, from the graph on page 4, are set as proportions of this, and a smoothed line fitted.

<sup>3</sup> *Health Effects of Suspended Particulate – Risk Assessment for Nelson City*, Environet for Nelson City Council, February 2002

*Health and Air Pollution in New Zealand*, Fisher et al, June 2007



As the graph above shows, the bulk of the health gains have been secured already. The remainder will come with the phase out of the next group of burners due at the end of 2012, and with the voluntary replacement or upgrading of some of the burners installed since 2000 being proposed in this Plan Change.

This pattern is consistent with the cost-benefit analysis accompanying the Government's proposed amendments to the NES. Under the slower timetable for achieving compliance, health benefits nationally reduce slightly from \$1911 million to \$1746 million, but the economic costs of compliance fall from \$867 million to \$196 million<sup>4</sup>.

Computer modelling supports this proposed Plan Change removing the mandatory phase-out rule for those burners installed in the 2000-2003 period (see section 32 report). Modelling indicates that the ultimate NES target for PM<sub>10</sub> (not more than one exceedance in and after 2020) can be achieved without compulsory phase-out of this group of burners. The natural cycle of replacement of these burners (and others) is forecast to be sufficient to ensure compliance with the NES.

More detail on the background, evidence, context and resource management issues and options for this Plan Change are contained in the Section 32 report (document 1147607) available from the Council, the public libraries, or on the website [www.nelsoncitycouncil.co.nz](http://www.nelsoncitycouncil.co.nz). The current operative Nelson Air Quality Plan can also be viewed at these locations.

<sup>4</sup> Minister for the Environment Press Release 29 January 2011. Also, *Regulatory Impact Statement, Amending PM10 air quality standard*, NZ Government 2011

## 1.2 Format of the Plan Change provisions

For the ease of the reader the full text of provisions to be changed have been used in this document.

**The reader should be aware that operative provisions that are not proposed to be changed are unable to be submitted upon. They are included only to assist the reader with context and meaning.**

Within this Plan Change:

- 'Normal' text applies to operative provisions which are to remain unchanged.
- 'Underline' text applies to proposed new provisions.
- '~~Strikethrough~~' text applies to operative provisions proposed to be deleted or amended as described.
- '*Italic*' text applies to instructions (therefore are non statutory).

## 2.0 Proposed Plan Change A2: Proposed Amendments to the Nelson Air Quality Plan (Statutory Provisions)

a) Amend subclauses i) and ii) in policy A5-1.4a) as follows:

“A mid-term target for ambient PM<sub>10</sub> levels will be, at a minimum, compliance ...by:

- i) 1 September ~~2013-2016~~ of not more than 3 exceedances in a 12 month period of the when measured as a 24-hour mean National Environment Standard for air quality, up to and including 31 August 2020, with air quality improving on a ‘straight line path’ as defined in the National Environmental Standard for air quality, and
- ii) from 1 January-September 2016~~2020 onwards, not more than 1 exceedance in a 12 month period~~ when measured as a daily annual average, “

b) In rule AQR.24.1 clause cc) delete in its entirety subclause iii), as follows:

- ~~iii) —“after 1 January 2000 and where the burner does not comply with the emission requirements in Appendix AQ2 (except by resource consent) .....1 January 2013”~~

and, in AQR.24.5 (Explanation), amend the second paragraph as follows:

“The use of existing enclosed burners ...is also being phased out in certain areas. In Airshed A (Nelson South) and the Tahunanui and Tahunanui Hills part of Airshed B (as shown in Figures A2-2B, at the end of Chapter 2), the use of ~~all~~ enclosed burners installed prior to 2000 that do not comply with the emissions standards in this Plan must progressively have ceased between 2010 and ~~2013~~2012, starting with the oldest burners. This is necessary to meet the targets imposed by the National Environmental Standards for air quality.”