

NELSON CITY COUNCIL

**Nelson Air Quality Plan**

Proposed Plan Change A3

Annexure 2 - Rules

**Date:** 15 July 2016



**ANNOTATIONS:**

- black underlined and ~~struckthrough~~ text = insertions and deletions proposed by the publicly notified plan change PCA3
- grey highlight underlined and ~~struckthrough~~ = further amendments proposed in the s42A report that were adopted by the Hearing Panel

# A2

## meaning of words

### A2.i Introduction

---

This chapter defines the meaning of words used in this Plan and in the Resource Management Act 1991, unless the context otherwise requires. Where a word is followed by an asterisk (\*), the definition that follows is the meaning provided in the Act and is repeated here to assist readers. In the case of any inconsistency, the Act's definition prevails. Words marked with two asterisks (\*\*) are from the Nelson Resource Management Plan.

### A2.ii General rules of interpretation

---

- Any term which is not defined in this section has been used in its common meaning.
- Lists of items (for example, conditions, standards and terms in rules) and subparagraphs within paragraphs are to be read conjunctively (i.e. with 'ands' between them), where they are not otherwise specified.
- Singular includes plural and vice versa.
- Headings do not affect the interpretation of this Plan.
- Cross references are for the assistance of readers and are not necessarily exhaustive.

### A2.iii Abbreviations and symbols

---

<b>KW</b>	kilowatt (kW) is a measure of power (the rate at which work is being done) 1 kW = 10 <sup>3</sup> (1000) Joules per second.
<b>MW</b>	megawatt (MW) is a measure of power (the rate at which work is being done) 1 MW = 10 <sup>6</sup> (1 million) Joules per second, or 1000 kW.
<b>Micron</b>	one millionth of a metre (10 <sup>-6</sup> m), or one µm.
<b>µg/m<sup>3</sup></b>	micrograms per cubic metre
<b>NRMP</b>	Nelson Resource Management Plan

## A2.iv Definitions

A2-1A	<b>24-hour mean</b>	<p>means a mean calculated every 24 hours at midnight for the preceding 24 hours, and</p> <p>in relation to a contaminant at a particular location for a particular 24-hour period, means:</p> <ul style="list-style-type: none"> <li data-bbox="821 481 1471 616">i) the mean level at which the contaminant is recorded in the air, by continuous sampling of the air at that location, throughout the 24-hour period, or</li> <li data-bbox="821 638 1471 750">ii) the mean of the 1-hour means for that contaminant at that location for the preceding 24 hours.</li> </ul> <p>(from National Environmental Standards for air quality, 2004 (see A2-59A))</p>
A2-1	<b>Act*</b>	means the Resource Management Act 1991.
A2-2	<b>Abrasive Blasting</b>	means the cleaning, smoothing, roughening, cutting or removal of part of the surface of any article by the use, as an abrasive, of a jet of sand, metal, shot or grit or other solid material propelled by a blast of compressed air or steam or water or by a wheel.
A2-3	<b>Agrichemical</b>	means any substance, whether inorganic or organic, human-made or naturally occurring, modified or in its original state, that is used in any agriculture, horticulture or related activity, to eradicate, modify or control flora and fauna. For the purposes of this Plan, it includes agricultural compounds, but excludes any dispersant approved for use on oil spills within the Coastal Marine Area.
A2-4	<b>Agrichemical compound</b>	means any substance, mixture of substances, or biological compound, used or intended for use in the direct management of plants and animals, or to be applied to the land, place, or water on or in which the plants and animals are managed.
A2-4A	<b>Agricultural context</b>	means any activity involving the management of land and water resources in the production of animals or plant crops.
A2-5	<b>Ahi kaa</b>	means the cultural practice of literally 'keeping the home fires burning' involving the use of a fire either indoors or outdoors during times of cultural celebration.

**Pages have been excluded from this document for the sake of brevity**

A2-73B	<b>Small-scale application</b>	means the application of agrichemicals on a site involving, over any 24 hour period, less than 500g of agrichemical when applied in solid form, or 15 litres of agrichemical mixture applied in liquid form (when mixed as specified on the product label).
A2-74	<b>Small-scale fuel burning appliance</b>	<p>means any appliance burning gas, solid fuel, diesel, oil or other liquid fuels for cooking, space or water heating or other purposes, regardless of the nature of the premises where the appliance is installed, where the net heat output from the combustion is not greater than <b>70 kilowatts (kW)</b> for any gaseous or liquefied gaseous fuel, or not greater than <b>40 kW</b> for any other fuel.</p> <p>It excludes portable unflued heaters fuelled by gas, alcohol or other liquid fuels, and gas hobs or gas ranges used for cooking, and any fuel burning appliance installed in a boat, caravan or motor home. It also excludes stationary internal combustion engines as defined in A2-79.</p> <p>See also A2-53 'Large-scale fuel burning appliance'.</p>
A2-74A	<b>Small-scale pellet burning appliance</b>	means any small-scale solid fuel burning appliance that burns pellets of compressed wood sawdust, and where the pellets and air are mechanically delivered to an enclosed combustion chamber at a controlled rate. 'Pellet burner' and 'pellet fire' have the same meaning.
A2-75	<b>Small-scale solid fuel burning appliance</b>	<p>means any small-scale fuel burning appliance that burns or is capable of burning solid fuel, which has a net heat output of <b>40 kilowatts (kW)</b> or less, regardless of the nature of the premises where the device is installed (but excluding any boat, caravan or motor home).</p> <p>It includes (but is not limited to) appliances for interior space heating in buildings, such as wood burners, pellet burners, pot belly and domestic ranges and stoves, water heaters or central heating units, multi-fuel (coal/wood and waste burning systems), and similar appliances, but excludes small-scale domestic devices for smoking food. A small-scale solid fuel burning appliance does not include any incinerator or open fire as defined in A2-63.</p>

A2-76

**[deleted]Small-scale  
ultra-low emission  
burning appliance**

means any small-scale solid fuel burning appliance that has been shown, following the authorisation process in Appendix AQ2B.1 and AQ2B.2, to ~~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:

c) "real-life testing":

- i) means Canterbury Method 1 for testing of ultra-low emission wood burners (Revision 1.5, January 2015); and
- ii) includes any other testing method approved in writing by Council which represents real life operating conditions, including start up and wood as it would be typically available from a local firewood merchant, such as hardwood, softwood or unseasoned wood;

d) 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

e) ultra-low emission burning appliances do not include:

- i) small-scale pellet burning appliances, which are authorized under Appendix AQ2A; and
- ii) small-scale solid fuel burning appliances, which are authorized under Appendix AQ2.

meaning of words

A2-77

**Solid fuel**

includes wood (not including treated or manufactured wood products containing chemical adhesives), coal and its derivatives, and manufactured fuel pellets.

A2-78

---

**Stack**

means any structure designed for venting the airborne products of combustion upwards and above the ceiling height of the topmost floor of the building to which it is attached, and chimney has a similar meaning.

---

Pages have been excluded from this document for the sake of brevity

**ANNOTATIONS:**

- Black underlined and ~~struckthrough~~ text = insertions and deletions proposed by the publicly notified plan change PCA3
- Grey highlight underlined and ~~struckthrough~~ = further amendments proposed in the s42A report that were adopted by the Hearing Panel
- Red text = additional amendments adopted by the Hearing Panel to address submissions

**A6****air quality rules****AQr 1 Activities and Rules**

AQr 1.1 Rules are used extensively in this Plan as a method to implement policies. Rules prohibit, regulate, or allow activities. Rules determine whether a resource consent is required for a particular activity. In this Plan, activities that are prohibited, regulated, or allowed by the rules fall into five classes that reflect the actual or potential effect of the activity on the environment. The five classes of activity are: permitted activities, controlled activities, discretionary activities (including restricted discretionary activities), non-complying activities, and prohibited activities.

AQr 1.2 These classes of activity are described below, together with their component parts, which include standards, terms, or conditions, matters of control or matters over which discretion is restricted, and assessment criteria.

**AQr 2 Activity Classes**

..... Pages have been excluded from this document for the sake of brevity

**contents: air quality rule table**

<b>Prohibited Activities</b>	
AQr.20	Prohibited fuels and materials - outdoor burning and small-scale fuel burning appliances
AQr.21	Installation of open fires and solid fuel appliances in new buildings, or in buildings not currently using solid fuel
<b>General Conditions applying to all discharges</b>	
AQr.22	General conditions - all discharges
<b>Small-scale fuel burning appliances</b>	
AQr.23	Gas, oil, and other liquid fuels
AQr.24	Urban Area - use of appliances or fires installed prior to plan notification
AQr.25	Urban Area - installation of appliances after plan notification
AQr.25A	Special transitional provisions applying to areas added to the Urban Area after 23 August 2003
AQr.26	Pellet burning appliances (Urban Area) new buildings, or Existing buildings not using solid fuel
AQr.26A	Ultra-low emission burning appliances (Urban Area) new buildings, or existing buildings
AQr.27	Outside Urban Area - new and existing appliances and fires
AQr.27A	Urban Area - commercial cooking or smoking

**<A portion of this table has been excluded from this document for brevity>**

Item	Rule
<p><b>AQr.21</b> <b>Prohibited Activities</b></p> <p>Installation of open fires and solid fuel appliances in new buildings or in buildings not currently using solid fuel</p>	<p>AQr.21</p> <p>a) Unless otherwise specified in the Rule Table, the discharge of contaminants to air from any small-scale solid fuel burning appliance within the Urban Area (excluding Glenduan ('The Glen')), or <b>any</b> open fire within the Urban Area, as follows are prohibited activities for which no resource consent shall be granted:</p> <ul style="list-style-type: none"> <li>i) in any new residential unit or other new building erected after the date of notification of this plan, including within any subsequent extension or alteration to that unit or building, or</li> <li>ii) from any small-scale solid fuel burning appliance installed in any residential unit or other building that at the date of notification of this Plan did not contain a lawfully approved, operable small-scale solid fuel burning appliance or open fire, including within any subsequent alteration or extension to the unit or building, or</li> <li>iii) from any open fire installed in any residential unit or other building after the date of notification of this Plan, plus the rebuilding of any open fire that previously has been modified to be inoperable,</li> </ul> <p>unless before the date of notification of this Plan, a building consent application in accordance with the Building Act 1991 was lodged specifying the installation of a small-scale solid fuel burning appliance or open fire, and that consent was subsequently issued (whether the issue occurred before or after the date of notification of this Plan).</p> <p>b) This prohibition does not apply to the installation of:</p> <ul style="list-style-type: none"> <li>i) any small-scale solid fuel burning appliance or any stove classified as an open fire in an industrial or trade premises where the fire is used exclusively for the cooking or smoking of food for wholesale or retail sale, or</li> <li>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.</li> </ul>
<b>General Conditions</b>	
<p><b>AQr.22</b> <b>General Conditions</b></p> <p>All discharges</p>	<p>AQr.22</p> <p>The following general conditions apply to all discharges of contaminants to air, including those allowed as permitted activities in the Rule Table, excluding those allowed by a resource consent unless the consent states otherwise:<sup>1</sup></p> <ul style="list-style-type: none"> <li>a) The discharge must not result in any offensive or objectionable odour to the extent that it causes an adverse effect beyond the boundary of the site of the discharge, and</li> <li>b) The discharge must not result in dispersal or deposition of particles, including smoke particles or dust, to the extent that it causes an offensive or objectionable effect beyond the boundary of the site of the discharge, and</li> <li>c) The discharge must not significantly impair visibility beyond the boundary of the site of the discharge, and</li> <li>d) The discharge must not cause any corrosion to any structure beyond the boundary of the site of the discharge, and</li> <li>e) The discharge must not result in effects beyond the boundary of the site that are noxious or dangerous.</li> </ul>

<sup>1</sup> In terms of enforcement and compliance with Rule AQ22, Council staff will be guided as appropriate by Appendices AQ9, 10 and 11 in this Plan.

Assessment Criteria	Explanation
	<p>AQr.21.5</p> <p>Within the Urban Area (defined in Chapter A2) this rule prohibits the use of solid fuel fires (open fires, wood burners and multi-fuel burners) in houses and buildings built after the notification of the Air Quality Plan. An exclusion is made for enclosed solid fuel burners (but not open fires) at The Glen as the small population with a seaside location and better air circulation means holding down burner numbers is less critical. The prohibition also applies to enclosed burners in houses and buildings that at the date of notification of the Plan did not already have a solid fuel fire installed, or an application lodged for a Building Consent for such a fire, and to new open fires or the re-commissioning of inoperable open fires.</p> <p>An exemption is also granted for industrial and trade premises to allow them to install (by resource consent) wood stoves for cooking, for such things as wood-fired pizzas or barbecue grills.</p> <p>Computer modelling has shown that in order to meet the Government guidelines for PM<sub>10</sub>, the numbers of fires burning solid fuel in Nelson must not increase above current levels. A 70% reduction in wintertime peak PM<sub>10</sub> levels is required to achieve the air quality target and this necessitates strong measures to control emissions from fires.</p> <p>However Policy A5-1.5 (Solid fuel fire numbers) notes the improving design of solid fuel burners, especially pellet fires, may mean that this rule may be reconsidered at an appropriate time in the future. This would be done by means of a plan change.</p>
	<p>AQr.22.5</p> <p>These are general conditions that apply in all instances, unless otherwise stated.</p> <p>Any breach of the conditions will not result in requirements for resource consents but rather will be enforced via the Council's monitoring and enforcement mechanisms. In doing so the matters in Appendices AQ9 to 11 will be had regard to.</p> <p>The matters that the General Conditions cover are all significant air quality issues, particularly in relation to odour, dust and particles, including smoke.</p>

**Pages have been excluded from this document for the sake of brevity**

Item	Permitted	Controlled	Discretionary/Non-complying/ Prohibited
<p><b>AQr.25</b></p> <p><b>Small-scale solid fuel burning appliances</b></p> <p><b>(Urban Area)</b></p> <p>Installation after plan notification</p> <p>(For sites that have become part of the Urban Area since 23 August 2003, see rule AQr.25A)</p>	<p>AQr.25.1</p> <p>Within the Urban Area, the discharge of any contaminant into air from the burning of solid fuel in any small-scale solid fuel burning appliance installed after the date of notification of this plan is permitted if:</p> <p>aa) the small-scale solid fuel burning appliance is installed at Glenduan (The Glen), or</p> <p>a) the solid fuel burning appliance replaces a solid fuel burning appliance or 'Jetmaster'-type insert fireplace in the building and on the site that was lawfully approved before the date of notification of this Plan, or was otherwise authorised under Rule AQr.24, and, where a cessation date is specified in Rule AQr.24.1.cc), the building consent application for replacement is lodged with the Council prior to that date, or</p> <p>b) up to 1 January 2008, the small-scale solid fuel burning appliance replaces an operable open fire on the site that was lawfully approved before the date of notification of this Plan or was otherwise authorised under Rule AQr.24, and the replacement burner is in the same room as the open fire or in an extension of that room, or</p> <p>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, <u>or an ultra-low emission burning appliance installed under Rule AQr.26A and</u></p> <p>d) the appliance (including any second-hand or repaired appliance) at all times:</p> <p>i) complies with the emission, operational and other requirements in Appendix AQ2, and</p> <p>ii) complies with the stack requirements in Appendix AQ3, and</p> <p>iii) burns only fuel approved for use in the device as in Appendix AQ2, and burns no fuels in Rule AQr.20 (Prohibited Activities), and</p> <p>iv) is operated so that all reasonable steps are taken to minimise the amount of smoke discharged, and there is no discharge of excessive smoke (excluding a 15 minute start-up period).</p> <p><u>(Note: The replacement of existing authorised appliances referred to in clauses aa), a), b) and d) with ultra-low emission burning appliances is permitted under Rule AQr. 26A.1</u></p>	<p>AQr.25.2</p> <p>Not applicable</p>	<p>AQr.25.3</p> <p><b>Stack</b></p> <p>A) Any discharge that contravenes permitted clause d) ii) is a <b>restricted discretionary activity</b>.</p> <p>Discretion restricted to the location, height and design of the emission stack, and the proximity of it to obstacles.</p> <p><b>Emission standards &amp; other</b></p> <p>B) Any discharge that contravenes permitted clause d) i) is a non-complying activity.</p> <p><b>Other</b></p> <p>C) Any discharge that contravenes permitted clauses a), b), c) or d)iii) is a prohibited activity. Non-compliance with permitted clause (d)(iv) is an enforcement matter.</p>

	(Note: Compliance with Rule AQR.22 (General Conditions) is also required.)		
--	--	--	--

Assessment Criteria	Explanation
<p>AQr.25.4</p> <p><b>Stack Requirements</b></p> <p>a) the factors that constrain compliance with the stack requirements.</p> <p>b) the safety and effectiveness of alternative stack heights, designs or discharge points.</p> <p>c) any likely impact of downdraft or wind swirl that may affect the safe venting from the stack.</p> <p>d) 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.</p> <p>e) the proximity and nature of any sensitive receptors.</p> <p><b>Non-compliance with emission standards</b></p> <p>f) the results of any alternative appliance testing methodology, having regard to the reliability and source of the results, the emission rate, the thermal efficiency, the emissions relative to thermal efficiency, and the likely daily particulate output relative to that expected under Appendix AQ2 a) and b).</p> <p>g) whether any departure from the emission and other requirements in Appendix AQ2 is for a single installation of an appliance, or seeking generic approval for a particular make and model of appliance to be included on the 'List of Authorised Solid Fuel Burning Appliances' referred to in Appendix AQ2.</p> <p><b>General (applied in all cases as appropriate)</b></p> <p>h) the likely effects on ambient air quality and the air quality target.</p> <p>i) the impact of the discharge on local and ambient air quality.</p> <p>j) the proximity and nature of nearby activities, including any sensitive receptors.</p> <p>k) any precedent effect of allowing the discharge, including any adverse impact on the public's confidence in the consistent administration and the integrity of this Plan and the Council's clean air target and strategies.</p>	<p>AQr.25.5</p> <p>This rule applies only within the Urban Area which is defined in Chapter A2 (Meaning of Words).</p> <p>The restriction in clauses a) and b) (i.e. that there has to be an existing burner or open fire) does not apply at The Glen. However any burner installed in a new home or an existing home must comply with the emissions standards and other controls in AQr.25.</p> <p>Clause a) of the permitted rule allows a solid fuel burning appliance that existed in a building prior to the Plan being notified to be replaced with another solid fuel burning appliance, providing the replacement appliance complies with the defined emissions standards and other clauses, and the replacement occurs prior to any mandatory phase-out date for use of the existing burner if a date is specified in Rule AQr.24.1.cc).</p> <p>The appliance being replaced needs to have been 'lawfully approved' (See definition in Chapter A2, and Rule AQr.24). Rule AQr.24 sets out when existing fires and burners are deemed to be 'lawfully approved', including fires or burners that were 'mid-process' when this Plan was notified.</p> <p>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.</p> <p>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.</p> <p>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 PM<sub>10</sub>, 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 AQr.26A 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.</p> <p>The 'grandparenting' provision applies only to 'lawfully approved' fires or burners, as defined by Rule AQr.24, including consents granted under that rule. Rule AQr.24 in combination with Rule AQr.25 prevents people installing second-hand burners after the plan is notified in order to try to claim false 'grandparenting' rights. This otherwise would undermine one of the cornerstones of the clean air strategy, and could compromise achieving the Government PM<sub>10</sub> guideline level.</p> <p>Where no building consent or other authorisation exists for the original fire or burner that is to be replaced under this rule, some limited flexibility is provided in rule AQr.24 to authorise that fire or burner, provided the existence of the fire or burner prior to Plan notification can be reliably proven. Rule AQr.24 also allows (by consent application) for special circumstances to be considered where there is, or may be, a delay in installing the original fire or burner.</p> <p>For sites that have become part of the Urban Area since 23 August 2003, see rule AQr.25A.</p> <p><b>Note: Compliance with Rule AQr.22 General Conditions is also required which relates to smoke, dust, odour and other effects. In terms of compliance and enforcement of this rule, and permitted clause (d)(iv), Council staff will be guided as appropriate by Appendices AQ9, 10 and 11.</b></p>

Item	Permitted	Controlled	Discretionary/Non-complying/ Prohibited
<p><b>AQr.25A</b> <b>Small-scale solid fuel burning appliances</b></p> <p>Special transitional provisions applying to areas added to the Urban Area after 23 August 2003 (the notification date of this Plan)</p> <p>(For sites outside the Urban Area, Rule AQr.27 applies)</p>	<p>AQr.25A.1</p> <p>The discharge of any contaminant into air from the combustion of solid fuel in any open fire or small-scale solid fuel burning appliance located on a site:</p> <p>A) lying outside the Urban Area as shown in Appendix AQ12 (this being the extent of the Urban Area at the time this Plan was notified on 23 August 2003), and</p> <p>B) within the present extent of the Urban Area as defined in AQ2-86</p> <p>is permitted if:</p> <p>a) the open fire or small-scale solid fuel burning appliance on the site was lawfully approved before the notification of Plan Change A1 [25 September 2010] or a building consent to install such a fire or appliance on the site was lodged with the Council before that notification date, and</p> <p>b) no fuels in Rule AQr.20 (Prohibited Fuels) are burnt, and</p> <p>c) any small-scale solid fuel burning appliance or operable open fire that complies with clause a) or was authorised under Rule AQr.25A.3B is replaced with a small-scale solid fuel burning appliance that complies with AQr.25.1d). The provisions of AQr.25 will apply in all respects (including AQr.25.3 A &amp; B), and this will include subsequent replacements, but the notification date and cessation dates specified in AQr.25.1 a) and b) will not apply.</p> <p>(Note: Compliance with Rule AQr.22 (General Conditions) is also required)</p>	<p>AQr.25A.2</p> <p>Not applicable</p>	<p>AQr.25A.3</p> <p>Within the area lying outside the Urban Area as shown in Appendix AQ12 (this being the extent of the Urban Area at the time this Plan was notified on 23 August 2003), and within the present extent of the Urban Area as defined in AQ2-86:</p> <p>A) Any discharge that contravenes permitted clause b) is a prohibited activity.</p> <p>B) Any discharge that contravenes permitted clause a) is a restricted discretionary activity, if:</p> <p>a) evidence is provided that the burner was installed prior to the notification date specified in AQr.25A.1 a).</p> <p>Discretion is restricted to approval of whether the fire or burner existed in the building and was in use prior to the notification date specified in AQr.25A.1 a).</p> <p>Resource consent applications for restricted activities under this rule will be considered without notification and without service of notice.</p>

Assessment Criteria	Explanation
<p>AQr.25A.4</p> <p>a) the assessment criteria in rule AQr.25.4.</p>	<p>AQr.25A.5</p> <p>This rule provides transitional provisions for domestic fires or burners in areas that have changed from rural to being part of the 'Urban Area'. That is, areas that are defined as 'Urban Area' but which were not 'Urban Area' when the Air Quality Plan was notified on 23 August 2003.</p> <p>As the zoning of land under the Nelson Resource Management Plan changes over time, or rural land is subdivided for residential use, more land comes under the Air Quality Plan definition of 'Urban Area' as set out in A2-86. 'Urban Area' in A2-86 is both a physical map (Figure A2.1) and defined in words to deal with land use or zoning changes that occur in the period after the most recent updating of Figure A2.1.</p> <p>The expansion of the Urban Area can create potential inequities. For example, use of an open fire in a rural farmhouse is a permitted activity under rule AQr.27 of this Plan. Within the 'Urban Area', however, use of open fires has been prohibited since 1 January 2008 due to rule AQr.24.1c).</p> <p>If after 1 January 2008 that rural property became part of the 'Urban Area' by virtue of re-zoning or subdivision under A2-86 b) or c), then use of the fire would become illegal, were it not for this rule AQr.25A.</p> <p>The open fire could not be replaced with a woodburner, since AQr.25, the rule that allows an open fire to be replaced with a complying woodburner, does not allow this to occur after the 1 January 2008 ban date specified. Thus, without the transitional provisions of this rule, the homeowner would have an open fire that suddenly became illegal, and would not be able to replace it with a woodburner.</p> <p>Similar transitional issues apply to some woodburners, depending on their age and the airshed they are in.</p> <p>To address these problems, this rule allows such fires or burners to continue to be used for as long as the owner wishes or the burner continues functioning, and then it can be replaced with a clean air approved burner if the owner desires.</p> <p><b>Note:</b></p> <p>For sites outside the Urban Area, Rule AQr.27 applies.</p> <p>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, <u>AQr.26A</u> 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 <u>AQr.26A</u> may be installed.</p> <p><b>Note: Compliance with Rule AQr.22 General Conditions is also required which relates to smoke, dust, odour and other effects. In terms of compliance and enforcement of this rule, Council staff will be guided as appropriate by Appendices AQ9, 10 and 11.</b></p>

Item	Permitted	Controlled	Discretionary/Non-complying/ Prohibited
<p><b>AQr.26</b> <b>Pellet burning appliances</b></p> <p><b>(Urban Area)</b></p> <p>New buildings, or Existing buildings not using solid fuel</p>	<p>AQr.26.1</p> <p>Within the Urban Area, the discharge of any contaminant into air from the burning of wood pellets in any small-scale pellet burning appliance installed after the date of notification of this Plan into:</p> <ul style="list-style-type: none"> <li>i) any new building, or</li> <li>ii) any building that did not have an operable open fire or a small-scale solid fuel burning appliance that was lawfully approved at the time of notification of this Plan, is permitted if: <ul style="list-style-type: none"> <li>a) the appliance at all times: <ul style="list-style-type: none"> <li>i) complies with the emission, operational and other requirements in Appendix AQ2A, and</li> <li>ii) complies with the stack requirements in Appendix AQ4, and</li> <li>iii) burns only wood pellets approved for use in the device as in Appendix AQ2A, and burns no fuels in Rule AQr.20 (Prohibited Activities), and</li> <li>iv) is operated so that all reasonable steps are taken to minimise the amount of smoke discharged, and there is no discharge of excessive smoke (excluding a 15 minute start-up period), and</li> </ul> </li> <li>b) where any appliance installed in accordance with this rule is successively replaced, the replacement small-scale pellet burning appliance complies with clause a).</li> </ul> </li> </ul> <p>(Note: Compliance with Rule AQr.22 (General Conditions) is also required.)</p>	<p>AQr.26.2</p> <p>Not applicable</p>	<p>AQr.26.3</p> <p>Within the Urban Area:</p> <ul style="list-style-type: none"> <li>A) the discharge of any contaminant into air from the burning of wood pellets in any small-scale pellet burning appliance that contravenes a permitted clause is a <b>discretionary activity</b>, <b>except</b> that burning any fuel in AQr.20 is a <b>prohibited activity</b>.</li> <li>B) the discharge of any contaminant into air from the replacement of any small-scale pellet burning appliance installed under AQr.26.1 or AQr.26.3A), is a <b>prohibited activity</b> if: <ul style="list-style-type: none"> <li>i) the replacement small-scale solid fuel burning appliance is not a pellet burner as defined in A2-74A.</li> </ul> </li> </ul>

Assessment Criteria	Explanation
<p>AQr.26.4</p> <p><b>Stack Requirements</b></p> <ul style="list-style-type: none"> <li>a) the factors that constrain compliance with the stack requirements.</li> <li>b) the safety and effectiveness of alternative stack heights, designs or discharge points.</li> <li>c) any likely impact of downdraft or wind swirl that may affect the safe venting from the stack.</li> <li>d) 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.</li> <li>e) the proximity and nature of any sensitive receptors.</li> </ul> <p><b>Non-compliance with emission standards</b></p> <ul style="list-style-type: none"> <li>f) the results of any alternative appliance testing methodology, having regard to the reliability and source of the results, the emission rate, the thermal efficiency, the emissions relative to thermal efficiency, and the likely daily particulate output relative to that expected under Appendix AQ2A a) and b).</li> <li>g) whether any departure from the emission and other requirements in Appendix AQ2A is for a single installation of an appliance, or seeking generic approval for a particular make and model of appliance to be included on the 'List of Authorised Solid Fuel Burning Appliances' referred to in Appendix AQ2A.</li> </ul> <p><b>General (applied in all cases as appropriate)</b></p> <ul style="list-style-type: none"> <li>h) the likely effects on ambient air quality and the air quality target.</li> <li>i) the impact of the discharge on local and ambient air quality.</li> <li>j) the proximity and nature of nearby activities, including any sensitive receptors.</li> <li>k) the cumulative effect of the proposed discharge on PM<sub>10</sub> levels, in combination with other discharges.</li> </ul>	<p>AQr.26.5</p> <p>This rule applies to pellet burners installed into new houses, or into existing houses that did not have a solid fuel fire at the time of notification of this Plan, and to subsequent replacement of such fires. <b>Note that for houses with a fire that existed at the time this Plan was notified, rule AQr.25 applies, not this rule.</b></p> <p>Pellet burners are a special type of small-scale wood burning appliance that burn small compressed sawdust pellets (see A2-74A for definition). Pellet burners are generally lit automatically, and pellets fed to the fire at the stipulated rate by an electrically-driven auger. Air to the fire is fan-driven.</p> <p>Because the fuel is of a regular size and moisture content, and is continuously rather than batch fed, there is less potential for operator variability when a pellet fire is used in a home environment. There is therefore a good case for treating pellet burners as a different class of appliance to batch-fed woodburners.</p> <p>Modelling studies have indicated that pellet 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. However, only the lower emitting pellet fires should be allowed in under this provision. This rule, via Appendix AQ2A, sets up a special standard for pellet 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.</p> <p>AQr.26.1b) requires that subsequent replacements of any pellet burner installed under clause AQr.26.1, occur only with burners that meet the emission requirements in Appendix AQ2A. Otherwise, if higher emitting burners complying with Appendix AQ2 but not AQ2A were installed, there would be a gradual worsening of air quality. Pellet fires were only allowed into new homes and those without existing fires on the basis that their collective emissions would be low – and it is important that emissions from this group of houses remain low. For this reason, it is a prohibited activity for a pellet burner installed under this rule to be replaced at a later date with a traditional-style woodburner (AQr.26.3B).</p>

Item	Permitted	Controlled	Discretionary/Non-complying/ Prohibited
<p><b><u>AQr.26A</u></b>  <b><u>Ultra-low emission burning appliances</u></b></p> <p><b><u>(Urban Area)</u></b></p> <p>New buildings,  or  Existing buildings not using solid fuel <u>within a small-scale solid fuel burning appliance.</u></p>	<p><u>AQr.26A.1</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:</p> <p>i) <u>any new building, or</u>  ii) <u>any existing building that does not have an operable open fire or any small-scale solid fuel burning appliance.</u>  iii) <u>any building where that appliance replaces any existing small-scale solid fuel burning appliance authorised by any rule in this Plan.</u></p> <p><u>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>  ii) <u>complies with the stack requirements in Appendix AQ3, and</u>  iii) <u>burns no fuels in Rule AQr.20 (Prohibited Activities), and</u>  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>  Not applicable</p>	<p><u>AQr.26A.3</u>  Within the Urban Area:</p> <p>A) <u>Any discharge that contravenes permitted clause a) ii) is a restricted discretionary activity. Discretion is restricted to the location, height, and design of the emission stack and the proximity of it to obstacles.</u></p> <p>B) <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 non-complying activity, except that burning any fuel listed in AQr.20 is a prohibited activity.</u></p> <p>C) <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.3BA), is a prohibited activity 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 A2-76.</u></p>

Assessment Criteria	Explanation
<p>AQr.26A.4</p> <p><b>Stack Requirements</b></p> <ul style="list-style-type: none"> <li>a) <u>the factors that constrain compliance with the stack requirements.</u></li> <li>b) <u>the safety and effectiveness of alternative stack heights, designs or discharge points.</u></li> <li>c) <u>any likely impact of downdraft or wind swirl that may affect the safe venting from the stack.</u></li> <li>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></li> <li>e) <u>the proximity and nature of any sensitive receptors.</u></li> </ul> <p><b>General (applied in all cases as appropriate)</b></p> <ul style="list-style-type: none"> <li>f) <u>the likely effects on ambient air quality and the air quality target.</u></li> <li>g) <u>the impact of the discharge on local and ambient air quality.</u></li> <li>h) <u>the proximity and nature of nearby activities, including any sensitive receptors.</u></li> <li>i) <u>the cumulative effect of the proposed discharge on PM<sub>10</sub> levels, in combination with other discharges.</u></li> </ul> <p><b>Non-compliance with certification requirements in Appendix AQ2B</b></p> <ul style="list-style-type: none"> <li>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> <ul style="list-style-type: none"> <li>i. <u>recent air quality monitoring data;</u></li> <li>ii. <u>modelling or other methods adopted and the extent to which they are acceptable for demonstrating additional appliances can be accommodated;</u></li> <li>iii. <u>cumulative effects</u></li> </ul> </li> </ul>	<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. A limited number of ultra-low emission burning appliances are permitted to be installed in Airsheds B2 and C in new houses and in existing houses that do not have any existing solid fuel fire. In addition, the installation of an ultra-low emission burning appliance is permitted in all Airsheds (A, B1, B2 and C) where that ultra-low emission burning appliance replaces an existing authorised wood burner. Non-compliance with stack requirements requires consent as a restricted discretionary activity under Rule AQr.26A.3A. <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 or to replace existing authorised burners. 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 Airsheds B2 and C is limited by Appendix AQ2B. The Appendix specifies an allocation of additional permitted burners in Airsheds B2 and C only based on updated monitoring data and modelling completed in late 2015. <del>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.</del> In Airsheds B2 and C, additional appliances in excess of the 1,600 limit will may be certified as a non-complying activity under Rule AQr.26.3 where those future studies indicate it can be demonstrated that additional capacity is available to do so. Any proposal to install an ultra-low emission burning appliance in Airshed A or B1 requires consent as a non-complying activity and will be assessed in terms of airshed capacity available at the time of application. 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>

**<The remainder of the Plan has been excluded from this document for brevity>**

#### ANNOTATIONS:

- Black underlined and ~~struckthrough~~ text = insertions and deletions proposed by the publicly notified plan change PCA3
- Grey highlight underlined and ~~struckthrough~~ = further amendments proposed in the s42A report that were adopted by the Hearing Panel
- Red text = additional amendments adopted by the Hearing Panel to address submissions

# Appendix AQ2: emission requirements: small-scale solid fuel burning appliances

---

#### Insert the following advisory note:

---

#### Advisory Note:

With the exception of the information requirements of AQ2.3 below, the provisions of Appendix AQ2 (parts AQ2.1 and AQ2.2) do not apply to ultra-low emission burning appliances. In addition to the AQ2.3 information requirements below, the requirements for ultra-low emission burning appliances are specified in Appendix AQ2B.

---

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

---

#### 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**

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

<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. Refer to the definition of small-scale ultra-low emission burning appliances for more information on real life testing

- 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**

---

#### **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.

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 Airsheds 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.3.12 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.3.23 Certification: Permitted appliances in Airsheds B2 and C**

~~After the receipt of an application under AQ2B.3.1, the Council will issue a BAC if the small-scale ultra-low emission burning appliance is to be located: provided that the:~~

- ~~a) within a new building located on a site in Airshed B2 or Airshed C: or~~
- ~~b) within an existing building located on a site in Airshed B2 or Airshed C in which there is no existing operable open fire and no existing small-scale solid fuel burning appliance; or~~
- ~~c) within an existing building located on a site in Airshed A or Airshed B1 or Airshed B2 or Airshed C and is to replace any existing small-scale solid fuel burning appliance within that building that has been previously authorised by any rule in this Plan; and~~
- ~~d) when an application for a BAC is received by Council:~~
  - ~~a) i) if the application is for a new appliance in Airshed B2 under clause AQ2B.3.2 a) or b) above, no more than 999 1000 ultra-low emission burning appliances shall be certified hold a BAC in that airshed; and~~
  - ~~b) ii) if the application is for an appliance in Airshed C under clause AQ2B.3.2 a) or b) above, no more than 599 600 ultra-low emission burning appliances shall be certified hold a BAC in that airshed; and~~
  - ~~iii) if the application is for a replacement appliance in any of Airsheds A, B1, B2 or C under clause AQ2B.3.2 c) above, there is no limit on the number of existing BAC held in each airshed; and~~
  - ~~iv) For the purposes of maintaining a tally of appliances under i) and ii) above, ultra-low emission burning appliance shall not include any ultra-low emission burning appliance that replaces any existing authorised small-scale solid fuel burning appliance.~~

### **C. AQ2B.3.3-4 Council Databases Other Certification Resources**

#### **1. Appliance Inventory**

For the purposes of administering the allocation of ultra-low emission burning appliances, the Council will maintain an inventory of new and replacement ultra-low emission burning 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.3.4-5 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.

### **Explanatory Note**

Appendix AQ2B provides explicitly for the installation of a limited number of additional small-scale solid fuel burning appliances in Airsheds B2 and C provided those burners are small-scale ultra-low emission burning appliances. In addition to the Appendix AQ2B requirements, the information requirements for applications for consent involving ultra-low emission burning appliances are set out in Appendix AQ2.3.

The Plan permits 1,600 additional 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). In addition, the rules provide for the replacement of existing authorised small-scale wood burners with ultra-low emission burning appliances in all urban Airsheds A, B1, B2 and C. No provision is made in any Airshed for additional new small-scale solid fuel burning appliances that do not meet the defined requirements for ultra-low emission burning appliances.

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.

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 Table A5-2 under Policy A5-

1.3) without reducing the number of existing burners. For this reason, no appliances are currently 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. If sufficient improvement is achieved, it may be sustainable to enable additional appliances in Airsheds B2 and C and/or provide for ultra-low emission burning appliances in Airsheds A or B1. The Council will continue to monitor ambient air quality in the urban area. Any future amendment to the provision for ultra-low burning emission appliances will be made by a change to this Plan. In the meantime, the Council will consider applications for additional appliances in Airsheds B2 and C, in excess of the 1,600 allocation provided for in Appendix AQ2B, as non-complying activities.

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.3.4 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 allocation 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 allocation 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.

#### Allocation 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%.

**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 50µg/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

<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.

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-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%.

**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> 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 dispersal); 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 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 (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 B2<sub>year</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 dispersal); 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 the Brook Street monitoring station are indicative of concentrations or contribute to PM<sub>10</sub> in other part of the Airshed. The following additional work set 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

2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
95%	93%	91%	88%	84%	81%	78%	75%	75%	75%

**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), 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.~~