

# NELSON CITY COUNCIL

## **Nelson Air Quality Plan**

Proposed Plan Change A3  
Wood Burners

### **Proposed Plan Amendments**

**Notification Date**  
16 January 2016

**Submissions Close**  
17 February 2016





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

### **1.1 Summary of Amendments**

This plan change introduces several amendments to the operative Air Quality Plan. In summary, these amendments fall into four broad categories and include:

- a new definition for ‘small-scale ultra-low emission burning appliances’ (ULEB);
- new Clause AQr.26A, which includes permitted and non-complying rules, assessment criteria and explanatory text in relation to ULEB;
- new Appendix AQ2B, which sets out the minimum requirements for ULEB, including certification process that must be followed in conjunction with the building consent process; and
- consequential amendments to other operative provisions.

### **1.2 Format of the Plan Change provisions**

To assist the reader, the full text of provisions to be changed has been used in this document, including annotations to operative Chapters A2 and A6.

**The reader should be aware that operative provisions that are not proposed to be changed are unable to be submitted upon.**

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 A3: Proposed Amendments to the Nelson Resource Management Plan (Statutory Provisions)

### Changes to Chapter A2: Meaning of words

*Add new definition A2-76*

#### **A2-76 Small-scale ultra-low emission burning appliance**

means any small-scale solid fuel burning appliance that can meet either of the following emissions and efficiency standards under real-life testing:

- a) 38 milligrams per megajoule; or
- b) no more than 0.5 grams of total suspended particulate per kilogram of fuel burned and a thermal efficiency of 65% or greater.

For the purposes of this definition:

- the appliances on the Council's 'List of Authorised small-scale ultra-low emission burning appliances' described in Appendix AQ2B satisfy the above standards for real-life testing; and
- ultra-low emission burning appliances do not include small-scale pellet burning appliances.

### Changes to Chapter A6: Air quality rules

*Add new rule AQR.26A to contents: air quality rule table*

AQR.26A Ultra-low emission burning appliances (Urban Area) new buildings, or existing buildings

*Amend the wording in AQR.21.b.ii) as follows:*

- ii) any small-scale pellet burning appliance authorised under rule AQR.26, or any small-scale ultra-low emission burning appliance authorised under rule AQR.26A.

*Amend the wording in AQR.25.1.c) as follows:*

- c) the small-scale solid fuel burning appliance replaces a small-scale solid fuel burning appliance installed in compliance with a) or b), but does not replace a pellet burner installed under Rule AQR.26, or an ultra-low emission burning appliance installed under Rule AQR.26A and

*Amend the wording in AQR.25.5 as follows:*

Permitted clause b) provides a similar 'grandparenting' provision where lawfully established open fires are being replaced. Clause c) continues this 'grandparenting provision' for replacement of the replacement appliances – that is, second and subsequent replacements. It also makes it clear that this rule does not apply to subsequent replacements of pellet burners that were first installed under rule AQR.26 or ultra-low emission burners installed under rule AQR.26A.

Clauses d) i and ii establish the emissions standards and operational requirements for replacement burners, and the smoke stack and fuel specifications. There is some limited ability to vary the specifications by resource consent, but the policy

criteria for exemptions are tight. The aim is to provide some flexibility for specific stack locations and alternative emissions criteria, if the air quality objectives are still met.

Clauses a) to c) of the permitted rule aim to restrict the total number of solid fuel fires in the Urban Area to no more than existed at the time the Plan was notified. In order to achieve the Government standard levels for PM10, it is important that overall numbers of fires in the Urban Area do not increase. Even with very low emission solid fuel appliances, a continued increase in total numbers would see a gradual erosion of the gains from changing to cleaner burners. (See Rules AQR.21, ~~and AQR.26, and AQR26.A~~ for new houses and for houses without solid fuel fires). Rules ~~AQR.26 and AQR.26A~~ provides ~~an~~ exceptions to this for pellet burners and ultra-low emission burners (respectively), but only subject to more stringent emission criteria than required under this rule.

*Amend the wording in AQR.25A.5 as follows:*

For sites added to the Urban Area since 23 August 2003, but where no open fire or small scale fuel burning appliance has been shown to be lawfully approved, then the provisions of AQR.24, AQR.25, AQR.26, AQR.26A and AQR.27A apply as is normally the case within the 'Urban Area'. Thus, for all new houses in this area, or for properties that did not have a fire before the area became part of the 'Urban Area' only a pellet fire in accordance with rule AQR.26 or an ultra-low emission burner in accordance with rule AQR.26A may be installed.

*Add new rule AQR.26A as follows (see overleaf):*

| Item  | Permitted  | Controlled  | Discretionary/Non-complying/<br>Prohibited   |
|---|--|---|--|
| <p><b><u>AQr.26A</u></b><br/><b><u>Ultra-low emission burning appliances</u></b><br/><br/><b><u>(Urban Area)</u></b></p> <p><u>New buildings,</u><br/><u>or</u><br/><u>Existing buildings</u><br/><u>not using solid fuel</u></p> | <p><u>AQr.26A.1</u><br/><u>Within the Urban Area, the discharge of any contaminant into air from the burning of wood in any small-scale ultra-low emission burning appliance installed after the date of notification of this Plan into:</u></p> <p>i) <u>any new building, or</u><br/>ii) <u>any existing building that does not have an operable open fire or any small-scale solid fuel burning appliance is permitted if:</u></p> <p>a) <u>the appliance at all times:</u></p> <p>i) <u>complies with the requirements of Appendix AQ2B, and</u><br/>ii) <u>complies with the stack requirements in Appendix AQ3, and</u><br/>iii) <u>burns no fuels in Rule AQr.20 (Prohibited Activities), and</u><br/>iv) <u>is operated so that there is no discharge of excessive smoke (excluding a 15 minute start-up period), and</u></p> <p>b) <u>where any appliance installed in accordance with this rule is successively replaced, the replacement small-scale ultra-low emitting burning appliance complies with clause a).</u></p> <p><u>(Note: Compliance with Rule AQr.22 (General Conditions) is also required.)</u></p> | <p><u>AQr.26A.2</u><br/><u>Not applicable</u></p> | <p><u>AQr.26A.3</u><br/><u>Within the Urban Area:</u></p> <p>A) <u>the discharge of any contaminant into air from the burning of wood in any small-scale ultra-low emission burning appliance that contravenes a permitted clause is a <b>non-complying activity, except that burning any fuel in AQr.20 is a prohibited activity.</b></u></p> <p>B) <u>the discharge of any contaminant into air from the replacement of any small-scale ultra-low emission burning appliance installed under AQr.26A.1 or AQr.26A.3A), is a <b>prohibited activity</b> if:</u></p> <p>i) <u>the replacement small-scale solid fuel burning appliance is not an ultra-low emission burner as defined in A2-74A.</u></p> |

| Assessment Criteria  | Explanation   |
|--|---|
| <p>AQr.26A.4</p> <p><b><u>Stack Requirements</u></b></p> <p>a) <u>the factors that constrain compliance with the stack requirements.</u></p> <p>b) <u>the safety and effectiveness of alternative stack heights, designs or discharge points.</u></p> <p>c) <u>any likely impact of downdraft or wind swirl that may affect the safe venting from the stack.</u></p> <p>d) <u>the proximity and nature of nearby activities and structures, and the location of any windows or openings to any building, or any air supply intake.</u></p> <p>e) <u>the proximity and nature of any sensitive receptors.</u></p> <p><b><u>General (applied in all cases as appropriate)</u></b></p> <p>f) <u>the likely effects on ambient air quality and the air quality target.</u></p> <p>g) <u>the impact of the discharge on local and ambient air quality.</u></p> <p>h) <u>the proximity and nature of nearby activities, including any sensitive receptors.</u></p> <p>i) <u>the cumulative effect of the proposed discharge on PM<sub>10</sub> levels, in combination with other discharges.</u></p> <p><b><u>Non-compliance with certification requirements in Appendix AQ2B</u></b></p> <p>j) <u>whether additional burning appliances can be accommodated without compromising the Plan's policy aims for ambient air quality and management of particulate matter, having particular regard to:</u></p> <p>i. <u>recent air quality monitoring data;</u></p> <p>ii. <u>modelling or other methods adopted and the extent to which they are acceptable for demonstrating additional appliances can be accommodated;</u></p> <p>iii. <u>cumulative effects</u></p> | <p>AQr.26A.5</p> <p><u>This rule applies to ultra-low emission burning appliances installed into new houses, or into existing houses that do not have a solid fuel fire, and to subsequent replacement of such fires. <b>Note that this rule does not cover small scale fuel burning appliances as these are addressed by rule AQr.25 applies.</b></u></p> <p><u>Modelling studies have indicated that, subject to the implementation of a behaviour change programme, a number of ultra-low emission fires could be allowed into new houses and those existing houses currently without fires, without having a measurable impact on the rate of improvement in Nelson's air quality. This rule, via Appendix AQ2B, sets up a special standard for ultra-low emission burners only where they are being installed in new houses or those without an existing fire. This standard is much more stringent than the one in Appendix AQ2 applying to woodburners and to pellet burners that are replacing fires and burners that existed prior to notification of this Plan.</u></p> <p><u>The number of ultra-low emission burning appliances permitted in the Urban Area is limited by Appendix AQ2B. The Appendix specifies an allocation of permitted burners in Airsheds B2 and C based on updated monitoring data and modelling completed in late 2015. The Appendix also recognises that, with time, there may be some ability to accommodate more burners in the City's four urban airsheds in excess of the 2015 allocation. To enable that consideration, the Appendix describes future monitoring and reporting to be undertaken which replicates the 2015 studies. Additional appliances will be certified where those future studies indicate additional capacity is available to do so. Appliances which have not obtained a certificate will be assessed as a non-complying activity under Rule AQr.26.3.</u></p> <p><u>AQr.26A.1b) requires that subsequent replacements of any ultra-low emission burner installed under clause AQr.26A.1, occur only with burners that meet the emission requirements in Appendix AQ2B. Otherwise, if higher emitting burners complying with Appendix AQ2 but not AQ2B were installed, there would be a gradual worsening of air quality. Ultra-low emission fires have only been allowed into new homes and those without existing fires on the basis that their collective emissions will be low – and it is important that emissions from this group of houses remain low. For this reason, it is a prohibited activity for an ultra-low emission burner installed under this rule to be replaced at a later date with a traditional-style woodburner (AQr.26A.3B).</u></p> |

## Changes to Appendices

Add new appendix AQ2B as follows (see overleaf):

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# **Appendix AQ2B:** **requirements for small-scale** **ultra-low emission burning** **appliances**

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## **Interpretation**

The provisions below are requirements for ultra-low emission burning appliances.

The Appendix refers to ‘authorisation’ and ‘certification’ processes for appliances. Broadly, these processes are for the following purposes:

- a) **Authorisation** is a process for confirming that specific appliances will operate within the emission and efficiency limits for ultra-low emission burning appliances; and
- b) **Certification** is a process for managing the allocation of ultra-low emission burning appliances in the Urban Area.

Further detail on the authorised appliances is provided under AQ2B.2 and on the certification process under AQ2B.3.

## **AQ2B.1 Requirements for small-scale ultra-low emission burning appliances**

Small scale ultra-low emission burning appliances must:

- a) have an authorisation number or approval number assigned by Nelson City Council, or Canterbury Regional Council, operating as Environment Canterbury, or the Ministry for the Environment, and
- b) contain the following information on a label permanently attached to the device and placed in a position which is clearly visible after installation of the device:
  - i) the authorisation or approval number required by a) above, and
  - ii) the Burner Allocation Certificate number assigned by Nelson City Council (see AQ2B.3.2 below), and
  - iii) the statement “Performance may vary from test values depending on actual operating conditions”, and
  - iv) the approved fuel for use in the device, and
  - v) the measured particulate emission rate in grams per kilogram (g/kg) or milligram per Megajoule(mg/MJ), and
  - vi) the percentage measure of thermal efficiency (for appliances used for space heating only), and
  - vii) the range of heat output tested (e.g. low, medium and high burner rates), and



- viii) a space to allow the installer to place the date of installation of the device.
- c) not be modified in any way so as to alter the specifications of the heating device from those tested and authorised, and
- d) be maintained in good operational order and operated in accordance with the manufacturer's instructions (so long as those do not mandate operation that would lead to output that does not comply with c)).

## **AQ2B.2 List of Authorised Appliances**

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Nelson City Council will maintain a 'List of Authorised small-scale ultra-low emission burning appliances' that achieve ultra-low emission and efficiency standards under real life testing conditions<sup>1</sup>. The list may be updated without further formality, and will be held at the Council offices and on its website ([www.nelsoncitycouncil.co.nz](http://www.nelsoncitycouncil.co.nz)) and will detail the following:

- a) the appliance make and model, and
- b) the authorised fuel for that appliance, and
- c) whether or not the appliance was tested and approved with a water heating unit (wet-back) fitted, and
- d) the particulate emission rate, grams of total suspended particulate burnt per hour on average, and
- e) the space heating efficiency, where applicable, and
- f) the authorisation number, and
- g) the date when the authorisation expires, if relevant, and
- h) any other relevant information.

## **AQ2B.3 Certification Processes**

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### **AQ2A.3.1 Context**

The Plan permits 1,600 small scale ultra-low emission burning appliances in Airsheds B2 and C (collectively). This allocation of appliances is based on monitoring and modelling undertaken in 2015, which illustrated that ambient air quality levels in these airsheds was approaching 'Acceptable' levels (as described in Policy A5-1.3).

The allocation of new appliances in Airsheds B2 and C is contingent on an enhanced Behaviour Change Programme. This Programme has been designed to improve the manner in which small scale solid fuel appliances are operated across the Urban Area, and is anticipated to contribute to ambient air quality improvements such that the overall permitted allocation will not compromise the Plan's policy aim of continual air quality improvement.

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<sup>1</sup> An example of a real-life testing methodology is Environment Canterbury's Canterbury Method 1 for testing of ultra-low emission wood burners (Revision 1.5, January 2015).

The 2015 studies also determined that new appliances could not be accommodated in Airsheds A and B1 based upon the observed ambient air quality levels in those airsheds being above the 'Alert' category (as described in Policy A5-1.3) without reducing the number of existing burners. For this reason, no appliances are expressly allocated in these Airsheds.

With time, it is possible that the Behaviour Change Programme, in combination with the Plan's other policies and methods (and other factors), will accelerate the improvement of the Urban Area's ambient air quality to a level where additional appliances can be enabled, including perhaps in Airshed A or B1. The Plan facilitates the realisation of that potential extra capacity for appliances by two processes:

- a) Rule AQR26A.3, which enables a case-by-case assessment of appliances which are not permitted through a non-complying activity resource consent process; and
- b) Through a certification process associated with updated monitoring and modelling after 2015.

This future certification approach recognises that the initial permitted allocation is based on a single 'snapshot' of the Urban Area's air quality levels, and that future assessments may indicate that additional appliances can be accommodated. It provides an efficient and certain process for enabling any additional allocation deemed appropriate through future studies relative to subsequent plan change processes or ad hoc non-complying activity resource consents.

As outlined below, it is anticipated that the Council will carry out monitoring and modelling exercises every two years using the methodology set out in section AQ2B3.4 to facilitate additional allocations where appropriate.

### **AQ2B.3.2 General requirement for certification**

Prior to installation of any new small scale ultra-low emission burning appliance, a Burner Allocation Certificate (BAC) must be obtained from the Council.

### **AQ2B.3.3 Certification: Permitted appliances in Airsheds B2 and C**

The Council will issue a BAC provided that the appliance is located on a site in Airshed B2 or Airshed C, and the following limits are not exceeded (from the date that Plan Change A3 was made operative):

- a) in Airshed B2, no more than 1000 appliances shall be certified; or
- b) in Airshed C, no more than 600 appliances shall be certified.

**AQ2B.3.4 Certification: Any appliance in Airshed A or B1 and any appliance in Airshed B2 or C where AQ2B.2.3 does not apply**

For appliances in Airshed A or B1, and in Airshed B2 or C where AQ2B.3.3 does not apply, the Council will issue a BAC when the following procedure is undertaken and the requirements of the procedure are satisfied:

**A. Methodology for determining capacity**

This methodology is based upon the approach used in 2015 for determining airshed capacity for new appliances. It describes how future capacity will be determined (if any) for the purposes of additional certification of appliances not addressed by AQ2B.3.3.

While the approach is similar across all four Urban Area airsheds, there are some bespoke measures to be adopted for each as described below.

**1. AIRSHED A**

*Background*

The overall aim is to determine whether PM<sub>10</sub> concentrations in Airshed A are within the NES 'Alert' level (or better) when taking into account worst case meteorological conditions (as monitored between 2001 and 2014) and the extent to which there may be capacity in Airshed A for new installations of burners.

The method is based on an examination of the relationship between winter time PM<sub>10</sub> concentrations and meteorological conditions in Nelson. Using data from Airshed A and local meteorological data it has been identified that high pollution episodes typically occur when there are more than nine hours per day of hourly average temperature less than five degrees Celsius and highest concentrations occur when the wind speed is less than 2 ms<sup>-1</sup> for 24 hours.

Moreover, the years of 2003, 2006 and 2009 have been identified as containing likely worst case meteorological conditions with respect to the second highest PM<sub>10</sub> concentrations. A worst case peak (second highest PM<sub>10</sub>) to mean (smoothed data from winter high pollution dataset) ratio<sup>2</sup> of 1.56 from 2003 is used to estimate likely worst case peak concentrations based on average concentrations on days that meet the specified meteorological criteria.

The method requires the peak to mean ratio be applied to a 'rolling' three year average to ensure that the trend is sustained and minimises the potential that the result for any year is an anomaly occurring as a result of a low frequency of calms during the winter period.

*Method*

**Step 1:** Identify days between May and August inclusive which have nine or more hours of average hourly temperatures less than five degrees Celsius. Take the average of PM<sub>10</sub> concentrations on days that meet this criterion for each year. Note that the analysis can only be undertaken if valid data for the period May – August (all meteorological conditions) exceeds 75%.

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<sup>2</sup> The peak to mean ratio is determined by dividing the second highest PM<sub>10</sub> concentration for each year by the smoothed average of PM<sub>10</sub> concentrations on days that meet the specified meteorological criteria.

**Step 2:** To get a three year average representative of high pollution events, average the most recent year's PM<sub>10</sub> concentrations for high pollution days (step 1) with the equivalent value for the preceding two years.

**Step 3:** Multiply the three year winter average PM<sub>10</sub> for high pollution days (step 2) by a worst case peak to mean ratio of 1.56.

**Step 4:** Express the peak concentration from step 3 relative to the NES value of 50 µg/m<sup>3</sup> by dividing it by 50 µg/m<sup>3</sup> and multiply by 100 to give a percentage. A value greater than 100% represents non-compliance with the NES for PM<sub>10</sub> and a value less than 100% indicates available capacity. The capacity would be represented by subtracting the resulting percentage from 100%.

**Step 5:** Assess the ability for additional burner numbers by considering the extent of capacity available, having regard to:

- \_\_\_\_\_ the Council's inventory of certified burners installed (and therefore the number that may still be certified/installed under the current allocation);
- \_\_\_\_\_ the impact of meteorological conditions on concentrations (including airshed dispersion); and
- \_\_\_\_\_ real life emission factors and fuel use for new small-scale ultra-low emission burning appliance installations.

## **2. AIRSHED B1**

### *Background*

The overall aim is to determine whether PM<sub>10</sub> concentrations in Airshed B1 are below the NES when taking into account worst case meteorological conditions (as monitored between 2001 and 2014) and the extent to which there may be capacity in Airshed B1 for new installations of burners.

The method is based on an examination of the relationship between winter time PM<sub>10</sub> concentrations and meteorological conditions in Nelson. The meteorological conditions identified for Airshed A are applied to Airshed B1 to estimate the days when meteorological conditions are most conducive to elevated PM<sub>10</sub> concentrations. Although a separate analysis of the relationship between meteorological conditions and PM<sub>10</sub> concentrations in Airshed B1 would provide the most robust analysis, a strong correlation between wintertime PM<sub>10</sub> concentrations between the sites indicates that meteorological conditions impact on both locations coincidentally.

A worst case peak (second highest PM<sub>10</sub>) to mean (smoothed data from winter high pollution dataset) ratio of 1.99 from 2006 was identified for the Airshed B1 dataset.

The method requires the peak to mean ratio be applied to a three year average to ensure that the trend is sustained and minimises the potential that the result for any year is an anomaly occurring as a result of a low frequency of calms during the winter period.

### *Method*

**Step 1:** Identify days between May and August inclusive which have nine or more hours of average hourly temperatures less than five degree Celsius. Take the average of PM<sub>10</sub> concentrations on days that meet this criterion for each year. Note that the analysis can only be undertaken if valid data for the period May – August (all meteorological conditions) exceeds 75%.

**Step 2:** To get a three year average representative of high pollution events, average the most recent year's PM<sub>10</sub> concentrations for high pollution days (step 1) with the equivalent value for the preceding two years.

**Step 3:** Multiply the three year winter average PM<sub>10</sub> for high pollution days (step 2) by a worst case peak to mean ratio of 1.99.

**Step 4:** Express the peak concentration from step 3 relative to the NES value of 50 µg/m<sup>3</sup> by dividing it by 50 µg/m<sup>3</sup> and multiply by 100 to give a percentage. A value greater than 100% represents non-compliance with the NES for PM<sub>10</sub> and a value less than 100% indicates capacity may be available. The capacity would be represented by subtracting the resulting percentage from 100%.

**Step 5:** Assess the ability for additional burner numbers by considering the extent of capacity available, having regard to:

- \_\_\_\_\_ the Council's inventory of certified burners installed (and therefore the number that may still be certified/installed under the current allocation);
- \_\_\_\_\_ the impact of meteorological conditions on concentrations (including airshed dispersion); and
- \_\_\_\_\_ real life emission factors and fuel use for new small-scale ultra-low emission burning appliance installations

### **3. AIRSHED B2**

#### *Background*

The overall aim is to determine whether PM<sub>10</sub> concentrations in Airshed B2 are lower than the projected downward trend occurring as a result of natural attrition replacement of older burners with NES compliant wood burners over time.

Initial trends evaluation for Airshed B2 has not been undertaken, owing to the limited PM<sub>10</sub> data available.

The starting point for 2014 PM<sub>10</sub> has been estimated using the 2014 Airshed A concentration for the second highest day, multiplied by the peak to mean ratio for Airshed A (which gives 58 µg/m<sup>3</sup>) and adjusted by the relationship between Airshed B2 concentrations and those measured in Airshed A on the same day. This gives a likely worst case second highest PM<sub>10</sub> concentration for Airshed B2 for 2014 of around 39 µg/m<sup>3</sup>.

Method

- Step 1:** Monitor PM<sub>10</sub> concentrations in Airshed B2 on a continuous ongoing basis. Identify days between May and August inclusive which have nine or more hours of average hourly temperatures less than five degree Celsius. Take the average of PM<sub>10</sub> concentrations on days that meet this criterion for each year. Note that the analysis can only be undertaken if valid data (all meteorological conditions) for the period May – August exceeds 75%.
- Step 2:** Identify the worst peak to mean ratio by adjusting the peak to mean ratio for any year for Airshed B2 by the worst case peak to mean ratio for Airshed A as follows. Compare the peak to mean ratios from Airshed B2 to those for Airshed A for the same year and adjust for a worst case year (e.g., ratio for B<sub>2year</sub> x (ratio Airshed A<sub>2003</sub> /ratio Airshed A<sub>year</sub>). For example if the peak to mean ratio for 2017 for Airshed B2 was 1.2 and the ratio for Airshed A for 2017 was 1.6 then multiply 1.2 by 1.56/1.6 to give a peak to mean ratio for Airshed B2 of 1.5. The 1.56 is the peak to mean ratio for Airshed A for 2003 (worst case ratio).
- Step 3:** Average the outputs from step 1 for two years initially (e.g., 2016 and 2017) and then for the rolling three years (e.g., 2016-2018, 2017-2019....). Multiply by the peak to mean ratio output from step 2.
- Step 4:** Compare the output from step 3 to Table 1 for the appropriate year (for example if data averaged in step 3 are for 2016 and 2017, compare with the output for 2017). If the number is less than the value in Table 1, it is indicative of additional capacity that would be available for new small-scale ultra-low emission burning appliance installations.
- Step 5:** Assess the ability for additional burner numbers by considering the extent of capacity available, having regard to:
- the Council's inventory of certified burners installed (and therefore the number that may still be certified/installed under the current allocation);
  - the impact of meteorological conditions on concentrations (including airshed dispersion); and
  - real life emission factors and fuel use for new small-scale ultra-low emission burning appliance installations

TABLE 1 - Estimated natural attrition trend in PM<sub>10</sub> concentrations (for worst case meteorology) in Airshed B2

| 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 |
|------|------|------|------|------|------|------|------|------|------|
| 38   | 37   | 37   | 36   | 36   | 35   | 34   | 33   | 33   | 33   |

## **4. AIRSHED C**

### Background

The overall aim is to determine whether PM<sub>10</sub> concentrations in Airshed C are lower than the projected downward trend occurring as a result of natural attrition replacement of older burners with NES compliant wood burners over time.

Similar to Airshed B2, no initial trends evaluation has been completed for Airshed C. However, the relative derivation method used for B2 is also not an option for Airshed C, owing to low correlation in monitoring data between Airshed A and Airshed C. For these reasons, the methodology for determining capacity in Airshed C relies upon additional preliminary steps to be followed before ultimately adopting the approach used in the other airsheds.

### Method

An evaluation of historical air quality monitoring data from different sites in Airshed C and an evaluation of dispersion modelling results will be undertaken to determine the extent to which concentrations of PM<sub>10</sub> measured at Brook Street are indicative of concentrations or contribute to PM<sub>10</sub> in other part of the Airshed. The following additional work is required to establish baseline information for the areas contributing to and represented by the current monitoring site:

- Air quality monitoring for an additional two winters at the Brook Street monitoring site.
- An evaluation of the relationship between PM<sub>10</sub> concentrations and meteorological conditions.
- Evaluation of the peak to mean ratios for high pollution days for Airshed C.
- Application of peak to mean ratios to determine worst case PM<sub>10</sub> concentrations representative of 2014 emissions.
- Derivation of PM<sub>10</sub> targets for 2017-2026 by multiplying the worst case PM<sub>10</sub> concentration for 2014 by the values shown in Table 2.

Once this information is established the methodology can follow the approach described for Airshed A (steps 1-5 adjusted to reflect the above baseline determination steps).

TABLE 2 – Estimated natural attrition projection for PM<sub>10</sub> in Airshed C

| <u>2017</u> | <u>2018</u> | <u>2019</u> | <u>2020</u> | <u>2021</u> | <u>2022</u> | <u>2023</u> | <u>2024</u> | <u>2025</u> | <u>2026</u> |
|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| <u>95%</u>  | <u>93%</u>  | <u>91%</u>  | <u>88%</u>  | <u>84%</u>  | <u>81%</u>  | <u>78%</u>  | <u>75%</u>  | <u>75%</u>  | <u>75%</u>  |

## **B. Reporting**

The Council will undertake the necessary monitoring and modelling as described in the above methodology every two years, commencing from the winter of 2015.

The results of this work will be held at the Council Offices and publicised on the Council website ([www.nelsoncitycouncil.co.nz](http://www.nelsoncitycouncil.co.nz)), and will include the number of additional appliances (if any) that may be certified as a result, relative to the previous certification allocation.

For example, the results of monitoring and modelling to be produced in 2017 will indicate whether:

- more than zero (0) appliances can be accommodated in Airshed A or Airshed B1;
- more than 1000 appliances can be accommodated in Airshed B2; or
- more than 600 appliances can be accommodated in Airshed C.

The subsequent report from 2019 will have regard to the 2017 report and so on.

## **C. Other Certification Resources**

### **1. Appliance Inventory**

For the purposes of administering the allocation of appliances, the Council will maintain an inventory of appliances that have been certified. The inventory will be held at the Council Offices, and details will be available on the Council website (as appropriate).

### **2. Database of Interested Parties**

The Council will maintain a database of parties who wish to obtain certification for an appliance during periods where the current allocation does not expressly enable such a certificate. For example, for the period 2015-2017, the database will relate to parties in Airsheds A and B1, or in the other airsheds if the permitted allocation (1600 appliances) is fully utilised prior to 2017.

Where any two-yearly report (as described under B. above) indicates additional BACs can be allocated, interested parties on the database will be given priority by chronological order.

The database will be held at the Council Offices, and details on how parties can register an expression of interest will be available on the Council website.

### **AQ2B.3.5 Certificate Duration and Administration**

Any BAC will be issued in conjunction with the associated building consent for the appliance. The BAC will lapse 12 months after the issue date unless a code compliance certificate (under s95 of the Building Act 2004) has been issued for the appliance.

No certificate of compliance may be granted for a certified appliance under Rule AQr.26A until such time as the code compliance certificate for the appliance is issued.