Nelson City Council
te kaunihera o whakatū

Notice of the ordinary meeting of the

Environment Committee

Kōmiti Taiao

Date:	Thursday 23 July 2020
Time:	10.30a.m.
Location:	Council Chamber, Civic House 110 Trafalgar Street Nelson

Agenda

Rārangi take

Chair	Cr Kate Fulton
Deputy Chair	Cr Brian McGurk
Members	Her Worship the Mayor Rachel Reese
	Cr Yvonne Bowater
	Cr Trudie Brand
	Cr Mel Courtney
	Cr Judene Edgar
	Cr Matt Lawrey
	Cr Gaile Noonan
	Cr Rohan O'Neill-Stevens
	Cr Pete Rainey
	Cr Rachel Sanson
	Cr Tim Skinner
	Glenice Paine

Pat Dougherty
Chief Executive

Quorum: 2

Environment Committee - Delegations

Areas of Responsibility:

- Building control matters, including earthquake-prone buildings and the fencing of swimming pools
- Bylaws, within the areas of responsibility
- Council and/or Community projects or initiatives for enhanced environmental outcomes
- Environmental regulatory matters including (but not limited to) animals and dogs, amusement devices, alcohol licensing (except where delegated to the Alcohol Regulatory and Licensing Authority), food premises, gambling and public health
- Regulatory enforcement and monitoring
- Maritime and Harbour Safety and Control
- Pollution control
- Hazardous substances and contaminated land
- Environmental science matters including (but not limited to) air quality, water quality, water quantity, land management, biodiversity, biosecurity (marine, freshwater and terrestrial), and coastal and marine science
- Environmental programmes including (but not limited to) warmer, healthier homes, energy efficiency, environmental education, and eco-building advice
- Science monitoring and reporting
- Climate change resilience overview (adaptation and mitigation)
- The Regional Policy Statement, District and Regional Plans, including the Nelson Plan
- Other planning documents or policies, including (but not limited to) the Land Development Manual
- Policies and strategies related to resource management matters
- Policies and strategies related to compliance, monitoring and enforcement

Delegations:

The committee has all of the responsibilities, powers, functions and duties of Council in relation to governance matters within its areas of responsibility, except where they have been retained by Council, or have been referred to other committees, subcommittees or subordinate decision-making bodies.

The exercise of Council's responsibilities, powers, functions and duties in relation to governance matters includes (but is not limited to):

- Monitoring Council's performance for the committee's areas of responsibility, including legislative responsibilities and compliance requirements
- Developing, approving, monitoring and reviewing policies and plans, including activity management plans
- Reviewing and determining whether a bylaw or amendment, revocation or replacement of a bylaw is appropriate
- Undertaking community engagement, including all steps relating to Special Consultative Procedures or other formal consultation processes
- Approving submissions to external bodies or organisations, and on legislation and regulatory proposals

Powers to Recommend to Council:

In the following situations the committee may consider matters within the areas of responsibility but make recommendations to Council only (in accordance with sections 5.1.3 - 5.1.5 of the Delegations Register):

- Matters that, under the Local Government Act 2002, the operation of law or other legislation, Council is unable to delegate
- The purchase or disposal of land or property relating to the areas of responsibility, other than in accordance with the Long Term Plan or Annual Plan
- Unbudgeted expenditure relating to the areas of responsibility, not included in the Long Term Plan or Annual Plan
- Approval of notification of any statutory resource management plan, including the Nelson Plan or any Plan Changes
- Decisions regarding significant assets

Page No.

Karakia Timatanga

1. Apologies

Nil

2. Confirmation of Order of Business

3. Interests

3.1 Updates to the Interests Register

3.2 Identify any conflicts of interest in the agenda

4. Public Forum

5. Confirmation of Minutes

5.1 28 May 2020 **5 - 28**

Document number M9897

Recommendation

That the Environment Committee

1. <u>Confirms</u> the minutes of the meeting of the Environment Committee, held on 28 May 2020, reconvened on 4 June 2020, as a true and correct record.

6. Chairperson's Report

7. Submission to National Environmental Standards for Air Quality Proposed Amendments **29 - 73**

Document number R18066

Recommendation

That the Environment Committee

1. ***<u>Receives</u> the report Submission to National Environmental Standards for Air Quality Proposed Amendments (R18066) and its attachments (A2380092, A2379821 and A2379807); and***

2. ***<u>Approves</u> the attached Nelson City Council submission on proposed amendments to the National Environmental Standards for Air Quality (A2380092).***

CONFIDENTIAL BUSINESS

Exclusion of the Public

Recommendation

That the Environment Committee

1. ***<u>Excludes</u> the public from the following parts of the proceedings of this meeting.***

2. ***The general subject of each matter to be considered while the public is excluded, the reason for passing this resolution in relation to each matter and the specific grounds under section 48(1) of the Local Government Official Information and Meetings Act 1987 for the passing of this resolution are as follows:***

Item	General subject of each matter to be considered	Reason for passing this resolution in relation to each matter	Particular interests protected (where applicable)
1	**Environment Committee Meeting - Public Excluded Minutes - 28 May 2020**	Section 48(1)(a) The public conduct of this matter would be likely to result in disclosure of information for which good reason exists under section 7.	The withholding of the information is necessary: • Section 7(2)(i) To enable the local authority to carry on, without prejudice or disadvantage, negotiations (including commercial and industrial negotiations)

Karakia Whakamutunga

Nelson City Council
te kaunihera o whakatū

Minutes of a meeting of the Environment Committee

Held in the Council Chamber, Civic House, 110 Trafalgar Street, Nelson

On Thursday 28 May 2020, commencing at 9.05a.m.

Present:	Councillor K Fulton (Chairperson), Councillors Y Bowater, T Brand, M Courtney, J Edgar, M Lawrey (via audio-visual link), B McGurk, G Noonan, R O'Neill-Stevens, P Rainey (via audio-visual link), R Sanson and T Skinner (via audio-visual link), and Ms G Paine
In Attendance:	Group Manager Environmental Management (C Barton), Group Manager Strategy and Communications (N McDonald), Team Leader Governance (R Byrne), Governance Adviser (E-J Ruthven), and Governance Support (K McLean)
Apology:	Her Worship the Mayor R Reese (for attendance), and Councillors Bowater, Edgar and Noonan (for lateness)

Karakia Timatanga

Committee members gave a karakia timatanga.

1. Apologies

Resolved EC/2020/014

That the Environment Committee

1. Receives and accepts apologies from Her Worship the Mayor for attendance on 28 May 2020, and from Councillors Bowater, Edgar, and Noonan for lateness on 28 May 2020.

Courtney/Sanson Carried

2. Confirmation of Order of Business

Councillor Fulton outlined the proposed items to be considered on 28 May, noting that the remaining items would take place during a reconvened meeting on 4 June 2020.

She explained that the meeting would adjourn following item 9 (Regulatory Fees and Charges Deliberations), to allow committee members to receive a briefing on the scope of the Urban Environments Bylaw.

She noted further that there were several document to be tabled during the meeting, including a document of responses to committee members' questions raised prior to the meeting (A2404046).

Attachments

1 A2404046 - Tabled document - Responses to questions raised by committee members

3. Interests

Councillor Sanson provided the following updates to her Interests Register entry, noting that she:

- had received Chartered Membership of the Institute of Directors;
- had been appointed to the Board of the Ākina Foundation; and
- was a shareholder in Te Taonui-a-Kupe Conservation Project, a project to restore biodiversity at Cape Jackson in the Marlborough Sounds.

4. Public Forum

There was no public forum.

5. Confirmation of Minutes

5.1 5 March 2020

Document number M7734, agenda pages 13 - 21 refer.

Resolved EC/2020/015

That the Environment Committee

1. Confirms the minutes of the meeting of the Environment Committee, held on 5 March 2020, as a true and correct record.

McGurk/Sanson Carried

5.2 21 April 2020

Document number M8820, agenda pages 22 - 27 refer.

Resolved EC/2020/016

That the Environment Committee

1. ***Confirms the minutes of the meeting of the Environment Committee, held on 21 April 2020, as a true and correct record.***

Paine/O'Neill-Stevens Carried

6. Chairperson's Report

Councillor Fulton noted that this item would be held until the reconvened meeting on 4 June 2020.

7. Good Dog Owner Policy Deliberations

Document number R16967, agenda pages 28 - 42 refer.

Contractors Matt Heale and Debra Bradley presented the report. They gave a Power Point presentation relating to this item and to item 8, Dog Control Policy and Bylaw deliberations (A2392623). Mr Heale explained the link between the Good Dog Owner policy and item 9, Regulatory Fees and Charges deliberations.

Mr Heale and Ms Bradley answered questions regarding the provisions of, and uptake levels for the Good Dog Owner policy, the provision of evidence that a dog has been neutered, incentivising registering and paying dog ownership fees on time, and the reasons for reduced fees for rural and working dogs.

Resolved EC/2020/017

That the Environment Committee

1. ***Receives the report Good Dog Owner Policy Deliberations (R16967) and its attachment (A2376041); and***

2. ***Removes the Good Dog Owner Policy discount, but retains the $5 discount for neutered dogs.***

Sanson/McGurk Carried

Attachments

1 A2392623 - Power Point presentation

The meeting was adjourned from 9.48a.m. to 9.59a.m.

8. Dog Control Policy and Bylaw Deliberations

Document number R17025, agenda pages 43 - 147 refer.

Contractors Matt Heale and Debra Bradley presented the report and gave a Power Point presentation (A2392623).

Mr Heale and Ms Bradley answered questions regarding signage and promoting etiquette of shared-use pathways to reduce conflict between different users.

Manager Environmental Inspections Limited, Brent Edwards, and Team Leader Parks, Peter Grundy, and Group Manager Environmental Management, Clare Barton, along with Mr Heale and Ms Bradley, answered questions regarding dog control in each of the grazed areas, including:

- the type of stock present in each area;
- whether stock was present year-round or for parts of the year only;
- the role of grazing stock in reducing fire risk through weed control and vegetation management;
- mountain biking tracks in the vicinity of grazed areas;
- the location of off-leash areas in the vicinity of grazed areas;
- previous dog attacks on stock;
- whether changeable signage could be installed to indicate when stock was present;
- whether dogs could be required to be on-leash only when stock was present; and
- enforcement issues relating to stock attacks, including if changeable signage were installed to indicate when stock was present.

The meeting was adjourned from 10.57a.m. to 11.16a.m.

It was noted that the recommendation would be considered in parts.

Resolved EC/2020/018

That the Environment Committee

1. ***Receives the report Dog Control Policy and Bylaw Deliberations (R17025) and its attachments (A2390190, A2390192 A2380651, A2122940, A2380653, A2380699, A2381227, A2380700, A2380703); and***

McGurk/Sanson Carried

Resolved EC/2020/019

That the Environment Committee

2. <u>Retains</u> the Railway Reserve (shown on Maps 2-5 in Attachment 4 of report R17025) as an off-leash area in the Dog Control Policy; and

<u>Sanson/Brand</u> <u>Carried</u>

Resolved EC/2020/020

That the Environment Committee

3. <u>Retains</u> the existing half on-leash and half-off leash approach to Isel Park (shown on Map 3 in Attachment 4 of Report R17025) in the Dog Control Policy; and

<u>Brand/O'Neill-Stevens</u> <u>Carried</u>

Councillor McGurk, seconded by Ms Paine, moved

That the Environment Committee

4. <u>Amends</u> the Dog Control Policy to require:

i. dogs to be on-leash in the grazed area of the Grampians Reserve (Map 6);

ii. dogs to be on-leash in the grazed area of Sir Stanley Whitehead Reserve (Map 7).

Committee members debated the motion and views for and against were expressed.

Councillor Sanson, seconded by Councillor Brand, moved an amendment:

4. <u>Amends</u> the Dog Control Policy to require:

i. dogs to be on-leash in the grazed area of the Grampians Reserve (Map 6);

ii. dogs to be on-leash in the grazed area of Sir Stanley Whitehead Reserve (Map 7) when sheep are present.

Committee members debated the amendments and views for and against were expressed. The amendment was put and a division was called:

<u>For</u>	<u>Against</u>	<u>Absent</u>
Cr Brand	Cr Courtney	Her Worship the Mayor
Cr Rainey	Cr Fulton (Chairperson)	Cr Bowater
Cr Sanson	Cr Lawrey	Cr Edgar
	Cr McGurk	Cr Noonan
	Cr O'Neill-Stevens	
	Ms Paine	
	Cr Skinner	

The amendment was lost 3 - 7.

The meeting returned to consider the substantive motion.

Resolved EC/2020/021

That the Environment Committee

4. <u>Amends</u> the Dog Control Policy to require:

i. dogs to be on-leash in the grazed area of the Grampians Reserve (Map 6 of attachment 4 of Report R17025);

ii. dogs to be on-leash in the grazed area of Sir Stanley Whitehead Reserve (Map 7 of attachment 4 of Report R17025); and

<u>McGurk/Paine</u> <u>Carried</u>

Resolved EC/2020/022

That the Environment Committee

5. <u>Retains</u> as off-leash areas:

i. the Maitai River Esplanade Reserve (Map 9 of attachment 4 of Report R17025);

ii. the Tantragee Reserve area (Map 8 in Attachment 4 of Report R17025); and

<u>O'Neill-Stevens/Brand</u> <u>Carried</u>

The meeting adjourned from 11.49a.m. to 11.52a.m.

The Chairperson explained that the meeting would consider the clause of the recommendation relating to signage later in the meeting.

Resolved EC/2020/023

That the Environment Committee

7. <u>Amends</u> the Dog Control Policy to include Monaco Reserve as an off-leash neighbourhood park (listed in Schedule 3 and shown on Map 1 in Attachment 4 of Report R17025) excluding the playground which will continue to be a dog prohibited area; and

<u>Sanson/O'Neill-Stevens</u> <u>Carried</u>

Mr Heale answered questions regarding birdlife and ecological values in Titoki Reserve, the reasons it had been suggested as an on-leash area in

the consultation document, and the reasons it was now recommended as an off-leash area.

Resolved EC/2020/024

That the Environment Committee

8. <u>Retains</u> Titoki Reserve (shown on Map 16 of Attachment 4 of Report R17025) as an off-leash area in the Dog Control Policy; and

<u>Brand/Sanson</u> <u>Carried</u>

Mr Heale answered questions regarding birdlife and ecological values in the Whakatū Drive Foreshore Reserve, and the reasons for recommending this as an on-leash area.

Resolved EC/2020/025

That the Environment Committee

9. <u>Amends</u> the Dog Control Policy to change Whakatū Drive Foreshore Reserve (shown on Map 15 of Attachment 4 of Report R17025) to an on-leash area; and

<u>McGurk/Sanson</u> <u>Carried</u>

Mr Heale and Ms Bradley answered questions regarding Map 10 of Attachment 4 (Paremata Flats Reserve and Delaware Bay Estuary), including the reasons for the proposed change for the Delaware Bay Estuary margins, islands, sand and mudflats from a prohibited area, as identified in the consultation document, to an on-leash area.

It was agreed to return to clauses 10 and 11 of the recommendation later in the meeting.

Ms Bradley answered questions regarding the proposals for prohibited, on-leash and off-leash areas on the Boulder Bank and Glenduan Neighbourhood Park, noting the need to protect birdlife on the Boulder Bank during the breeding season.

Resolved EC/2020/026

That the Environment Committee

12. <u>Amends</u> the Dog Control Policy provisions relating to the Boulder Bank in order to:

i. retain the dogs prohibited status for the 4km from the Cut towards Boulder Bank Drive (shown on Maps 11 and 12 of Attachment 4 of Report R17025) during the breeding season in Schedule One to be

from 15 August to the last day in February (previously from October to February); and

ii. include the part of the Boulder Bank from Boulder Bank Drive to the Cut (shown on Maps 11, 12, and 13 of Attachment 4 of Report R17025) as an on-leash area in Schedule Two; and

iii. exclude the part of the Boulder Bank northwards from Boulder Bank Drive (shown on Maps 13 and 14 of Attachment 4 of Report R17025) in Schedule 2 (retaining this as an off-leash area); and

iv. change the status of the Glenduan Neighbourhood Park (refer Map 14 of Attachment 4 of Report R17025) to an off-leash area excluding the playground which will continue to be a dog prohibited area; and

Fulton/Sanson Carried

The committee discussed clause 13 of the recommendation, to remove the maximum of two dogs per property unless Council approval for a greater number was sought.

Mr Heale, Ms Bradley, Mr Edwards and Ms Barton answered questions regarding nuisance factors, including whether neighbours were likely to put up with additional noise rather than complain, whether an increase in the maximum number of dogs per property had been considered, dog welfare issues, and Dog Control Officers' workload in relation to applications for more than two dogs per property.

Councillor O'Neill-Stevens, seconded by Ms Paine, moved

That the Environment Committee

13. Deletes the Number of Dogs policy from the Council's Dog Control Policy; and

The meeting was adjourned from 12.30p.m. to 1.21p.m, during which time Councillors Bowater and Noonan joined the meeting.

Committee members debated the motion and views for and against it were expressed.

The motion was put and a division was called:

For	Against	Absent
Cr Brand	Cr Bowater	Her Worship the Mayor
Cr Fulton (Chairperson)	Cr Courtney	Cr Edgar
Cr O'Neill-Stevens	Cr Lawrey	
Cr Sanson	Cr McGurk	
Ms Paine	Cr Noonan	
	Cr Rainey	

Cr Skinner

The motion was lost 5 - 7.

The meeting returned to consider clauses 10 and 11 of the recommendation, relating to Paremata Flats and the Delaware Bay estuary.

Mr Heale answered further questions regarding the areas of Map 10 of Attachment 4 that were proposed as on-leash and dog prohibited areas.

Resolved EC/2020/027

That the Environment Committee

10. <u>Amends</u> the Dog Control Policy to prohibit dogs in the fenced area of the foreshore and esplanade reserve at Paremata Flats, including the planted area of the Paremata Flats Reserve (shown on Map 10 of Attachment 4 of Report R17025) but excluding the walkway adjacent to the Wakapuaka River; and

11. <u>Amends</u> the Dog Control Policy to require dogs to be kept on a leash on the margins, islands, sand and mudflats of Delaware Estuary and the walkway adjacent to the Wakapuaka River from Paremata Flats (shown on Map 10 of Attachment 4 of Report R17025); and

<u>Fulton/McGurk</u> <u>Carried</u>

The meeting returned to consider clause 6 of the recommendation, relating to signage.

Resolved EC/2020/028

That the Environment Committee

6. <u>Approves</u> improvements to the signage in:

i. the Grampians Reserve and Sir Stanley Whitehead Park to clearly demarcate the areas where grazing occurs, and where dogs are required to be on leash; and

ii. the Grampians Reserve and Sir Stanley Whitehead Park to clearly demarcate the areas where grazing does not occur, and where dogs can be exercised off-leash; and

iii the Railway Reserve to promote considerate shared use of the paths; and

O'Neill-Stevens/Sanson Carried

Mr Grundy answered questions regarding the locations of Emano East reserve and Emano West reserve.

Councillor Fulton, seconded by Councillor Courtney moved

That the Environment Committee

13. Amends the Dog Control Policy by:

i. changing the last sentence of clause 4.1 to "Non compliance with this notice may result in enforcement action."; and

ii. changing clause 7.6 to "Where the offence relates to a failure to register a dog, Council will issue a notice that a dog is not registered. Then, if the registration fee is not paid within seven days, the owner will receive an Infringement Notice."; and

14. Amends Schedule 3 of the Dog Control Policy to rename Emano West Reserve as Te Manu Reserve and remove reference to Emano East Reserve and Hanby Park (numbers 206, 227, and 222 on the Overview Map of Attachment 3); and

15. Amends Schedule 1 item 15 of the Policy by replacing the phrase "foreshore and sea bed" with the term "common marine and coastal area" in both

The meeting was adjourned from 1.57p.m. to 2.01p.m.

It was noted that the references to Emano East and Emano West Reserves had been inadvertantly substituted. Following clarification, and with the agreement of the meeting, the wording of clause 14 of the motion was altered to:

14. Amends Schedule 3 of the Dog Control Policy to rename Emano East Reserve as Te Manu Reserve and remove reference to Emano West Reserve and Hanby Park (numbers 206, 227, and 222 on the Overview Map of Attachment 3); and

Attendance: Councillor Bowater left the meeting at 2.03p.m.

Resolved EC/2020/029

That the Environment Committee

13. Amends the Dog Control Policy by:

i. changing the last sentence of clause 4.1 to "Non compliance with this notice may result in enforcement action."; and

ii. changing clause 7.6 to "Where the offence relates to a failure to register a dog, Council will issue a notice that a dog is not registered. Then, if the registration fee is not paid within seven days, the owner will receive an Infringement Notice."; and

14. <u>Amends</u> Schedule 3 of the Dog Control Policy to rename Emano East Reserve as Te Manu Reserve and remove reference to Emano West Reserve and Hanby Park (numbers 206, 227, and 222 on the Overview Map of Attachment 3 of Report R17025); and

15. <u>Amends</u> Schedule 1 item 15 of the Policy by replacing the phrase "foreshore and sea bed" with the term "common marine and coastal area" in both; and

<u>Fulton/Courtney</u> <u>Carried</u>

Resolved EC/2020/030

That the Environment Committee

16. <u>Adopts</u> the Dog Control Policy (A2390192), after having regard to the matters in section 10(4) of the Dog Control Act and subject to the key matters outlined above.

<u>McGurk/Sanson</u> <u>Carried</u>

The meeting was adjourned from 2.04p.m. to 2.15p.m, during which time Cr Bowater returned to the meeting.

Recommendation to Council EC/2020/031

That the Council

1. <u>Retains</u> the Railway Reserve (shown on Maps 2-5 in Attachment 4) as an off-leash area in the Dog Control Bylaw; and

2. <u>Retains</u> the existing half on-leash and half-off leash approach to Isel Park (shown on Map 3 in Attachment 4) in the Dog Control Bylaw; and

3. <u>Amends</u> the Dog Control Bylaw to require:

i. dogs to be on-leash in the grazed area of the Grampians Reserve (Map 6); and

ii. dogs to be on-leash in the grazed area of Sir Stanley Whitehead Reserve (Map 7); and

4. <u>Retains</u> as off-leash areas:

i. the Maitai River Esplanade Reserve (Map 9 of attachment 4); and

ii the Tantragee Reserve area (Map 8 in Attachment 4); and

5. <u>Amends</u> the Dog Control Bylaw to include Monaco Reserve as an off-leash neighbourhood park (listed in Schedule 3 and shown on Map 1 in Attachment 4) excluding the playground which will continue to be a dog prohibited area; and

6. <u>Retains</u> Titoki Reserve as an off-leash area in the Dog Control Bylaw; and

7. <u>Amends</u> the Dog Control Bylaw to change Whakatū Drive Foreshore Reserve (shown on Map 15 of Attachment 4) to an on-leash area; and

8. <u>Amends</u> the Dog Control Bylaw to prohibit dogs in the fenced area of the foreshore and esplanade reserve at Paremata Flats, including the planted area of the Paremata Flats Reserve (shown on Map 10 of Attachment 4), but excluding the walkway adjacent to the Wakapuaka River; and

9. <u>Amends</u> the Dog Control Bylaw to require dogs to be kept on a lead on the margins, islands, sand and mudflats of Delaware Estuary and the walkway adjacent to the Wakapuaka River from Paremata Flats (shown on Map 10 of Attachment 4); and

10. <u>Amends</u> the Dog Control Bylaw provisions relating to the Boulder Bank in order to:

i. retain the dogs prohibited status for the 4km from the Cut towards Boulder Bank Drive (shown on Maps 11 and 12 of Attachment 4) during the breeding season in Schedule One to be from 15 August to the last day in February (previously from October to February); and

ii. include the part of the Boulder Bank from Boulder Bank Drive to the Cut (shown on Maps

11, 12, and 13 of Attachment 4) as an on-leash area in Schedule Two; and

iii. exclude the part of the Boulder Bank northwards from Boulder Bank Drive (shown on Maps 13 and 14 of Attachment 4) in Schedule 2 (retaining this as an off-leash area); and

iv. change the status of the Glenduan Neighbourhood Park (refer Map 14 of Attachment 4) to an off-leash area excluding the playground which will continue to be a dog prohibited area; and

11. <u>Amends</u> the Dog Control Bylaw by changing clause 10.2 of the Bylaw to: "If, in the opinion of a Dog Control Officer, any dog has become or is likely to become a nuisance to any person or injurious to the health of any person, the Dog Control Officer may, by notice in writing, require the dog owner or the owners or occupiers of the premises at which the dog is kept, within a time specified in such notice to do all or any of the following:

a. reduce the number of dogs on the premises;

b. construct, alter, reconstruct or otherwise improve the kennels of other buildings or fences used to house or contain the dog;

c. tie up or otherwise confine the dog during specified periods;

d. take such other action as necessary to minimise or remove the likelihood of nuisance or injury to health."; and

12. <u>Amends</u> Schedule 3 to rename Emano East Reserve as Te Manu Reserve and remove reference to Emano West Reserve and Hanby Park (numbers 206, 227, and 222 on the Overview Map of Attachment 3); and

13. <u>Amends</u> Schedule 1 item 15 of the Bylaw by replacing the phrase "foreshore and sea bed" with the term "common marine and coastal area" in both cases in which it is used twice within item 15; and

14. <u>Agrees</u> the amendments do not give rise to any implications under the New Zealand Bill of Rights Act 1990 and the amended Dog Control Bylaw is the most appropriate form of Bylaw; and

15. Adopts the Dog Control Bylaw (A2390190), subject to the key matters outlined above; and

16. Determines that the amended Dog Control Bylaw will take effect from 27 July 2020.

McGurk/Paine Carried

9. Regulatory fees and charges deliberations

Document number R17006, agenda pages 148 - 179 refer.

Attendance: Councillor Edgar joined the meeting at 2.18p.m.

Manager Consents and Compliance, Mandy Bishop, and Manager Building, Mark Hunter, presented the report, and tabled an updated copy of attachment four to the report (A2393437), increasing the timeframe for payment of Dog Control Fees before penalties applied.

Ms Bishop and Mr Hunter, along with Group Manager Environmental Management, Clare Barton, answered questions regarding the likelihood of the proposed fees and charges meeting Revenue and Financing Policy targets, the effect of Covid-19 on the construction and development community, the reasons for the proposed delays in commencing new fees and charges under the Resource Management Act 1991 to 1 September 2020, and under the Building Act to 1 January 2021, and the consequential effects for ratepayers in doing so.

Councillor Fulton, seconded by Councillor Courtney, moved:

That the Environment Committee

1. *Receives the report Regulatory fees and charges deliberations (R17006) and its attachments (A2375608, A2374956, A2380674, A2375618 and A2337793); and*

2. *Approves amendments to the charges under the Resource Management Act 1991 and Housing Accords and Special Housing Areas Act 2013 as detailed in Attachment 1 (A2375608) to report R16978; and*

3. *Approves the amendments to the charges under the Resource Management Act 1991 and Housing Accords and Special Housing Areas Act 2013 as detailed in Attachment 1 (A2375608) to report R16978 to commence from 1 September 2020; and*

4. *Approves amendments to the fees and charges under the Building Act 2004 as detailed in Attachment 2 (A2374956) to report R16978; and*

5. *Approves amendments to the fees and charges under the Building Act 2004 as detailed in Attachment 2 (A2374956) to report R16978 to commence from 1 January 2021; and*

6. *Approves amendments to the fees under the Dog Control Act 1996 as detailed in Attachment 4 (A2393437) to report R16978; and*

7. *Approves amendments to the fees under the Dog Control Act 1996 as detailed in Attachment 4 (A2393437) to report R16978 to commence from 1 July 2020.*

Councillor Edgar, seconded by Councillor Noonan, moved an amendment to clauses three and five of the motion:

3. *Approves the amendments to the charges under the Resource Management Act 1991 and Housing Accords and Special Housing Areas Act 2013 as detailed in Attachment 1 (A2375608) to report R16978 to commence from 1 July 2020; and*

5. *Approves amendments to the fees and charges under the Building Act 2004 as detailed in Attachment 2 (A2374956) to report R16978 to commence from 1 July 2020; and*

Committee members debated the amendment, and views for and against were expressed.

The amendment was put and a division was called:

For	Against	Absent
Cr McGurk	Cr Fulton	Her Worship the Mayor
Cr Bowater	(Chairperson)	
Cr Brand	Ms Paine	
Cr Courtney		
Cr Edgar		
Cr Lawrey		
Cr Noonan		
Cr O'Neill-Stevens		
Cr Rainey		
Cr Sanson		
Cr Skinner		

The amendment was carried 11 – 2.

Resolved EC/2020/032

That the Environment Committee

3. Approves the amendments to the charges under the Resource Management Act 1991 and Housing Accords and Special Housing Areas Act 2013 as detailed in Attachment 1 (A2375608) to report R16978 to commence from 1 July 2020; and

5. <u>Approves</u> amendments to the fees and charges under the Building Act 2004 as detailed in Attachment 2 (A2374956) to report R16978 to commence from 1 July 2020; and

<u>Edgar/Noonan</u> <u>Carried</u>

The amendment became part of the substantive motion.

Resolved EC/2020/033

That the Environment Committee

1. <u>Receives</u> the report Regulatory fees and charges deliberations (R17006) and its attachments (A2375608, A2374956, A2380674, A2375618 and A2337793); and

2. <u>Approves</u> amendments to the charges under the Resource Management Act 1991 and Housing Accords and Special Housing Areas Act 2013 as detailed in Attachment 1 (A2375608) to report R17006; and

3. <u>Approves</u> the amendments to the charges under the Resource Management Act 1991 and Housing Accords and Special Housing Areas Act 2013 as detailed in Attachment 1 (A2375608) to report R17006 to commence from 1 July 2020; and

4. <u>Approves</u> amendments to the fees and charges under the Building Act 2004 as detailed in Attachment 2 (A2374956) to report R17006; and

5. <u>Approves</u> amendments to the fees and charges under the Building Act 2004 as detailed in Attachment 2 (A2374956) to report R17006 to commence from 1 July 2020; and

6. <u>Approves</u> amendments to the fees under the Dog Control Act 1996 as detailed in Attachment 4 (A2393437) to report R17006; and

7. <u>Approves</u> amendments to the fees under the Dog Control Act 1996 as detailed in Attachment 4 (A2393437) to report R17006 to commence from 1 July 2020.

<u>Fulton/Courtney</u> <u>Carried</u>

Attachments

1 A2393437 - Tabled document - updated Attachment 4 to report R17006

The meeting was adjourned at 2.54p.m, to be reconvened on Thursday 4 June 2020 at 1.00p.m.

Nelson City Council
te kaunihera o whakatū

Minutes of a reconvened meeting of the Environment Committee

Held in the Council Chamber, Civic House, 110 Trafalgar Street, Nelson

On Thursday 4 June 2020, commencing at 1.06pm

Present:	Councillor K Fulton (Chairperson), Councillors Y Bowater, T Brand, M Courtney, J Edgar, M Lawrey, B McGurk, G Noonan, R O'Neill-Stevens, P Rainey (via audio-visual link), R Sanson and T Skinner, and Ms G Paine (via audio-visual link)
In Attendance:	Group Manager Environmental Management (C Barton), Team Leader Governance (R Byrne), Governance Adviser (E-J Ruthven), and Governance Support (K McLean)
Apology:	Her Worship the Mayor R Reese (for lateness)

10. Apologies

It was noted that Her Worship the Mayor had tendered an apology for lateness, and that Councillor Rainey would depart the meeting early.

Attendance: Councillor Edgar left the meeting at 1.08p.m.

11. Dog Control Policy and Bylaw Deliberations

Group Manager Environmental Management, Clare Barton, explained that an additional clause 16 was required to be added to the committee resolution, to delegate to the Chairperson and Deputy Chairperson the ability to make minor alterations to the Dog Control Policy, Dog Control Bylaw and associated maps, reflecting the decisions of the committee made on 28 May 2020.

Resolved EC/2020/014

That the Environment Committee

16. <u>Delegates</u> to the Chair and Deputy Chair the power to make amendments to the Policy and recommended version of the Bylaw to reflect the final details of the resolutions and recommendations made by the Committee on 28 May 2020; and

<u>Courtney/Brand</u> <u>Carried</u>

Attendance: Councillor Edgar returned to the meeting at 1.14p.m.

12. Urban Environment Bylaw Review

Document number R16988, agenda pages 180 - 186 refer.

Group Manager Environmental Management, Clare Barton, and Manager Environmental Planning, Maxine Day, presented the report.

Ms Day noted that the recommendation was procedural in nature, and analysis of the extent and breadth of options regarding the bylaw would be presented to the Committee later in 2020, including a range of options from no changes or minor changes, through to more substantial changes.

Resolved EC/2020/015

That the Environment Committee

1. ***Receives the report Urban Environment Bylaw Review (R16988); and***

2. ***Agrees to commence the review of the Urban Environments Bylaw, and that it will be completed by 2 June 2022.***

Noonan/Edgar Carried

13. COVID-19 Update Report - Impacts on Environmental Management Group Activities

Document number R17001, agenda pages 187 - 192 refer.

Group Manager Environmental Management, Clare Barton, Manager Environmental Planning, Maxine Day, Manager Consents and Compliance, Mandy Bishop, and Manager Science and Environment, Jo Martin, presented the report.

Attendance: Her Worship the Mayor joined the meeting at 1.25p.m.

Ms Martin noted updated total amounts relating to the five 'shovel ready' project applications set out in paragraph 3.22:

- Hira Reserve wetland restoration project - $310,00, application for Crown contribution of $150,000;

- Grampians Reserve restoration project - $3,000,000, application for Crown contribution of $2,700,000;

- Maitai River catchment ecological restoration - $2,250,000, application for Crown contribution of $1,700,000;

- Restoration of Significant Natural Areas and biodiversity corridors on private and iwi owned land - $2,500,000, application for Crown contribution of $1,500,000;

- Fast-tracked Taiwan Cherry eradication - $273,600, application for Crown contribution of $189,600.

Officers answered questions regarding consent numbers during and following the lockdown period, targeted feedback on the Nelson Plan from key stakeholders, air quality data immediately before, during, and after lockdown, noise complaints during lockdown, outdoor burning regulations, and the development of the 'Go Fish' card game.

There was discussion regarding parking enforcement of time periods only, noting that car parks were currently at capacity, likely due to inner city workers taking advantage of free parking.

The meeting was adjourned from 2.09p.m. to 2.22p.m.

Group Manager Infrastructure, Alec Louverdis, and Ms Barton answered further questions regarding enforcement of parking time limits, and the proposed timeframes for the re-commencement of parking charges.

Resolved EC/2020/016

That the Environment Committee

1. Receives the report COVID-19 Update Report - Impacts on Environmental Management Group Activities (R17001).

McGurk/O'Neill-Stevens Carried

14. Submission to DOC on the proposed improvements for whitebait management

Document number R15865, agenda pages 193 - 205 refer.

Water Quality Scientist, Dr Paul Fisher, presented the report.

Dr Fisher answered questions regarding iwi involvement in freshwater management issues and in the development of the submission.

Resolved EC/2020/017

That the Environment Committee

1. Receives the report Submission to DOC on the proposed improvements for whitebait management (R15865) and its attachments (A2346450 and A2345470); and

2. <u>Approves</u> retrospectively, the submission to the Department of Conservation on the proposed improvements to whitebait management (A2346450).

<u>Edgar/O'Neill-Stevens</u> <u>Carried</u>

15. Minor amendment to the Navigation Safety Bylaw

Document number R15919, agenda pages 206 - 212 refer.

Manager Parks and Facilities, Rosie Bartlett, and Contract Supervisor Facilities, Emily Fairhall, presented the report.

Ms Bartlett and Ms Fairhall answered questions regarding parking fees at the marina, and undertook to consider further the wording of the recommendation to Council, to ensure it was as flexible as possible in order to future-proof the Bylaw.

Resolved EC/2020/018

That the Environment Committee

1. <u>Receives</u> the report Minor amendment to the Navigation Safety Bylaw (R15919); and

2. <u>Agrees</u> the proposed amendment to clause 3.21(b) of the Navigation Safety Bylaw 2012 (No. 218) is a minor change that meets the requirements of section 156(2) of the Local Government 2002; and

3. <u>Agrees</u> that public consultation on the proposed amendment is not required because the proposed amendment is a minor change.

<u>McGurk/Noonan</u> <u>Carried</u>

Recommendation to Council EC/2020/019

That the Council

1. <u>Makes a minor change to</u> clause 3.21(b) of the Navigation Safety Bylaw, to state that the words "No person shall use any boat ramp for the launching of any trailer boat without having first paid any fees or charges which may be fixed by the Council from time to time in respect of such use, and displaying the appropriate ticket, label, sticker or other proof of such payment in a prominent and easily seen position on the trailer or in or on the towing vehicle" be replaced, from 29 June 2020 with the words "No person shall use any boat ramp for the launching of any trailer boat without

having first paid any fees or charges which may be fixed by the Council from time to time in respect of such use, the payment by casual users to be proved by the person submitting the registration number of the towing vehicle at the time of payment, and the payment by annual permit holders to be proved by displaying the proof of payment in a prominent and easily seen position on the trailer or in or on the towing vehicle"

McGurk/Noonan Carried

The meeting was adjourned from 2.52p.m. to 2.56p.m.

16. Nelson Plan: Additional Funding

Document number R14797, agenda pages 213 - 223 refer.

Group Manager Environmental Management, Clare Barton, and Manager Environmental Planning, Maxine Day, presented the report and tabled an updated recommendation and table from paragraph 4.1 of the report (A2404376) and an updated copy of attachment one (A2404366).

Ms Barton and Ms Day answered questions regarding the amount requested for the current financial year, stakeholder engagement that had been undertaken during the Covid-19 level 4 lockdown, and amounts spent on the Nelson Plan in previous financial years and forecast for future financial years.

It was noted that the amounts for each financial year in the updated copy of attachment one may reflect budgeted amounts rather than actual spend, and would be updated to be presented to Council during the Annual Plan 2020/21 deliberations meeting.

Attendance: Councillor Rainey left the meeting at 3.05p.m.

Ms Barton and Ms Day answered further questions regarding the scope of work and accompanying budgets for upcoming years of the Nelson Plan, and the engagement of a Project Manager in the current financial year to steer the Nelson Plan project going forward.

The meeting was adjourned from 3.24p.m. to 3.37p.m, during which time Her Worship the Mayor left the meeting.

Resolved EC/2020/020

That the Environment Committee

1. <u>Refers</u> the matter Nelson Plan: Additional Funding to be considered at the Council meeting on 25 June 2020, noting that the updated table of Nelson Plan Costs 2015-2024 will be provided to the Council Annual Plan deliberations meeting on 9 June 2020.

Edgar/Noonan Carried

Attachments

1 A2404376 - tabled document - updated recommendation and table in clause 4.1 of report R14797

2 A2404366 - tabled document - updated copy of attachment one to report R14797

17. Exclusion of the Public

Resolved EC/2020/021

That the Environment Committee

1. Excludes the public from the following parts of the proceedings of this meeting.

2. The general subject of each matter to be considered while the public is excluded, the reason for passing this resolution in relation to each matter and the specific grounds under section 48(1) of the Local Government Official Information and Meetings Act 1987 for the passing of this resolution are as follows:

Edgar/Brand Carried

Item	General subject of each matter to be considered	Reason for passing this resolution in relation to each matter	Particular interests protected (where applicable)
1	**Continuation of the transfer arrangement with Port Nelson Ltd for Harbourmaster responsibilities**	Section 48(1)(a) The public conduct of this matter would be likely to result in disclosure of information for which good reason exists under section 7	The withholding of the information is necessary: • Section 7(2)(i) To enable the local authority to carry on, without prejudice or disadvantage, negotiations (including commercial and industrial negotiations)

The meeting went into confidential session at 3.40p.m and resumed in public session at 3.49p.m.

RESTATEMENTS

It was resolved while the public was excluded:

1	**CONFIDENTIAL: Continuation of the transfer arrangement with Port Nelson Ltd for Harbourmaster responsibilities**
	That the Environment Committee ***9. <u>Agrees</u> that Report (R16989), Attachment 1 (A2367153), and the Committee's resolutions be made publicly available once an agreement has been executed.***

Karakia Whakamutunga

The committee gave a karakia whakamutunga.

There being no further business the meeting ended at 3.50p.m.

Confirmed as a correct record of proceedings:

_____ Chairperson _____ Date

Nelson City Council
te kaunihera o whakatū

Environment Committee

23 July 2020

REPORT R18066

Submission to National Environmental Standards for Air Quality Proposed Amendments

1. Purpose of Report

1.1 To present the submission on proposed amendments to the National Environmental Standards for Air Quality for approval by the Committee.

2. Summary

2.1 The Ministry for the Environment is seeking submissions on proposed amendments to the National Environmental Standards for Air Quality. Due to COVID-19 the submission deadline has been extended from 24 April 2020 to 31 July 2020.

2.2 Officers have drafted a submission on the proposal to ensure that implications for the Council are considered and to test the rationale and technical assessments used to inform the proposed amendments. The draft submission is included as attachment 1 (A2380092)

2.3 Approval of this submission is sought from the Environment Committee.

3. Recommendation

That the Environment Committee

1. ***Receives the report Submission to National Environmental Standards for Air Quality Proposed Amendments (R18066) and its attachments (A2380092, A2379821 and A2379807); and***

2. ***Approves the attached Nelson City Council submission on proposed amendments to the National Environmental Standards for Air Quality (A2380092).***

4. Background

4.1 The Ministry for the Environment (MfE) is seeking views on proposed amendments to the National Environmental Standards for Air Quality (NESAQ) released in February 2020. These proposals are summarised in a consultation document (https://www.mfe.govt.nz/sites/default/files/media/Air/proposed-amendments-to-the-national-environmental-standards-for-air-quality-consultation-document_0.pdf) which details amendments to the standards for ambient particulate matter and burner design in the current NESAQ; and new standards for mercury emissions to air in line with the international Minamata Convention which New Zealand is planning to ratify. A copy of the consultation document is available on request and a brief summary document is included as Attachment 2 (A379821).

4.2 The proposed amendments include:

- Adopting a daily average $PM_{2.5}$ standard of 25µg/m^3 (with 3 or fewer exceedances allowed in a 12-month period);
- Adopting an annual average $PM_{2.5}$ standard of 10µg/m^3;
- An airshed will be considered 'polluted' if either the daily or annual $PM_{2.5}$ standard is breached, averaged where possible over the previous five years;
- New applications for consent to discharge $PM_{2.5}$ in a polluted airshed must be declined, unless offset within the same airshed;
- Emissions standard for burners will be reduced from no more than 1.5g/kg to no more than 1.0g/kg. This will apply to all newly installed domestic burners, including open fires, wood, coal, pellet and multi-fuel burners, space heaters, cookers, water boilers in properties less than 2 hectares in size;
- Prohibiting solid-fuel burning in open fires;
- Prohibiting the use of mercury in industrial processes specified in the Minamata Convention on Mercury.

5. Discussion

5.1 The Council is legally obliged to comply with the standards and timeframes set in the NESAQ under the requirements of the Resource Management Act 1991. Provisions within the Nelson Air Quality Plan were established to meet these requirements and any change to the NESAQ will have consequences for the Council's air quality management programme.

5.2 Air quality scientist Emily Wilton (Environet Ltd) has undertaken an evaluation of the NESAQ proposed amendments to help understand their

implications for Nelson, taking into consideration the considerable amount of work the Council has already done to meet current requirements of the NESAQ. Her report (Attachment 3 – A2379807) formed the basis for the Council's draft submission.

5.3 In the draft submission Council seeks:

- To test the rationale and rigour of technical assessments used to inform the proposed amendments;
- To endorse in principle establishing new standards focussing on $PM_{2.5}$ rather than PM_{10}, but require further consideration of what the standards should be;
- Reconsideration of a daily annual average standard for $PM_{2.5}$ to better reflect the science and health guidance currently available, and to ensure the Ministry's cost-benefit analysis accurately accounts for new costs to households to achieve compliance, including where current heating sources would need to be removed or replaced;
- Further consideration of the process for authorising new woodburners, including:
    i. progressive adoption of ultra-low emission technology;
    ii. allowance for modest reductions in space heating efficiency, where demonstrable emission reductions can be achieved as a result;
    iii. investigation of authorisation testing processes that better simulate real world conditions than the current Australia / New Zealand standard;
    iv. shifting the responsibility for authorising the appliances away from local authorities to an appropriate Government department, i.e. under the Ministry for the Environment, the Environmental Protection Agency, the Ministry for Business, Innovation & Employment, or some other appropriate entity; and
- To support ratification of the Minamata Convention on Mercury.

5.4 Further discussion of some of these points are provided below.

Introducing $PM_{2.5}$ standards

5.5 The proposed introduction of a $PM_{2.5}$ standard which would replace the existing PM_{10} standard as the primary standard for managing PM would have the following benefits and are therefore worth supporting in principle:

- $PM_{2.5}$ is a better proxy for anthropogenic air pollution sources of concern (ie excludes naturally-sourced sea salt and pollen which are beyond Council control);

- Smaller particles have more severe and significant health impacts as they lodge deeper into human body/organs;

- $PM_{2.5}$ includes black carbon particles (ultra-fine soot), emitted from some combustion sources (notably from diesel and wood combustion). It contributes to climate change and will cause significant health effects.

5.6 However, it should be noted that:

- Environet states the proposed NESAQ for $PM_{2.5}$ have not been based on current scientific information, nor have they followed the rationale established by the World Health Organisation (WHO) and should be reviewed;

- Nelson is likely to be compliant with the proposed annual average standard of 10µg/m^3 as a result of current provisions to meet the existing PM_{10} standards so no additional regulatory measures are required;

- To meet the proposed daily winter $PM_{2.5}$ standard of 25µg/m^3 would require up to a 50 percent reduction in current emissions in Airshed A. The costs of meeting this would be significant, especially for householders who would have to replace their burners with Ultra-Low Emission burners or non-solid fuel options. A more appropriate standard for Nelson, based on the work done by the WHO, would be 40-45µg/m^3.

Technical assessment

5.7 Significant issues have been identified with the technical assessment underpinning the proposed amendments. In particular the following issues need to be addressed:

- Lack of scientific evidence that supports the assumption that reducing the design criteria for woodburners from 1.5g/kg to 1g/kg will result in improvements in emissions from woodburners;

- Predictions of annual average concentrations for 2018 and 2028 are grossly inaccurate for Nelson and other airsheds. The cost benefit analysis provided by MfE does not take into account the impact of existing legislation on $PM_{2.5}$ concentrations in each airshed, creating errors in its calculations. No assessment of the costs and benefits of the proposed daily winter $PM_{2.5}$ standard appears to have been carried out.

- Methods used in analysis for MfE have not been sufficiently robust to provide estimates of annual average $PM_{2.5}$ or daily winter $PM_{2.5}$.

6. Options

Option 1: Approve submission (preferred option)	
Advantages	• Provides an opportunity to have Nelson data corrected. • Nelson City Council is able to provide its perspective on proposed amendments to the NESAQ.
Risks and Disadvantages	• No obvious risks or disadvantages.
Option 2: Decline/Amend submission	
Advantages	• If the submission does not accurately reflect the opinion of the Environment Committee it would be an advantage to decline the submission or request amendments to it.
Risks and Disadvantages	• There is limited time to make substantial changes to the submission. • If declined Council comments and suggested changes will not be fully considered in the submission process, which would result in a lost opportunity to address significant implications for the Council's air quality management.

Author: Richard Frizzell, Environmental Programmes Officer

Attachments

Attachment 1: A2380092 - Submission to MfE proposed amendments to National Environmental Standards for Air Quality ⇩

Attachment 2: A2379821 - Proposed Amendments to the National Environmental Standards for Air Quality summary document ⇩

Attachment 3: A2379807 - Evaluation of the NESAQ proposed amendments and the impacts for Nelson (Environet) ⇩

Important considerations for decision making

1. Fit with Purpose of Local Government

The submission is consistent with Local Government Act 2002 requirement to promote the environmental wellbeing of the Nelson community. It provides information specifically related to Nelson to a national agency, on behalf of the Nelson community.

2. Consistency with Community Outcomes and Council Policy

The submission seeks to ensure implications of proposed changes to national air quality standards on the Nelson community are considered. This is consistent with the Council's community outcome that:

Our communities are healthy, safe, inclusive and resilient.

3. Risk

There are no perceived risks associated with approving the submission. The submission highlights risks associated with the amendments proposed to National Environmental Standards for Air Quality.

4. Financial impact

No additional resources have been requested. Any proposed changes to the National Environmental Standards for Air Quality could have future financial consequences.

5. Degree of significance and level of engagement

The submission process is of low significance with opportunity to address any perceived Council issues or feedback through ongoing discussion with the Ministry for the Environment and regional council Special Interest Group, therefore no engagement has been undertaken.

6. Climate Impact

Actions to improve air quality may also be beneficial to actions on climate change but it is important that NESAQ is based on accurate analysis and evidence.

7. Inclusion of Māori in the decision making process

No engagement with Māori has been undertaken in preparing this report.

8. Delegations

The Environment Committee has the following delegations to consider a submission on proposed amendments to the National Environmental Standards for Air Quality.

Areas of Responsibility (5.4.1):

- *Environmental science matters*
- *Policies and strategies related to resource management matters*
- *The Nelson Plan*

Delegations (5.4.2):

- *Approving submissions to external bodies or organisations, and on legislation and regulatory proposals*

Attachment 1

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E clare.barton@ncc.govt.nz
nelson.govt.nz

6 July 2020

Air Quality NES consultation
Ministry for the Environment
PO Box 10362
Wellington 6143

Submitted to: AirQualityNESsubmissions@mfe.govt.nz

Nelson City Council (NCC) Submission on:

- **Amendments to the National Environmental Standards on Air Quality: particulate matter and mercury emissions**

A. GENERAL COMMENTS

1. Thank you for the opportunity for Nelson City Council (NCC) to provide feedback on *Amendments to the National Environmental Standards on Air Quality: particulate matter and mercury emissions.*

2. NCC takes its responsibility for managing air quality very seriously. It has made a significant commitment to improving air quality in Nelson and its experience and success was acknowledged nationally in 2012 with two Green Ribbon Awards after achieving the most rapid and largest reductions in PM_{10} levels of any municipality in New Zealand as outlined below.

3. In 2001 Nelson had some of the worst air pollution levels in New Zealand with a peak PM_{10} reading of 165µg/m³, and it had 81 breaches of the National Environmental Standard for air quality (NESAQ) daily annual average of 50µg/m³. NCC notified its Air Quality Plan in 2003 setting in place stringent rules and a timeframe for the phasing out of all open fires in the urban area, and certain enclosed burners in the most polluted airsheds. To help with the economic, social and potential health (cold house) effects of this, the NCC provided a substantial financial assistance programme (Clean Heat Warm Homes) to assist homeowners to upgrade to more modern, lower emitting fires or to other non-polluting heating appliances such as heat pumps or gas. At that same time, NCC established a behaviour change programme focussing on woodburner use, including working with wood merchants (Good Wood scheme) and chimney sweeps to encourage regular burner maintenance and dry wood use. As a result, in Nelson's most polluted airshed, (Airshed A: Nelson South), exceedances of the NESAQ have fallen from 81 in 2001, to 51 in 2005, 7 in 2010, and since 2014 there have been no more than 2, with peak levels below 58µg/m³. Having invested a considerable amount of resources (eg time, finances and community engagement) to meet existing NESAQ NCC is keen to maintain the benefits gained and ensure they are not undermined by the proposed amendments.

Internal Document ID: A2380092

4. NCC engaged Emily Wilton from Environet Ltd to undertake an evaluation of the NESAQ proposed amendments to help understand their implications for Nelson, taking into consideration the considerable amount of work the Council has already done to meet requirements of the existing NESAQ. Her report, *Evaluation of the NESAQ proposed amendments and the impacts for Nelson (March 2020)*, is attached (A2379807) and forms the basis for many points made in this submission. Her report raises serious concerns about the scientific basis and rigour of the technical assessments used to underpin the proposed amendments. NCC requests these matters be addressed.

5. Broadly NCC seeks:
    - To endorse in principle establishing new standards focussing on $PM_{2.5}$ rather than PM_{10};
    - To test the rationale and rigour of technical assessments used to inform the proposed amendments;
    - Reconsideration of a daily annual average standard for $PM_{2.5}$ to better reflect the science and health guidance currently available, and to ensure the Ministry's cost-benefit analysis accurately accounts for new costs to households to achieve compliance, including where current heating sources would need to be removed or replaced;
    - Further consideration of the process for authorising new woodburners, including:
        i. progressive adoption of ultra-low emission technology;
        ii. allowance for modest reductions in space heating efficiency, where demonstrable emission reductions can be achieved as a result;
        iii. investigation of authorisation testing processes that better simulate real world conditions than the current Australia / New Zealand standard;
        iv. shifting the responsibility for authorising the appliances away from local authorities to an appropriate Government department, i.e. under the Ministry for the Environment, the Environmental Protection Agency, the Ministry for Business, Innovation & Employment, or some other appropriate entity; and
    - To support ratification of the Minamata Convention on Mercury

Specific Comments

6. The remainder of this submission identifies key issues, following the format of, and responding to questions in, the discussion document for ease of interpretation.

SECTION: Introduce $PM_{2.5}$ as the primary regulatory tool to manage particulate matter pollution

Q1. Do you agree the proposed $PM_{2.5}$ standards should replace the PM_{10} standard as the primary standard for managing particulate matter?

Whilst managing $PM_{2.5}$ responds to the most significant health related impacts and excludes some non-anthropogenic sources such as sea spray consideration should be given to the efficacy of the change. There is a lack of comprehensive $PM_{2.5}$ data held by regional councils, significant budget for new monitoring equipment will be required, and time required to align air quality provisions in relevant planning documents. These costs for the Council are estimated to be in the order of

$135,000 for monitoring equipment alone. In an economy post Covid these costs are significant for ratepayers. Further work is needed at a national level to verify the data from NIWA that has been used and associated economic analysis work to ensure that $PM_{2.5}$ standards are appropriately set. Projections should be tested against appropriate $PM_{2.5}$ monitoring information rather than relying on 2018 data from limited sources.

Q2. Do you agree we should include both a daily and an annual standard for $PM_{2.5}$?

If $PM_{2.5}$ is used then NCC agrees an annual average for $PM_{2.5}$ is appropriate, and has already committed significant resources to monitoring and modelling $PM_{2.5}$ for airshed management. However, Environet raises serious concerns about the robustness of NIWA methods to provide estimates of annual average $PM_{2.5}$ or daily $PM_{2.5}$ and NCC considers further work is required to determine these.

A daily standard for $PM_{2.5}$ is not appropriate at this time until further verification of data has been undertaken to address questions raised in the Environet report about the scientific basis for the proposed NESAQ for $PM_{2.5}$ and whether they have been set appropriately to the relative WHO rationale. As stated the WHO does not provide for a daily $PM_{2.5}$ standard that is more stringent than the PM_{10} standard, and NCC does not consider the proposed 25µg/m^3 has been sufficiently justified in evidence for the New Zealand context. NCC prefers that the existing daily PM_{10} limit should be relied on until a more robust process is conducted to derive an appropriate daily $PM_{2.5}$ limit.

Q3. Do you agree the standards should reflect the WHO guidelines?

In principle, yes but NCC questions the adoption of the WHO guidelines without further justification and evidence. NCC notes the WHO guidelines are now over 15 years old and are currently being reviewed and the indication is that the annual average guideline of 10µg/m^3 may go down, potentially to 8µg/m^3.

Further work needs to be undertaken to understand what the implications are for airsheds that would not meet the WHO standards particularly given the unverified nature of the NIWA modelling work and inconsistency with regional council monitoring and modelling information. The proposal does not indicate a timeframe for compliance and provides no guidance about what measures would need to be undertaken to comply with WHO standards in non-compliant airsheds. This needs to be factored into the economic analysis so that the implications of aligning with WHO standards can be made clear – including impacts on households where compliance dictates the removal or replacement of current heating sources. A lack of guidance means that individual regional councils will have to set standards which will lead to increased implementation and litigation costs.

As noted by Environet, health benefits associated with the introduction of a daily winter $PM_{2.5}$ standard will be dominated by the coincidental reduction in annual average concentrations. Based on the rationale for setting the WHO standards the actual health benefits of a daily winter $PM_{2.5}$ standard should not be greater than those achieved through reductions to meet a daily winter standard of 50 µg/m^3 for PM_{10}. In the New Zealand context, the proposed $PM_{2.5}$ daily standard is more stringent because 25 µg/m^3 is not the equivalent of a daily PM_{10} concentration of 50 µg/m^3. Based on the rationale from WHO (2005) the daily $PM_{2.5}$ standard of around 40-45 µg/m^3 would be appropriate for Nelson.

The WHO report recommends prioritising the long-term exposure factor over the daily. It states: *Whether the 24-hour or the annual average AQG is the more restrictive tends to vary between countries, this being largely dependent on the characteristics of pollutant sources and their location.* ***When evaluating the WHO AQGs and interim targets, it is generally recommended that the annual average take precedence over the 24-hour average since, at low levels, there is less concern about episodic excursions*** (NCC emphasis). *Meeting the guideline values for the 24-hour mean will however protect against peaks of pollution that would otherwise lead to substantial excess morbidity or mortality.*

NCC recommends that the selection of New Zealand standards should be supported by a detailed health impact assessment.

Q4. Do you consider that your airshed would meet the proposed $PM_{2.5}$ standards? If not, what emissions sources do you expect to be most problematic?

It is unclear whether all of Nelson's four airsheds would meet the $PM_{2.5}$ standards as the NIWA research has not been verified. Based on NCC $PM_{2.5}$ data it would appear that the level of exceedances are not consistent with the NIWA modelling. Therefore, as stated earlier further work is needed before a $PM_{2.5}$ standard is established.

However, two of the Council's four airsheds (Airsheds B2: Stoke and C: Nelson North) are likely to be compliant with the proposed NESAQ for both daily and annual concentration limits. A daily winter $PM_{2.5}$ concentration for these airsheds has not been available for assessment but for these two airsheds the fourth highest PM_{10} concentrations within the last few years have been below 25 $\mu g/m^3$. It is therefore unlikely that either airshed would be in breach of either proposed NESAQ standards for $PM_{2.5}$.

For Airshed A: Nelson South the reduction required in daily winter $PM_{2.5}$ concentrations to meet the proposed NESAQ 24 hour average of 25 $\mu g/m^3$ is estimated to be around 50% for a worst-case year. Daily winter $PM_{2.5}$ concentrations would need to be significantly reduced to meet this proposed NESAQ standard. It is worth noting the costs associated with meeting the proposed daily winter $PM_{2.5}$ standard in Airshed A would be significant to householders, as they would have to replace their burners with Ultra-Low Emission Burners, heat pumps, or other sources. Some households will be unable to afford the additional capital cost associated with ULEB and will have to opt for non-solid fuel alternatives which would result in higher living costs, for households that self-collect firewood. Around a third of the wood used in Nelson is self-collected. Cold homes in Nelson is a potential outcome if the daily $PM_{2.5}$ standard is adopted.

It is worth noting also that the households in Airshed A have already been the subject of a mandatory phase out of woodburners within the last decade to meet the current NESAQ. The economic cost to these households to again replace those replacement appliances with new lower-emitting ones is greater than the relative cost between NES-compliant burners and new lower emitting appliances identified in the Ministry's cost-benefit analysis.

The reduction required in annual average $PM_{2.5}$ concentrations in Airshed A to meet the proposed annual average $PM_{2.5}$ standard of 10 $\mu g/m^3$ is around 3%. Compliance with this limit is likely to be achievable over time based on NCC's current airshed management methods; however, if a more stringent annual standard were to be imposed (say 8$\mu g/m^3$), more intervention would be required to comply.

For Airshed B1: Tahunanui, it is possible that both daily and annual average $PM_{2.5}$ concentrations would meet the proposed NESAQ but ongoing monitoring is required to confirm this.

Emissions from domestic burning are the most problematic source of particulate pollution in Nelson, contributing 79% of the annual emissions and 90% of winter emissions into Airshed A.

SECTION: Retain the PM_{10} standard with reduced mitigation requirements

Q5. Do you agree councils should be required to keep monitoring PM_{10}?

Yes – In the interim until $PM_{2.5}$ data can be verified as outlined above.

Q6. What would be the additional costs involved in retaining PM_{10} monitoring alongside $PM_{2.5}$ monitoring, versus the potential loss of valuable monitoring information?

It is unclear if the Ministry proposes the continuation of current monitoring requirements as per Regulation 15 that specifies the need for a regional or unitary council to monitor air quality if it is likely that the ambient standard for a contaminant will be breached in an airshed. If it is intended that it will be mandatory to monitor all gazetted airshed at any one time then NCC does not have the budget or resources to do that. NCC is currently monitoring $PM_{2.5}$ as well as PM_{10} in two of its airsheds. To move to $PM_{2.5}$ monitoring while retaining PM_{10} monitoring in both Airshed B2: Stoke and Airshed C: Nelson North, would require the purchase of two new dual channel PM_{10} / $PM_{2.5}$ monitors. The estimated capital cost of this is $135,000 plus any duty, and an annual operational cost of $2,400 (servicing and electricity). NCC recommends financial assistance be provided by central government to regional/unitary councils towards these significant costs, noting the benefit also in centralised purchasing of appropriate monitoring equipment.

Linked to this is determining the type of monitors required. NCC notes that the NEMS process is back underway to update or replace the *Good Practice Guide for Air Quality Monitoring and Data Management*. This is urgently needed to provide nationally consistent guidance to councils on what type of monitors should be considered to meet NESAQ requirements and what data/information needs to be provided from that monitoring.

NCC agrees it is important to maintain meaningful data requirements but there is a need for better guidance, especially with regards the 75% valid data requirement as it applies to long-term averages, eg it isn't sufficient for an annual average to be based on just having 9 months of valid data, there is a need to ensure that there is 75% valid data collected from each season.

SECTION: Polluted airsheds

Q7. Do you agree an airshed should be deemed polluted if it exceeds either the annual or the daily $PM_{2.5}$ standard?

NCC agrees with an annual $PM_{2.5}$ standard but should rely on PM_{10} daily standard until $PM_{2.5}$ data has been verified.

Q8. If all new resource consent applications to discharge $PM_{2.5}$ into a polluted airshed must be offset or declined, how would this affect your activities, or activities in your region?

Offsets might be a useful initiative where a new (or renewed) discharge would push air quality in an airshed above the NESAQ. The use of offsets is not straightforward however. In order to work

the 'take out' discharge needs to be of a similar make-up to the discharge being put in, and in a similar location. The time when the discharges occur need to be similar: reducing an existing 7am to 2pm discharge but adding in a new discharge peak in the evening is going to worsen the night time peak. The current regulation around offsets has not worked well and rarely applied if at all (not in Nelson) and shifting to a $PM_{2.5}$ offset limit will create even more complexity for modelling. Relying on offsets solely to limit industrial discharges in a polluted airshed is therefore not practicable.

Q9. Can you identify a more appropriate, measurable threshold for controlling consented discharges in a $PM_{2.5}$ context?

Offsets have not been used in Nelson for activities that emit more than 2.5µg/m^3 of PM_{10}. When seeking discharge consents industries have preferred other mechanisms such as investing in emission reduction technology or scaling down their proposal.

While industrial emissions are not the main source of particulate pollution in Nelson's airsheds (Environet's projected annual average $PM_{2.5}$ concentration from industry in Airshed A is 2%), it is useful to have a threshold for considering impacts from industrial discharges regardless of the polluted airshed status. However there is no rationale for changing from PM_{10} for acute effects and more work would be required to introduce an additional threshold to manage chronic impacts.

Q10. Do you agree that if councils do not have adequate $PM_{2.5}$ data, the airshed's classification under the PM_{10} standards should apply?

Yes for the reasons outlined above.

SECTION: Domestic solid-fuel burner emissions standard

Q11. Do you agree with the proposal to reduce the emissions standard to no more than 1.0g/kg? If not, what do you think the standard should be?

NCC does not support reducing the emissions standard noting that Environet questions the health benefits associated with reducing the NESAQ design criteria for wood burners from 1.5 g/kg to 1.0 g/kg in Nelson or anywhere else in New Zealand. It states there is little scientific evidence to support the assumption that reducing the design criteria for wood burners from 1.5 g/kg to 1.0 g/kg (tested to AS/NZS 4013) will result in improvements in real-life emissions from wood burners.

NCC suggests that further work is needed to understand the implications of imposing this new standard in terms of achieving daily and annual standards. It is unclear whether 1.0g/kg limit would actually achieve the daily and annual standards if existing burners are allowed to keep operating particularly as it appears that these daily/annual standards will not be phased in but will apply from gazettal.

NCC recommends the following process suggested by Environet to assess the effectiveness of policy options of reducing the design standard for woodburners:

1. Evaluation of real life emissions from woodburners in New Zealand including factors influencing emissions.

2. Assessment of the rationale behind the Ultra-Low Emission Burner test method developed by Environment Canterbury (ECan) and scientific conclusions regarding the effectiveness of reducing the design criteria for burners.
3. Application of the determined change in emissions to the real-life emission factor.

Furthermore, the testing and authorisation process should be reconsidered as the current Australia/New Zealand standard does not adequately simulate real-world operation or factor in operational error which may lead to greater emissions. NCC notes Environet's estimate that current real-life emissions of burners meeting the current NESAQ are averaging around 4.5g/kg).

Q12. Are there areas where a lower (more stringent) standard could be applied?

NCC currently sets a more stringent standard for burners that can be installed in more polluted airsheds - for example, for buildings without an existing solid fuel burner, in the most polluted airsheds (Airshed A and B1) the only small scale solid fuel burning appliance that can be installed is an ultra-low emission pellet burner (no more than 0.8g of total suspended particulate per hour & thermal efficiency of 70% or greater). In less polluted airsheds (Airsheds B2 and C) a limited number of ultra-low emission wood burners (ULEBs) can be installed (either 38mg/MJ or no more than 0.5g/kg emissions and greater than 65% or greater thermal efficiency under real-life emission testing (eg Canterbury Method 1)).

NCC therefore supports ultra-low emission technology being adopted, but this has to be done in-line with real-life emission testing regimes to provide confidence in the actual performance of appliances when used. However, NCC notes there are economic costs associated with doing so while more affordable (and higher emitting) appliances are on the market. NCC would support the Ministry taking steps to enhance the affordability of ultra-low emission appliances, including in collaboration with the manufacturing sector.

SECTION: All domestic solid-fuel burners covered

Q13. Do you agree the new emissions standard should apply to all new domestic, solid-fuel burners newly installed on properties less than two hectares in size?

NCC supports extending the standards to cover all domestic solid fuel burning appliances. This has been the approach in the Nelson Air Quality Plan which doesn't use the term 'woodburners' but controls all solid fuel burners as the focus is on the effects of emissions produced not the fuel or purpose to which burner is used for (i.e. cooking appliances are treated the same as space heating appliances).

It is unclear how the proposed new emissions standards for burners will achieve the new daily and annual $PM_{2.5}$ standard. This policy approach may work over time as old burners are replaced with new burners. Therefore the policy approach either needs to change to require phasing out old burners or set a compliance date that provides for phasing out of old burners, of say, in 10 years or longer.

Q14. Do the current methods to measure emissions and thermal efficiency need updating or changing? For example, to address any trade-off between thermal efficiency and emissions, or to test other types of burners or burner modifications that seek to reduce emissions?

The issue of trade-offs between emissions and efficiency could be addressed by changing the units of the standard (eg to mg/MJ) but the issues around burner testing are complex and require further work once a decision is made on what the Ministry wants to achieve. NCC is supportive of

flexibility only if emissions reduction to improve air quality is not compromised for the sake of space heating efficiency. If an appliance could achieve a better emission rate by achieving a lower efficiency standard (say 60%), this flexibility should be enabled.

SECTION: Mercury emissions

Q15. Do you support the proposed amendments to the NESAQ to support ratification of the Minamata Convention on Mercury?

Yes. NCC considers ratification is important for reasons outlined in the *Impact Summary: ratification of the Minamata Convention on Mercury*, namely to protect the country's reputation and commitment to multilateral agreements, especially to address global environmental challenges; to enable New Zealand to influence the future implementation of the Convention; and to avoid the environmental risk of New Zealand becoming a 'dumping ground' for mercury-added products.

Q16. Do you agree with how these amendments will affect industry?

Yes – NCC understands the impact on industry will not be significant.

Q17. What guidance do you think will be needed to support implementation of the proposed amendments? Will industry need help to interpret the best practice guidance for the New Zealand context?

Guidance will be required on the background/rationale for legislative controls and obligations under the Convention and implications for relevant industry seeking discharge consents for the relevant activity (eg requirements for new facilities, or substantially upgraded facilities to meet 'best available techniques and best environmental practice' (BATBEP)). Guidance would also be useful for Regional Councils/Unitary Authorities in assessing consent applications to help ensure BATBEP standards are met. NCC would also appreciate guidance on the relationship between new NES controls and the existing controls for large scale emitters in the Nelson Air Quality Plan that control mercury by proxy, i.e. to ensure that controls on use of diesel (or other fuel) emissions which may include mercury are not duplicated or contradicted by introducing the new standard.

Q18. Do you use any of the manufacturing processes listed in Proposal 9? If so, does this process use mercury?

Possible sources include a crematorium, and there are also only a few coal fired boilers left in the region, all less than 2MW except for Nelson hospital which currently has a 6MW coal fired boiler and going through consent renewal process. Industrial coal-use has reduced substantially in Nelson due to emission reductions required by the Nelson Air Quality Plan, with many changing from coal to diesel or wood pellet fired boilers.

The resource consents for the crematorium and Nelson hospital, and subsequent monitoring, make no mention of mercury and there is no record of any issues with mercury in Nelson in the past.

Q19. Do you agree with the Government's proposed approach to regulate the source categories in Proposal 10? If not, why not?

Yes

Q20. What air pollution control technologies are currently required for existing source categories listed in Proposal 10?

None specifically. It's worth noting, as stated above, that with reductions required for resource consents for industrial discharges under the Nelson Air Quality Plan, most industries have either changed to cleaner burning fuels and/or pollution control technology such as bag filters.

SECTION: Timing, implementation and transitional provisions

Q21. Do you agree that lead-in times are required for starting to monitor $PM_{2.5}$ and for burners that will no longer be compliant? What lead-in times do you suggest and why?

NCC agrees lead in times are required as Councils vary in the extent and degree to which they have been monitoring $PM_{2.5}$. For example, in Nelson $PM_{2,5}$ has not been monitored in 2 airsheds (B2 and C), and only since May 2018 in Airshed B1: Tahunanui, and since 2008 in Airshed A. In determining lead in times for $PM_{2.5}$ consideration should be given to the extent of existing monitoring information and whether this is reflecting compliance with the daily and annual standards or not. Modelling work will need to be undertaken with various policy settings (i.e.) if controlling only new burners how long would compliance take vs timeframes to compliance with phase outs of old burners above 1.0kg/mg (or lower). NCC suggests a 3 year period will be required to establish the monitoring programme, including purchase of new equipment. A phase in period of at least 2 years is also recommended for any new maximum emission standards for burners to replace existing products on the market to enable time for sufficient number of appliances to be developed and tested and be available.

Q22. Are there any matters you think would require transitional provisions? If so, what?

As above – NCC supports phase in times for achieving any new standards and the total number of exceedances allowed annually. A regime similar to the existing NES is supported – three exceedances immediately in worst airsheds down to one in 10 years.

SECTION: Other comments

Q23. Do you have any other comments you wish to make?

Environet's report highlights serious concerns with technical assessments underpinning the NESAQ proposed amendments that need to be addressed. NCC submits that the discrepancies raised between the economic analysis and modelling work and potential incorrect assumptions about health impacts warrant further work to develop effective and justifiable changes to the existing NESAQ. The establishment of a Technical Advisory Group (as was done to develop the existing NESAQ) would have enabled a more comprehensive and coordinated approach and should be considered for further development of changes to the NESAQ.

NCC is disappointed that data was not verified with Councils prior to release of the proposed amendments. This could have been done effectively through the National Air Quality Working Group.

All the work gone into establishing an acceptable standard for domestic solid fuel burners can be undone if they are used to burn damaging materials and they are poorly operated and maintained. The NESAQ currently prohibits burning of tyres, bitumen, coated wire and oil, except in exceptional circumstances, and these regulations should be extended to include controls on burner fuel quality, (i.e. a rule prohibiting the burning of wet or treated wood or plastics). This would send a strong, nationally consistent message that burning these has serious health effects, as well as impacting on the safe operation of the burner. For example, NCC currently prohibits the

burning of the following materials in any small-scale fuel burning appliance (and extends these to combustion by deliberate outdoor burning):

i. wood having a moisture content of more than 25% dry weight, or

ii. wood which is painted, stained, oiled or coated, or

iii. wood treated with preservatives or impregnated with chemicals, including but not limited to, wood treated with Copper-Chrome-Arsenic (CCA), or

iv. composite woodboards containing formaldehyde or similar adhesives, including but not limited to, chip board, fibreboard, particle board and laminated boards, or

v. metals and materials containing metals, including but not limited to cables, or

vi. materials containing asbestos, or

vii. material containing tar or bitumen, or

viii. all rubber, including but not limited to, rubber tyres, or

ix. synthetic material, including. but not limited to, motor vehicle parts, foams, fibreglass, batteries, chemicals, paint and other surface coating materials, or any type of plastic, or

x. waste oil, or

xi. peat, or

xii. sludge from industrial processes.

From NCC experience it is essential that burner regulations are supported by an effective behaviour change programme to ensure burners are operated and maintained properly. Council efforts would be greatly enhanced by a national programme led by the Ministry, including public messaging and guidance. NCC has invested in initiatives such as a Good Wood scheme (working with wood merchants and flue cleaners) and wood shed competitions which have raised awareness of good practice but much more could be achieved if supported and co-ordinated nationally.

Finally, NCC strongly advocates for a national agency, such as the Environmental Protection Authority, to undertake burner authorisation to meet the NESAQ standards. To date this role has been done for years by Environment Canterbury (ECan) and NCC who were driven by the need for greater certainty that burners would meet the NESAQ emissions and efficiency standards through rigorous assessment of design features that could easily be tampered with or affect how the burner will operate in real-life situation. However, it is time for a national body to take this on to achieve national consistency and more efficient use of skills and resources in what is a highly technical (and costly) process. Councils and burner manufacturers (and burner users) would all benefit from a standardised, reliable process that provides confidence in burner performance. Linked to this is a need to review the testing process to continue to encourage burner development so that they perform well in real-life and not just test environments (similar to Canterbury Method for real-life emission testing). This will provide more confidence for Council's that rules permitting the installation and use of burners will not risk non-compliance with the NESAQ.

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Attachment 2

Proposed amendments to the National Environmental Standards for Air Quality

PARTICULATE MATTER AND MERCURY EMISSIONS

Summary document

Ministry for the Environment
Manatū Mō Te Taiao

New Zealand Government

A2379821

Purea nei e koe i ngā hau ā Tāwhirimātea.
Let yourself be purified in the winds of Tāwhirimātea.

Air as taonga

Air, like all other natural resources, is considered by Māori to be a taonga – an invaluable treasure – which has been gifted by their tipuna (ancestors) for the benefit and use of descendants. This gift imposes a responsibility on us as kaitiaki (guardians) to ensure we maintain good air quality now and for future generations.

The issue

In New Zealand, air pollution from particulate matter can affect human health. Exposure to particulate matter, particularly fine particles ($PM_{2.5}$), can cause disease and premature death from respiratory and cardiovascular causes, cause lung cancer, and exacerbate asthma and emphysema. These fine particles are mainly created by human activities. In New Zealand, the main source of $PM_{2.5}$ is burning wood and coal for home heating during winter.

The National Environmental Standards for Air Quality (NESAQ) currently regulate particulate matter, but it is focused on PM_{10}, which includes the fine $PM_{2.5}$ particles, as well as other coarse material. Some of these coarse particles come from natural sources, over which we have no control.

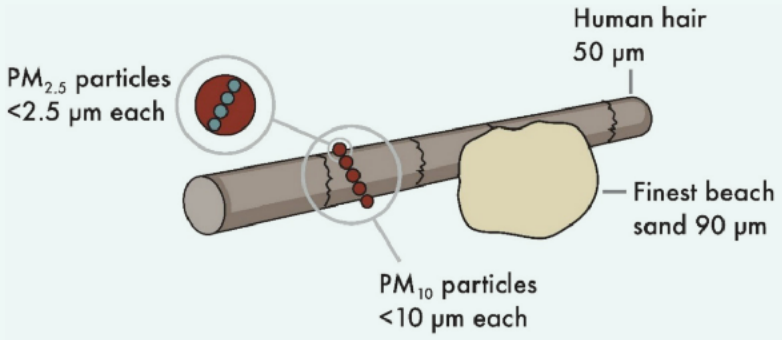
What is particulate matter?

Particulate matter (PM) is a collective term for solid and liquid particles suspended in the air and small enough to be inhaled. PM varies greatly in structure and chemical composition, depending on where it comes from. It also varies in the harm it can cause.

PM comes from human activities and natural sources. It is often classified according to its size because size determines how PM interacts with the environment and human body.

- PM_{10} has a diameter of 10 micrometres (µm) or less.
- $PM_{2.5}$ has a diameter of less than 2.5 µm and is a subset of the PM_{10} range.

The figure below shows these relative sizes.



A2379821

The proposal – amending the National Environmental Standards for Air Quality

The Government is proposing amendments to some provisions of the National Environmental Standards for Air Quality (NESAQ) that:

- take into account improved scientific understanding and evidence about the health impacts of particulate matter
- better target controllable sources of air pollution.

Particulate matter

For particulate matter, we propose:

- introducing $PM_{2.5}$ as the primary regulatory tool to manage ambient particulate matter and establish both a daily and an annual standard for $PM_{2.5}$ (fine particulate matter)
- retaining the PM_{10} standard for managing potential issues for coarse particulates
- amending how we determine if airsheds[1] are polluted.

Domestic solid-fuel burners

For domestic solid-fuel burners we propose:

- reducing the emission standard for new solid-fuel burners to no more than 1.0g/kg (down from 1.5g/kg)
- including all types of new, domestic solid-fuel burners under the wood-burner regulations for emissions limits and thermal efficiency. This includes coal burners, multi-fuel burners, pellet burners, open fires, cookers, and water boilers.

Mercury emissions

New Zealand signed the Minamata Convention on Mercury in 2013. One of the three main steps we need to take to ratify the Convention is to set controls on emissions to air from mercury.

This requires amendments to the NESAQ that will:

- prohibit the use of mercury in particular listed industrial processes
- incorporate international best practice guidance that decision-makers must consider for listed sources.

Summary of proposals

Proposed amendments	
Particulate matter	
$PM_{2.5}$	Daily average $PM_{2.5}$ standard – 25 µg/m³ (three or less exceedances allowed in a 12-month period) Annual average $PM_{2.5}$ standard – 10 µg/m³ Monitoring required in all airsheds Publicly notify breaches Replace PM_{10} with $PM_{2.5}$ for 'offset' and open fires provisions
PM_{10}	PM_{10} standard and requirement to monitor retained Publicly notify breaches
'Offset' discharges in polluted airsheds	Reflect change from PM_{10} to $PM_{2.5}$ standards 'Polluted' if either daily or annual $PM_{2.5}$ standards breached, averaged over previous five years PM_{10} standard used where the airshed does not have yet have adequate, meaningful $PM_{2.5}$ data Decline new consent applications to discharge $PM_{2.5}$ in a polluted airshed, unless discharge is offset within same airshed
Solid-fuel burners	
Emissions standard for burners	No more than 1.0g/kg Updated and/or appropriate methods for measuring
Thermal efficiency standard for burners	No less than 65 per cent (no change) Updated and/or appropriate methods for calculating
Application of standard for burners	Applies to all newly installed, domestic burners including: open fires, wood, coal, pellet and multi-fuel burners, cookers, and water boilers
Solid-fuel burning open fires prohibited	Reflect change from PM_{10} to $PM_{2.5}$ standards Applies indefinitely when either daily or annual $PM_{2.5}$ standard is breached
Monitoring	
Monitoring methods	Updated and/or appropriate methods for monitoring PM_{10} and $PM_{2.5}$
Mercury	
Use of mercury in industrial processes	Prohibit use of mercury in industrial processes specified in Annex B of the Minamata Convention
Emissions that may contain mercury	Incorporate by reference international best practice guidelines for emissions sources specified in Annex D of the Minamata Convention

Note: This table only includes the provisions we expect to amend.

1 An airshed is a geographic area for air quality management which extends upwards from ground level, with no upper limit.

A2379821

Timing, implementation and transition

The amendments to the NESAQ would come into immediate effect once gazetted.

Transitional provisions may be needed to allow time for compliance. For example, some councils may need to purchase additional monitoring equipment. Transitional provisions are proposed:

1. for regional councils and unitary authorities to start monitoring $PM_{2.5}$, if they do not already do so
2. to specify how the standards will apply to newly non-compliant burners that have been purchased, but not yet installed.

Our air, your say

The Government is interested in your views about the proposals summarised in this document.

The discussion document and information about the consultation process, including how to make a submission, can be found at: **www.mfe.govt.nz/consultations/improving-our-air**.

Submissions close at 5pm on 24 April 2020.

You can make a submission in two ways:

1. Use our online submission tool, available at: **www.mfe.govt.nz/consultations/improving-our-air**. This is our preferred way to receive submissions.
2. Write your own submission by answering the questions in the discussion document.

   Email your submission (as a PDF or Word document) to: **AirQualityNESsubmissions@mfe.govt.nz**

   Post your submission to:

   Air Quality NES Consultation
   Ministry for the Environment
   PO Box 10362
   Wellington 6143

   Direct any queries to: **AirQualityNESsubmissions@mfe.govt.nz**

Ministry for the Environment
Manatū Mō Te Taiao

Making Aotearoa New Zealand the most liveable place in the world
Aotearoa – he whenua mana kura mō te tangata

A2379821

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Attachment 3

MARCH 2020

PREPARED FOR
Nelson City Council

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ENVIRONET AIR QUALITY SPECIALISTS

Evaluation of the NESAQ proposed amendments and the impacts for Nelson

A2379807

A2379807

EXECUTIVE SUMMARY

There will be no health benefits associated with the introduction of an annual average NESAQ for $PM_{2.5}$ of 10 µg/m³ in Nelson. This is because Nelson will be compliant with the proposed standard as a result of the status quo and no additional regulatory measures would be required.

There will be health benefits associated with the introduction of a daily winter $PM_{2.5}$ standard but these will be dominated by the coincidental reduction in annual average concentrations (to below 10 µg/m³). Based on the rationale for setting the WHO standards the actual health benefits of a daily winter $PM_{2.5}$ standard should not be greater than those achieved through reductions to meet a daily winter standard of 50 µg/m³ for PM_{10}. In the New Zealand context, the proposed $PM_{2.5}$ daily standard is more stringent because 25 µg/m³ is not the equivalent of a daily PM_{10} concentration of 50 µg/m³. Based on the rationale in WHO (2005) the daily $PM_{2.5}$ standard of around 40-45 µg/m³ would be appropriate for Nelson.

The proposed NESAQ for $PM_{2.5}$ have not been set based on current scientific information, nor have they been set appropriately relative to the rationale in WHO (2005). It is our strong recommendation that they be reviewed. If they are not reviewed and WHO (2005) is the justification for the proposed standards then the acute impacts should be managed by the existing daily PM_{10} standard of 50 µg/m³. That is there is no daily $PM_{2.5}$ standard. The reason for this is that WHO (2005) does not provide justification for a $PM_{2.5}$ daily standard that is more stringent than the PM_{10} standard (i.e., it is based on PM_{10} and health impacts observed for PM_{10}).

In Nelson A the costs associated with meeting the proposed daily winter $PM_{2.5}$ standard would be significant to householders as they'd have to replace their burners with ULEB. Some household will be unable to afford the additional capital cost associated with ULEB and will have to opt for non-solid fuel alternatives which would result in higher living costs, for households that self-collect firewood. Around a third of the wood used in Nelson is self-collected. Cold homes in Nelson is a potential outcome if the $PM_{2.5}$ standard is adopted.

We do not believe there will be health benefits associated with reducing the NESAQ design criteria for wood burners from 1.5 g/kg to 1.0 g/kg in Nelson or anywhere else in New Zealand. We do not believe there is scientific evidence that supports the assumption that reducing the design criteria for wood burners from 1.5 g/kg to 1.0 g/kg (tested to 4013) will result in improvements in emissions from wood burners. We do not support this measure.

There will be no health benefits associated with the application of the design criteria for wood burners to all other domestic solid fuel burners for Nelson as the Nelson Air Plan already applies an emission limit of 1.5 g/kg or less to new installations of all domestic space heating appliances. This measure is supported in principal, however.

Our evaluation identified major issues with the technical assessment. The culmination of these errors is the prediction of annual average concentrations for 2018 and 2028 (Appendix 3 in the Market Economics Report) which are grossly inaccurate for Nelson and other airsheds. The analysis draws the unlikely conclusion that areas with minimal historical regulation (greatest differential between existing and future burner fleet) will have minimal benefits (e.g., Putaruru) and areas of higher existing regulation will have significant improvements (e.g., Nelson Airshed A).

The cost benefit analysis does not take into account the impact of existing legislation on $PM_{2.5}$ concentrations in each airshed. Consequently, the impacts of the proposed policy (even if accurately estimated) would be in error. The assessment of airsheds that will remain non-compliant following the introduction of the proposed policy will be in error. The proposed NESAQ and supporting technical reports appear incognisant of variability in meteorological conditions and the impact on airshed concentrations. This introduces an additional error.

No assessment of the costs and benefits of the proposed daily winter $PM_{2.5}$ standard appears to have been carried out. No discussion of fourth highest or even highest daily winter $PM_{2.5}$ concentrations is made. No methodology for assessing the effectiveness of proposed measures on daily winter concentrations is detailed.

The Ministry has not carried out a robust cost/ benefit analysis on the proposed policy. The assessment of benefits is flawed and the measures required to meet the proposed NESAQ for each airshed have not been identified so the costs associated with these measures cannot have been adequately included. Moreover, the authors have not distinguished the policy impacts from existing air plan measures, so a robust cost analysis is even more unlikely. The authors of the ME report state that because of strict timeframes they were unable to audit or review information sets and did not verify information such as the current situation, the replacement rates, market churn, costs and cost differences, fuel costs and installation costs. In the case of the key variables that have significant impact on the analysis our information indicates that the current situation and the replacement rates assumed by ME are grossly out as are the results they have estimated for benefits in particular.

It is our view that an annual average $PM_{2.5}$ standard is required. We do not believe WHO (2005) represents the best available information to inform that standard.

We do not believe the NIWA methods are sufficiently robust as to provide estimates of annual average $PM_{2.5}$ or daily winter $PM_{2.5}$ and suggest that an alternative approach is adopted.

The method proposed by Golder and Associates for estimating the status quo and impact of reductions in emissions on annual average concentrations is not robust. We do not believe there is any validity to the estimate of costs and benefits provided by Market Economics.

It is evident from the quality of the proposed NESAQ that procurement procedures, co-ordination of work set and potentially timeframes set by the Ministry are unsatisfactory.

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1 ASSESSING THE IMPACTS OF THE PROPOSED $PM_{2.5}$ NESAQ IN NELSON

The NESAQ proposed amendments for particulate matter and mercury were released by the Ministry for the Environment in February 2020. Environet Limited has been contracted by Nelson City Council to prepare a technical evaluation of the impact of the proposed amendments for the Council.

1.1 Method

1.1.1 Daily standards

The effectiveness of management options in achieving the existing NESAQ for PM_{10} for Nelson has been conducted based on the methodology detailed in Wilton, (2002, 2014) for the Nelson application and as a model in (Wilton, 1998). The methodology underpinning this has been extensively peer reviewed by academics and industry experts and has strongly withstood technical scrutiny via air plan hearings. The model can be applied to daily winter $PM_{2.5}$ concentrations with the following adjustments:

- Target concentrations based on the fourth highest daily $PM_{2.5}$ because of the proposed allowance of three exceedances per year.
- Adjustments in source contributions for $PM_{2.5}$ rather than PM_{10}
- Adjustments for natural source contributions (to be based on $PM_{2.5}$ rather than PM_{10}).

Determination of the reduction required in concentrations requires identification of concentrations for worst case years to ensure ongoing compliance with a standard. Assessment of worst case years for meteorological conditions for Nelson prior to 2014 was carried out in (Wilton & Zawar Reza, 2014).

1.1.2 Annual standard

To assess the effectiveness of management measures relative to an annual standard the above model was integrated with an annual model that compared emission sources and concentrations on a monthly basis (to account for the differing seasonal impact of meteorological conditions and differing source contributions by season). An application of this methodology to $PM_{2.5}$ annual average concentrations for Nelson based on initial $PM_{2.5}$ information available in 2015 is outlined in Wilton & Zawar Reza, (2015).

1.1.3 Areas evaluated

The areas evaluated in this assessment are Airsheds A and B1 as the two areas identified in Wilton & Zawar Reza, (2015) as potentially not complying with an annual average or daily winter $PM_{2.5}$ standard.

Airshed B2 and C are likely compliant with the proposed NESAQ. A daily winter $PM_{2.5}$ concentration for Airsheds B2 and C was not assessed in that report but for these two airsheds the fourth highest PM_{10} concentrations within the last few years have been below 25 $\mu g/m^3$. It is therefore unlikely that either airshed would be in breach of either proposed NESAQ for $PM_{2.5}$.

1.2 Reductions required in $PM_{2.5}$ in Airshed A

1.2.1 24-hour average $PM_{2.5}$ standard of 25 µg/m^3

The relevant $PM_{2.5}$ concentration from which to assess the reduction required to meet the standard is the fourth highest in a year indicative of worst-case meteorological conditions. For Airshed A, $PM_{2.5}$ concentrations of $PM_{2.5}$ have been monitored since 2009. However, concentrations of particulate have been improving significantly over this time making identification of worst case meteorology challenging. The worst year of the previous three years was 2018 when the fourth highest concentration was measured as 42 µg/m^3. To check the likelihood of this year representing worst case $PM_{2.5}$ concentrations (for a fourth highest value) the dataset was examined for the period 2006 to 2019 using the approach detailed in Wilton & Zawar Reza, (2014). This suggested that 2018 meteorological conditions were not as conducive to elevated pollution for the fourth highest concentrations as 2011 and 2009. It is difficult to approximate the difference, but it could be expected that 2018 $PM_{2.5}$ concentrations might be 20% higher on a worst-case meteorological year based on that evaluation.

The reduction required in daily winter $PM_{2.5}$ concentrations to meet the proposed NESAQ of 25 µg/m^3 was based on the measured value of 42 µg/m^3 for 2018 (fourth highest $PM_{2.5}$) and calculated at 40%. It is noted however that the reduction required might be around 50% for a worst-case year. Either way, daily winter $PM_{2.5}$ concentrations would need to be significantly reduced to meet the proposed NESAQ.

1.2.1 Annual average $PM_{2.5}$ standard of 10 µg/m^3

Annual average $PM_{2.5}$ concentrations are available for the years 2009 to 2019 with more robust data (full datasets) for the period 2018 to 2019. The annual average $PM_{2.5}$ concentrations measured during these years were 10.2 µg/m^3 and 10.3 µg/m^3 respectively.

The reduction required in annual average $PM_{2.5}$ concentrations to meet the proposed annual average $PM_{2.5}$ standard of 10 µg/m^3 is around 3%.

1.3 Reductions required in $PM_{2.5}$ in Airshed B1

1.3.1 24-hour average $PM_{2.5}$ standard of 25 µg/m^3

The relevant $PM_{2.5}$ concentration from which to assess the reduction required to meet the standard is the fourth highest in a year indicative of worst-case meteorological conditions. For Airshed B1, $PM_{2.5}$ concentrations were monitored in 2018 and 2019. The fourth highest concentration for 2019 was 19 µg/m^3. Data suggests 2019 was not a worst-case year in terms of meteorological conditions. However, the 24-hour average $PM_{2.5}$ concentrations would need to be at least 30% higher than this value for a worst-case meteorological year for the daily winter $PM_{2.5}$ concentration to breach the proposed NESAQ (24-hour average) in Airshed B1. It is our view that daily $PM_{2.5}$ concentrations in Airshed B1 most likely would meet the proposed NESAQ but that ongoing monitoring is required to confirm this.

1.3.2 Annual average $PM_{2.5}$ standard of 10 µg/m^3

Annual average $PM_{2.5}$ concentrations are available for 2019 for Airshed B1. The annual average $PM_{2.5}$ concentrations measured was 7.5 µg/m^3. Whilst it is unlikely that 2019 represents worst case meteorological conditions this value would need to be 33% higher to be non-compliant with the proposed NESAQ. It is unlikely based on PM_{10} and $PM_{2.5}$ concentrations in Airshed A that meteorological conditions would have this much impact on the annual average $PM_{2.5}$ concentration for Airshed B1. It is our view that annual average $PM_{2.5}$ concentrations in Airshed B1 would most likely mee the proposed NESAQ.

1.4 Nelson Airshed A evaluation

The Nelson Air Plan was notified in 2008 and included measures to reduce PM_{10} emissions from domestic heating and outdoor burning with a particular focus on Airshed A and B1 where concentrations were highest. The plan aimed to reduce 24-hour average PM_{10} concentrations in Nelson A by 70% of 2001 levels to meet the NES for PM_{10} (one allowable exceedance) and included a longer term target of achievement of 66% of the guideline value for PM_{10} of 50 $\mu g/m^3$ (24-hour average). A re-evaluation in 2014 found significant improvements in concentrations had occurred but that a further 14% reduction (in 2014 levels) was required in Airshed A as a result of improved knowledge including revising emission factors for NES compliant wood burners and identifying worst case meteorological conditions (Wilton, 2014). These variables were considered in a revised assessment as part of the Air Plan Change 3 which became operative in 2016.

Plan Change 3 (PCA3) included the introduction of a behaviour change programme aimed at reducing PM_{10} emissions from domestic heating in Airshed A by 10%.

Figure 1.1 shows the projected PM_{10} emissions (daily winter) for the regulatory measures included in the Nelson Air Plan. This suggests compliance in Airshed A with the PM_{10} NES by 2024.

The second projection on Figure 1.1 shows the estimated impact on PM_{10} concentrations of the proposed amendments if the proposed design criteria reduction from 1.5 g/kg to 1.0 g/kg did result in a 33% improvement in particulate emissions from wood burners. Note however, we do not believe there is technical evidence to support this assumption (see section two). It is illustrated here purely to demonstrate the limited reduction that would be achieved by 2028 in Airshed A daily winter PM_{10} if reducing the design criteria for wood burners from 1.5 g/kg to 1.0 g/kg did improve real life emissions.

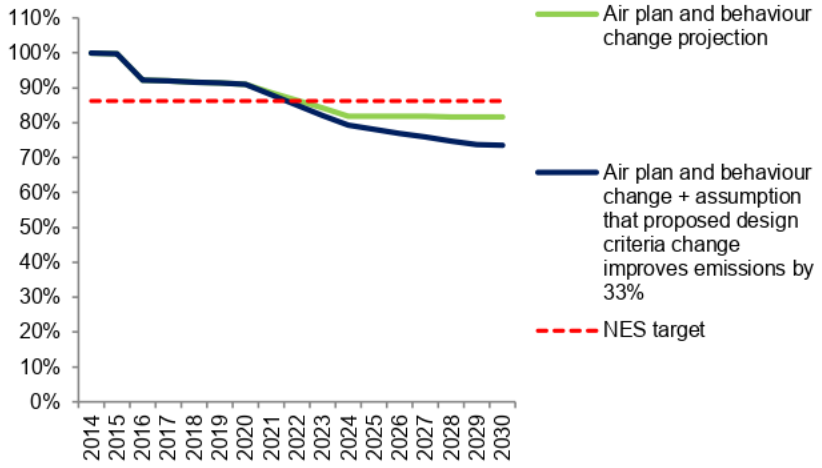

Figure 1-1: Projected daily winter PM_{10} concentrations for Airshed A for Air Plan and proposed NESAQ assuming it had impact.

It is our view that the proposed NESAQ policy measures will result in no improvement in particulate concentrations in Airshed A. This is because the measures applying the design criteria for wood burners to other burners has been effective in Nelson since 2004 and because reducing the limit from 1.5 to 1.0 is unlikely to result in any improvements in emissions from NES compliant wood burners. However, if we model the scenario that a 33% reduction in emissions might occur as a result of this measure we can see that the impact on daily winter PM_{10} by 2028 is pretty minimal, particularly relative to the status quo projection which is how the policy should be assessed.

1.5 Daily average $PM_{2.5}$ standard

The impact of the Air Plan measures on daily winter $PM_{2.5}$, relative to the reduction required in $PM_{2.5}$ concentrations and the impact of the proposed policy option (based on unlikely assumption that it might have some impact), is shown in Figure 1.2. Again, the measures proposed (if they were accurate in their assumptions) would reduce daily winter $PM_{2.5}$ by only a small amount in Airshed A.

An evaluation of the measures that would be required to meet the daily $PM_{2.5}$ standard in Airshed A was carried out. Figure 1.3 shows the estimated impact of introducing a requirement that all new installations of burners were ULEB from 2021. Note that this is based on the assumption that the real-life emissions from ULEB would be around 1.0 g/kg. Whilst this was realistic for the early model ULEBs approved, it is unclear whether some ULEB that have been approved more recently would perform at this level in real life. If ULEB technology is at this level consistently then it is possible that this requirement would meet the proposed $PM_{2.5}$ standard in Airshed A by around 2033. However, there would be a high degree of uncertainty around this without a concurrent regulatory phase out of the NES compliant burners as burners as old as 37 years have been found to be operational in Nelson.

The impact of this measure based on current costs provided by Market Economics will mean households will be unable to afford the additional capital cost associated with ULEB and will have to opt for non-solid fuel alternatives. This will result in higher living costs for households that self-collect firewood. Around a third of the wood used in Nelson is self-collected. Cold homes in Nelson is a potential outcome if the $PM_{2.5}$ daily standard is adopted.

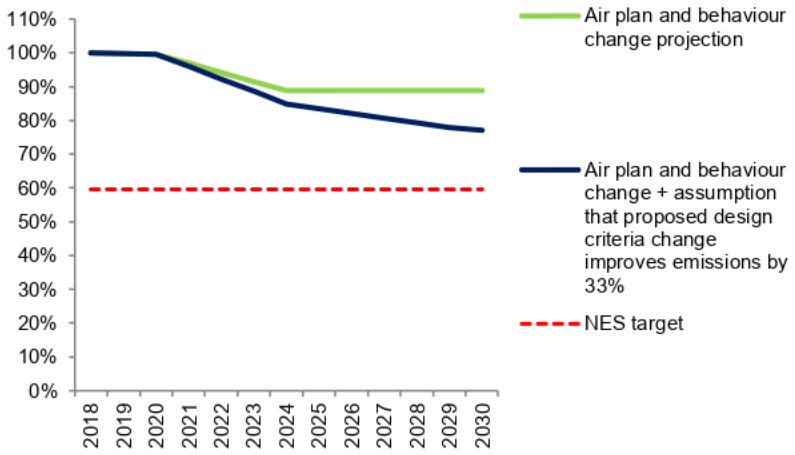

Figure 1-2: Projected daily winter $PM_{2.5}$ concentrations for Airshed A for Air Plan and proposed NESAQ assuming it had impact.

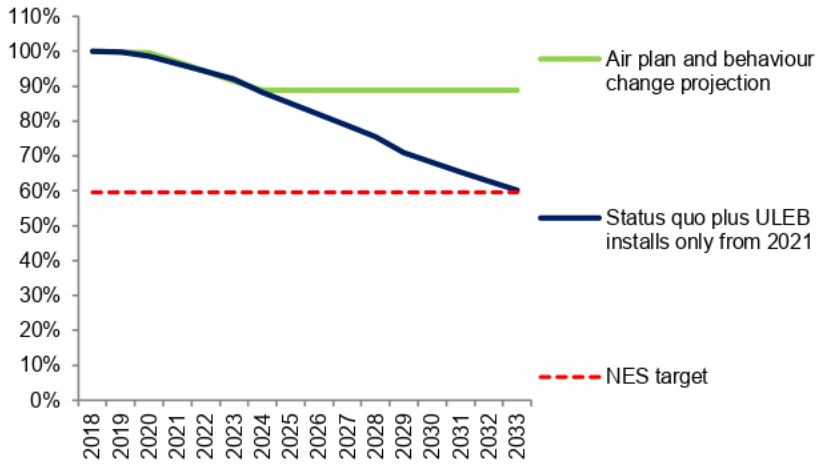

Figure 1-3: Projected daily winter $PM_{2.5}$ concentrations for Airshed A – all new installations (replacements of existing burners) from 2021 are ULEB.

The impact of this measure to reduce daily winter $PM_{2.5}$ on annual average concentrations is a reduction of around 30% (Figure 1.4).

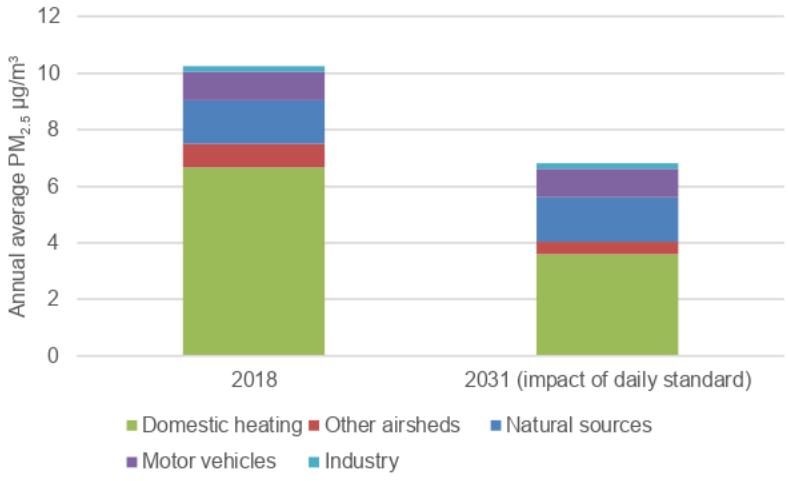

Figure 1-4: Impact of measures to reduce daily winter $PM_{2.5}$ to meet proposed NESAQ on annual average concentrations

1.6 Annual average $PM_{2.5}$ standard

Figure 1.2 above shows that an 11% reduction in daily winter $PM_{2.5}$ concentrations is estimated to occur under the status quo. This occurs as a result of a small proportion of wood burners that were installed between 2001 and 2004 being replaced with those meeting the design criteria for wood burners at the end of a 25-year life and as a result of ongoing behaviour change programmes. The impact of this reduction on annual average $PM_{2.5}$ is shown in Figure 1.5.

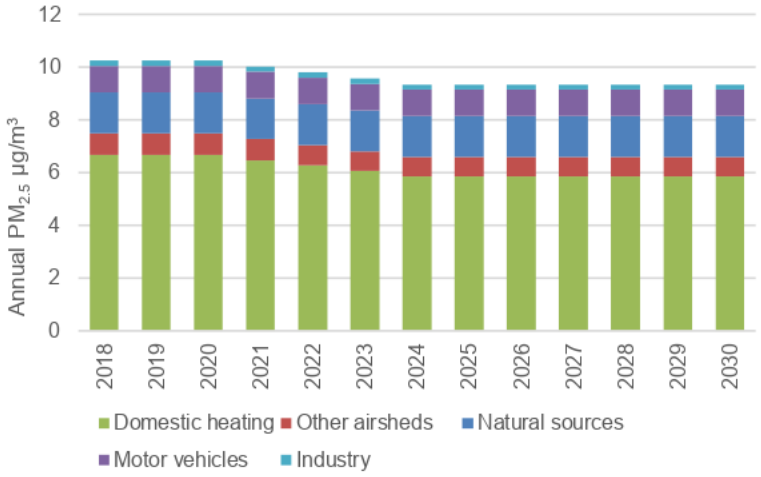

Figure 1-5: Projected annual average $PM_{2.5}$ concentrations for the Nelson Air Plan measures including the behaviour change programme.

2 ASSESSMENT OF COSTS AND BENEFITS FOR NELSON

There are two significant issues with the Market Economics report with respect to the Nelson Airsheds:

- the estimate of annual average $PM_{2.5}$ concentrations, the status quo projections and the effectiveness of the proposed policy
- the approach to determining costs and benefits associated with the proposed policy

2.1 Annual average $PM_{2.5}$ and impact of policy options

The Market Economics (ME) report (dated November 2019) uses an annual average $PM_{2.5}$ concentration for Airshed A of around 9.8 µg/m³ and estimates that this will reduce to less than 5µg/m³ as a result of the measures proposed to reduce domestic heating emissions (Appendix 3 $PM_{2.5}$ annual average concentrations µg/m³ under the proposed policy). This is a 50% reduction in annual average $PM_{2.5}$ that is predicted to occur as a result of the measures proposed by the Ministry.

From Figure 1.4 we can see that the predicted impact of the Air Plan measures achieves only a 9% reduction in annual average $PM_{2.5}$ and from Figure 1.2 that the additional benefit of the measures in the proposed NESAQ would be approximately the same amount if the design criteria assumption was correct. Thus, at best the Market Economics report should have estimated a 9% reduction in annual average $PM_{2.5}$ associated with the proposed measures (if effective). Figure 2.1 shows that domestic heating emissions would have to had been reduced by around 80% to achieve the reduction estimated in the ME report.

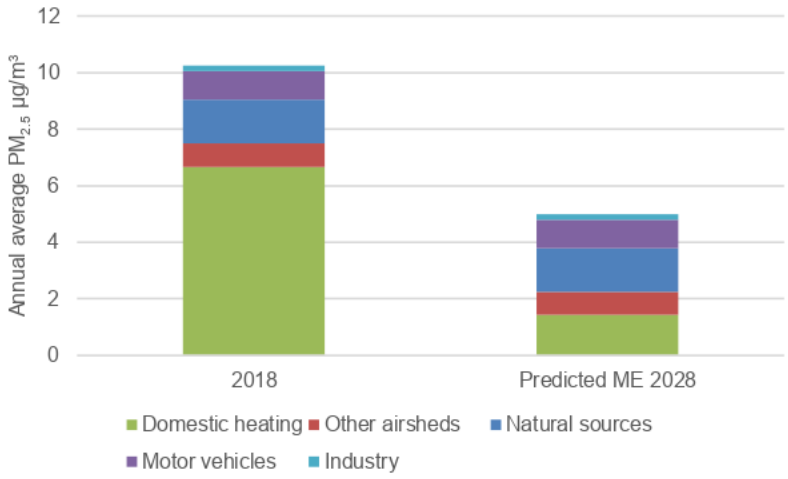

Figure 2-1: Annual average $PM_{2.5}$ by source for 2018 compared with the ME predictions for 2028.

We considered the possibility that the reductions illustrated in the ME report (Appendix 3) for 2028 were as a result of reductions in daily winter $PM_{2.5}$ to achieve compliance. This was discounted because reductions were shown for airsheds where exceedances of 25 µg/m³ were unlikely and because the daily $PM_{2.5}$ standard was not discussed in the text.

The ME report predicts that the proposed NESAQ will be more effective in reducing $PM_{2.5}$ in Nelson Airshed A than just about any other airshed in New Zealand. It is unclear to us why any analysis would show this. Unlike

most airsheds in Airshed A the majority of older burners (not meeting the NES design criteria) have been replaced through regulated phase outs. In airsheds where no regulatory phase outs have occurred there will be a greater prevalence of older more polluting burners and the improvements associated with requiring a lower emission installation burner should therefore be greater. It makes no sense that large reductions in $PM_{2.5}$ of up to 80% for domestic heating could occur in Nelson Airshed A (see also Invercargill, Otago 1 and Gore) and virtually no reductions would occur in an airshed like Putaruru (see also Wanaka, Otago 3, Te Kuiti and others). It is our view, that the analysis is fundamentally flawed and is unlikely to include any legitimate assessment of the impact of policy options.

The ME estimate for Airshed B1 is that the $PM_{2.5}$ annual average concentrations are around 12 $\mu g/m^3$. This presumably is based on the NIWA (2016) assessment which was carried out prior to any monitoring data being available.

The impact of policy options appears to have only been assessed for annual average $PM_{2.5}$. In our view there will likely be more airsheds in New Zealand that do not comply with the 24-hour average $PM_{2.5}$ standard than the proposed annual average standard. For most, the reductions required to meet the 25 $\mu g/m^3$ standard will be greater than for the annual standard. Thus, the regulatory measures and consequently the costs will be higher. As demonstrated here for Nelson Airshed A there would likely be no additional regulatory measures required to meet the proposed annual average NESAQ but significant measures required to meet the daily measure.

The evaluation is clearly flawed at a fundamental level. We can identify issues with just about every aspect of the technical evaluation and as you will see here, the impact of the lack of scientific expertise is significant and has fundament impacts on the outputs. It clearly goes well beyond the assumptions relating to improvements in air quality associated with changing the design criteria for wood burners.

2.2 Costs and benefits assessment

The costs associated with the proposed policy have not been assessed. Whilst the cost benefit attempts to identify airsheds that might be non-compliant with the annual average no evaluation appears to have been made of the costs associated with meeting the proposed $PM_{2.5}$ daily standard. As indicated above for most areas the costs associated with meeting the policy will lie with the 24-hour average standard. The key costs are therefore missing from the evaluation.

In Nelson there are no additional health benefits of the proposed annual average standard. We believe that the ME report assumes considerable benefit as it appears to include a reduction of around 50% in annual average $PM_{2.5}$. At best a reduction in annual average $PM_{2.5}$ of around 30% is estimated to occur as a result of compliance with the daily winter standard. This benefit occurs because reducing daily winter concentrations also result in a reduction in annual concentrations. It does not occur as a result of the annual average standard, however.

The health benefits will be dominated by the improvements in annual average $PM_{2.5}$. The costs will be dominated by measures associated with meeting the daily winter $PM_{2.5}$ standard. The cost benefits therefore need to be assessed for each standard separately for this evaluation to be adequate. We see no evidence of this in the ME report.

If the Ministry wants the health benefits of an annual standard it should do so via targeting the annual standard. This would allow Councils to more effectively manage air quality relative to the exposure periods most relevant for health benefits.

3 TECHNICAL ISSUES WITH THE NESAQ

3.1 Emissions from wood burners

The proposed amendments include the recommendation of reducing the wood burner design criteria emission limit from 1.5 g/kg down to 1.0 g/kg. This criterion specifies NZS 4013 as the test method and the analysis appears to have been based on this approach. The assumption that by reducing the emission limit below 1.5 g/kg whilst retaining the 4013-test method will result in material differences in particulate emissions is not supported by scientific studies. This is a complex technical issue that does not appear to have been identified by the Ministries advisors prior to the assessment of impact of policy options (reports dated November 2019) or adequately addressed in the technical documentation.

A report prepared by Glenn Seymour (Strategic Energy) in March 2020 attempts to address some of the technical issues relating to wood burner emissions and testing procedures as they relate to the NESAQ proposals but does not adequately identify this issue or evaluate it in a robust manner.

Section 3.10 of the report considers the results of testing of ULEB both in the laboratory and in real life and notes that "the development of the new category of ULEB has lead to a significant reduction in emissions from laboratory testing but also, and more importantly, in their emissions from actual usage in homes". The situation is then summed up as "cleaner in the laboratory, cleaner in the home". Despite having recognised that it was the development of the ULEB (complete with real life testing approach) that resulted in this outcome the assessment does not appear to recognise that the outcome is specific to the technology of ULEB burners tested. This is one of only two positionings within the report that in some way suggests that reducing the NESAQ criteria to below 1.5 g/kg will have an emissions benefit.

The second is the final paragraph of section 3.10 of the report and reads as follows: "looking at the AS/NZS 4013 emissions and CM1 emissions in Table 7 one possible conclusion is that reduced real life emissions could be achieved by adopting lower regulated emissions levels base on AS/NZS 4013 testing without the need to implement a simulated real life testing method". Table 7 relates only to ULEB testing. It would be an error of logic to draw a conclusion from results of testing of a double chamber ULEB burner and apply it to an NESAQ burner. It is even less appropriate when data for the NESAQ burners exists but does not support the premise, as is the case here.

There are no conclusions relating to this issue in the executive summary. The evaluation of improvements in emissions from the proposed change to the design criteria for wood burners (i.e., reducing the emission limit from 1.5 g/kg to 1.0 g/kg) is the most significant technical issue for the proposed NESAQ outside of the setting of the NESAQ concentration limits for $PM_{2.5}$. Not only have the Ministry (and its advisors) failed to recognise and evaluate this issue at an appropriate stage in the process (i.e., prior to evaluating the effectiveness of a policy), the eventual assessment is alarmingly incognisant of the significance or scale of the issue and lacks any appropriate scientific assessment of the issue.

To assess the benefits of the policy option, and the resultant improvements in air quality, some assumption must have been made regarding the difference in emissions between the current NESAQ design standard and the proposed standard. A layperson might view the emission limits as representing real life emissions and assume that a 33% reduction in emissions would occur as a result of changing the emission limit from 1.5 g/kg to 1.0 g/kg. It is concerning that no discussion on this assumption was found in the Market Economics report and that the projections aspect of the cost benefit analysis (i.e. the assessment of improvements in air quality associated with policy options) was part of the cost benefit model rather than an assessment by experts in air quality.

It is our view that both logic and real-life emission test results do not support the concept of air quality benefits associated with reducing the emission limit to a level below 1.5 g/kg (when tested to NZS 4013). Real life test data shows that the design of standard NESAQ wood burners allows for significant operator impact. This is not just during start up phase but occurs throughout the burn cycle. The Canterbury Method (CM1) was largely about incentivising technology that would minimise the impact of the operator. One concern also

shared by others on the CM1 development team was that a "current technology" burner might be approved under the ULEB process. We note that NESAQ technology burners have recently been approved as ULEB. The extent to which these burners will result in improved real-life emissions relative to the existing suite of burners (current real life emissions averaging around 4.5 g/kg) is unclear.

Whilst we concur with some of the conclusions of the Strategy Energy Report it is our view that it does not adequately identify or address the key issues and it does not demonstrate an adequate understanding of issues relating to emissions from wood burners, the test methods and their application to air quality management.

3.2 WHO guidelines

There is, and has been for some time, compelling evidence in support of an annual average $PM_{2.5}$ standard as the key variable for managing the health impacts of particulate pollution. Annual exposure is typically used for assessing the health benefits of improving air quality for the purposes of cost benefit analysis. This is because the majority of the mortality impacts (highest cost variable) occur as a result of longer term exposures (Kuschel et al., 2012) and WHO recommends that annual average take precedence over the 24-hour average since, at low levels, there is less concern about episodic excursions (WHO, 2005). There are acute impacts associated with short term exposure, but the magnitude of impact is lower than for chronic exposures.

In 2005 the WHO set the annual average for $PM_{2.5}$ at 10 $\mu g/m^3$. It should be noted that this is a 15 year old standard and has been highlighted for review in light of ongoing health impacts research (WHO, 2013).

The $PM_{2.5}$ 24-hour average WHO (2005) guideline was set based on the rationale that it should be the equivalent level of a PM_{10} standard of 50 $\mu g/m^3$ (WHO, 2005). Consequently, the $PM_{2.5}$ 24-hour average standard should be no more stringent that the PM_{10} standard in terms of the concentration limit. In the rationale for setting the standard, WHO states that "the $PM_{2.5}$ is based on the PM_{10} standard with an assumed ratio of $PM_{2.5}$ to PM_{10} of 0.5," which is noted as being typical of developing country urban areas. WHO (2005) states that "*when setting local standards, and assuming the relevant data are available, a different value for this ratio, i.e., one that better reflects local conditions, may be employed*".

For Nelson the ratio of $PM_{2.5}$ to PM_{10} is well established for Airshed A. The monthly average ratio for $PM_{2.5}$ to PM_{10} for periods when breaches occur (winter months) ranges from 0.65 to 0.88 but is likely higher if just breach days are considered. A $PM_{2.5}$ standard based on a PM_{10} concentration of 50 $\mu g/m^3$ (24-hour average) using the rationale in WHO (2005) for Nelson would likely be around 40 $\mu g/m^3$. For this concentration, as would be expected under the rationale for the setting of the standard, no additional management measures would be required over and above those proposed to achieve the reductions required in PM_{10}. In fact, the guideline if set accordingly would be less stringent as the WHO PM_{10} and $PM_{2.5}$ 24-hour average guidelines are set based on a 99th percentile concentration and therefore allow three exceedances, whereas the NESAQ for PM_{10} allows only one.

Compliance with a 24-hour average $PM_{2.5}$ standard, in itself would result in significantly less health benefit and based on the way this guideline has been developed if set in accordance with the rationale in WHO (2005) it would have no additional benefit in terms of impacts on acute affects than the current NES for PM_{10}. WHO (2005) does not provide justification for the management of acute impacts of $PM_{2.5}$ over and above what is currently being managed for PM_{10}. Consequently, given WHO (2005) is given as the basis for determining the NESAQ for particulate in New Zealand there is no reason to change from the PM_{10} standard to a $PM_{2.5}$ standard for managing acute impacts.

The WHO value of 25 $\mu g/m^3$ can be adapted in areas where information on the relationship between $PM_{2.5}$ and PM_{10} is available in line with the rationale for the setting of the standard. Using that rationale, a value of around 40 $\mu g/m^3$ would likely be the appropriate for urban areas of New Zealand.

It is our view that the scientific evidence supports the adoption of an annual average $PM_{2.5}$ standard. We do not believe it supports the adoption of the WHO (2005) guidelines. WHO 2005 is based on information that is more than 15 years old. We don't believe deferment of responsibility is a good basis for decision making.

There is the expertise and precedence within New Zealand to be able to assess and set appropriate levels. For example, in 1996 Environment Canterbury set a level for PM_{10} of 50 µg/m³ based on Foster, (1996) prior to WHO and subsequently the Ministry for the Environment revising their guideline from 120 µg/m³ to 50 µg/m³.

It is our view that the recommendations are out of date, have not been considered in a New Zealand context and show insufficient understanding of key variables. We recommend a proper review of the health impacts of particulate pollution be carried out by qualified and competent practitioners prior to finalisation of the NESAQ.

3.3 Worst case meteorology

Data are presented only for a single year (2018) and no consideration or discussion is given to the probability of data variability from year to year and the implications for achievement of standards.

The identification of worst-case meteorology years has been a significant component of the scientific assessments for NESAQ compliance to date. In many cases nationally, the reductions required in PM_{10} concentrations to meet the NESAQ would have varied significantly if the selection of year were arbitrary as are the NIWA and ME assessments.

3.4 Cost benefit analysis

Assessing the health benefits associated with the proposed NESAQ requires an estimate of $PM_{2.5}$ concentrations in airsheds and urban areas not designated as airsheds, that might breach the proposed limits. The benefits are estimated by comparing the health outcomes for the current (should be worst case) concentrations relative to the health outcomes for the concentration specified in the standard.

It is our view that the costs and benefits should have been presented for each policy option as well as the policy options as a package.

It is our view that the policy option of introducing the $PM_{2.5}$ standards should have been assessed as follows:

- Worst case annual average $PM_{2.5}$ concentration and worst case fourth highest $PM_{2.5}$ daily concentration (taking into account variability in meteorological conditions)
- Subtract from that the projected impact of the status quo (i.e., impacts of measures Councils have adopted to reduce PM_{10} on annual average and daily winter $PM_{2.5}$)
- Difference in the health impacts of the projected concentrations and those that would occur for the compliance with the standards (e.g., 10 µg/m³ or 25 µg/m³) is the health benefit of introducing the standard.

It is our view that the effectiveness of the policy options of reducing the design standard for wood burners from 1.5 g/kg to 1.0 g/kg should have been assessed as follows:

1. Evaluation of real life emissions from wood burners in New Zealand including factors influencing emissions (e.g, Wilton & Bluett, 2012;)
2. Assessment of the rationale behind the ULEB test method and scientific conclusions regarding the effectiveness of reducing the design criteria for wood burners from 1.5 g/kg to 1.0 g/kg.
3. Application of the determined change in emissions to the real-life emission factor.

We believe the science does not support a reduction in real life emissions by lowering the design criteria for wood burners from 1.5 g/kg to 1.0 g/kg (tested to 4013).

If there was an improvement associated with this proposed policy, then the method of assessing it should not include the assumptions detailed in the ME report. These have been derived with no industry expertise. For example, there is no evidence that the status quo replacement rate for existing wood burners is 6.5% per

year. Whilst this was an assumption adopted in the early 2000s when the first projections were being conducted there is adequate indication now that many households retain burners for longer than 15 years, some for longer than 20 years. For example for inventories carried out in 2019 one third of the burners in Wanaka, 39% of burners in Richmond, 14% of burners in Cromwell and Clyde (more highly regulated) and 26% of wood burners in Reefton were estimated to be installed in 2005 or earlier (i.e., they were at least 14 years old). This assumption will have a substantive impact on the assessment of the effectiveness so policy (assuming there was some benefit to the proposed measure).

It is our view that there is virtually no reduction in $PM_{2.5}$ annual average concentrations associated with the policy measures contained in the ME report for most airsheds in New Zealand. In airsheds that currently allow the installation of multi fuel burners or open fires some reductions may occur as a result of not allowing these appliances. This will be of minimal impact except in Reefton (and other areas of the West Coast) where the multi fuel burners installation rate is higher.

It is clear from the data presented that the cost benefit analysis does not take into account the impact of existing legislation on $PM_{2.5}$ concentrations in each airshed.

The current $PM_{2.5}$ concentrations were provided by NIWA based on their national estimate model. NIWA also provided the exposure response relationship used to calculate health costs in the CBA model. The ME report states that Golder and Associates prepared the technical evaluation of the status quo projection. Reviews of the NIWA model and the technical evaluation by Golder and Associated detailed in the Market Economics report are detailed in the following two sections.

3.4.1 NIWA estimates of annual $PM_{2.5}$ concentrations

The Market Economics evaluation was carried out on the original NIWA (2014) $PM_{2.5}$ estimates. These estimates were updated in 2019 with the inclusion of monitoring data for $PM_{2.5}$ that was available at that point in time. Table 3.1 compares the 2014 NIWA estimates of concentrations to the 2018 NIWA estimates and actual monitoring data for $PM_{2.5}$. The discrepancies between the 2014 estimates and measured concentrations are high particularly for Nelson B1 and Blenheim. It is clear, from these estimates alone, that the Market Economics report will not provide a reasonable estimate of the health benefits of the proposed NESAQ amendments.

Table 3-1: Comparison of NIWA reported monitoring data and Council sourced data for $PM_{2.5}$

Airshed	NIWA (2014) annual µg/m³	Measured 2018 annual µg/m³	NIWA annual µg/m³ (based on measured)	Max measured annual µg/m³	NIWA estimate (no. > 25 µg/m3)	Measured no. >25 µg/m³ (2018)	Measured max no. > 25 µg/m³ (all years)	4th highest µg/m³
Nelson A	9.8	10.2	11.3	10.3 (2019)	40	34	34	42
Nelson B1	12.1	7.5 (2019)	7.6	7.5 (2019)	0		1 (2019)	19 (2019)
Blenheim	7.8	13.2	13.2	14.3 (2017)	56	61	72	51
Hastings	10.1	8.2	6.1	8.9 (2017)	0	15	31 (2017)	37 (2017)
Napier	6.5	n/a	7.9	5.9 (2019)	3	n/a	5 (2019)	27 (2019)

3.4.2 Golder technical evaluation of status quo projection for airshed

This evaluation relates to all of section 2 of the ME report. It is assumed that this section is entirely text from Golders with the exception of the blue highlighted introduction.

Review ME Report Section 2.2:

Golders state a need for typical annual average concentrations. These are required to understand the health impacts of current exposure. However, calculating the impact of the policy option of setting a standard

requires the worst-case annual (or 99 percentile for daily) concentrations. The difference between this value and the proposed standard is how much particulate concentrations need reducing.

Section 2.2 states that the source apportionment assessment from HAPINZ (2012) was used to distribute the annual average concentrations between sources for both PM_{10} and $PM_{2.5}$. We concur with the approach in HAPINZ (2012) for apportioning inventory data and natural sources contributions to annual average PM_{10} concentrations. As the author of that approach we advise it is not appropriate for $PM_{2.5}$ because the natural source contribution will be significantly different and only PM_{10} values for natural sources were integrated into HAPINZ (2012). It is possible that Golders have sourced natural source $PM_{2.5}$ and subtracted that instead of the natural sources PM_{10}. Industry sources also can vary in contribution for $PM_{2.5}$ and PM_{10}. Motor vehicles do in terms of the brake and tyre wear components which are becoming more significant as tailpipe emission decrease. The impact of these differences could be major or minor depending on how natural source $PM_{2.5}$ has been estimated, which is unclear in the report. Figure 3.1 shows an example from Nelson Airshed A of the potential variability in relative contributions of sources to annual average PM_{10} and PM_{10}. The results are clearly different for $PM_{2.5}$ as for PM_{10}.

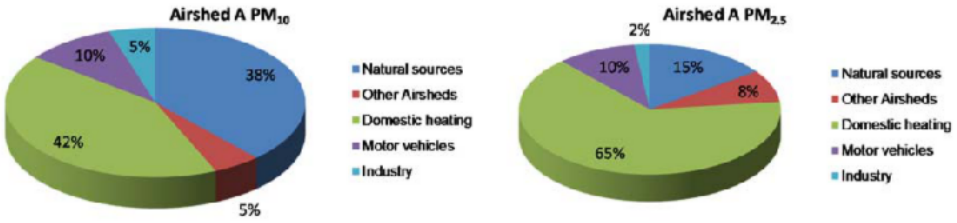

Figure 3-2: Projected annual average $PM_{2.5}$ concentrations for the Nelson Air Plan measures including the behaviour change programme.

The assumption that the source distribution for 2005 (from HAPINZ) will be applicable to 2015 or 2013 is invalid and will flaw the status quo projection and any subsequent calculations of the impact of policy options. Most airsheds in New Zealand would have seen significant changes in domestic heating and potentially outdoor burning during the winter. In addition, Councils that have introduced air plans that include prohibitions on outdoor burning at times during the year (e.g., Tasman, Marlborough, Canterbury, Southland and Hawke's Bay) will have significantly different winter source distributions (note Nelson have effectively a prohibition on outdoor burning but this was effective prior to 2005). The design criteria for wood burners was effective from September 2005 so in theory wood burner emissions should have reduced significantly in all airsheds where emission limits were not otherwise regulated since 2005. Reductions which target primarily one source will impact on the relative distribution of sources and cause significant inaccuracies.

In our view the assumption was totally unnecessary as sufficient information was available nationally to be able to replicate the HAPINZ (2012) assessment of sources for both a more recent year and for $PM_{2.5}$ contributions.

We do not believe there is any way of using apportioned contributions to annual average PM_{10} and $PM_{2.5}$ to estimate daily exceedances per year.

Review ME Report Sections 2.3 to 2.5.

We have no issues with the motor vehicle projection. It is our view that basic economic projections should not be applied to industrial discharges to estimate future emissions. Our observation is a reduction in industrial PM_{10} in most urban areas since 2001 and in many areas this is a result of fuel switching or ceasing activities rather than application of control technology such as the BPO methods listed. The industry emission estimate does not include non-boiler discharges. The method given by Golder for estimating emissions from non point sources will not result in a reasonable approximation.

Review ME Report Section 2.6.

Golders conclude that only two regions (Canterbury and Southland) do not permit outdoor burning in their airsheds during the winter months. We would assess the following areas as not permitting outdoor burning throughout their airsheds during the winter months: Marlborough, Tasman, Canterbury, Nelson, Southland, Northland and Hawke's Bay. The Nelson rule (which was assessed by Golders as allowing outdoor burning) does not permit the burning of pruning, leaves and other household waste (which is the outdoor burning included in the inventories and the Wilton 2015 emissions assessment) during the winter months. The assumption that outdoor burning is permitted in most airsheds is wrong and the need to make an assumption was unnecessary. Rules can be found or if time is limited Council staff are very familiar with their rules and will respond to queries. It is not reasonable to conclude that the impacts of the assumption are small as they are not, particularly with respect to daily winter concentrations.

The presence of outdoor burning within the models makes a substantive difference to the effectiveness of the policy options. In most areas the air plans would have been effective after 2006 (Golders source apportionment year). In Nelson, however, the air plan was notified in 2004 and at this point households would have had to apply for consent for outdoor burning essentially making the prohibition effective from 2004. It is relevant whether a ban is effective before or after the year of monitoring data used to assess reductions required. In Blenheim for example the air plan was operative in 2016 so only more recent years of monitoring data would be post this regulation being effective. Golders assumptions regarding outdoor burning contribute to the inaccuracy of the base case scenarios for a number of airsheds. This is only a minor issue however relative to some of the other assumptions they have made.

Review ME Report Section 2.7.

The methodology proposed is very simplified and only allows assessment of a change that would apply universally throughout a year and only to annual averages. No actual assessment of the impact of meteorology has been carried out. Concentrations have been apportioned by source (using HAPINZ) and then an assumption has been made for each source that a proportional linear reduction in emissions will reduce concentrations by the same amount. It is simply the ratio between annual emissions and concentrations for the annual average. The statement that care should be taken when applying this to daily peaks or counts of exceedances is wrong. The ratio should be quite different for the daily winter concentrations. The apportionment used and consequently the meteorology factor assumed only applies to the annual average. There is no scientific option to apply "care".

The model is not fit for purpose given that seven of the sixteen councils have winter-time bans on outdoor burning, with varying dates of introduction. In these areas emissions from outdoor burning would need reducing for the winter months but retaining for other months. Simply reducing the annual contribution in proportion with the emission reduction amount would not take into account the seasonal variability in the impact of meteorological conditions. The model does not integrate the base data on source distribution from HAPINZ and therefore will not respond to temporal variability in emission reduction strategies.

Use of a ratio approach would require matching up the emissions to the concentrations temporally, i.e., they need to be for the same year of as close as possible. Otherwise the ratio will be out. This is illustrated for Nelson's Airshed A in Figure 3.2 which shows the estimated daily winter emissions by source for each inventory year (2001, 2006 and 2014). Applying the Golders approach to this data would have the apportionment from 2006 (HAPINZ apportionment approach) apply to a concentration from 2018. You can see from the graph how different the apportionment would be depending on which year was used. Worse however, would be derivation of a "meteorological variable" as we can see that this ratio would vary for domestic heating $PM_{2.5}$ from 4.4 in 2006 (45 tonnes/year divided by 10.4 ug/m3) to 1.9 in 2014 (18 tonnes/year divided by 10.4 $\mu g/m^3$).

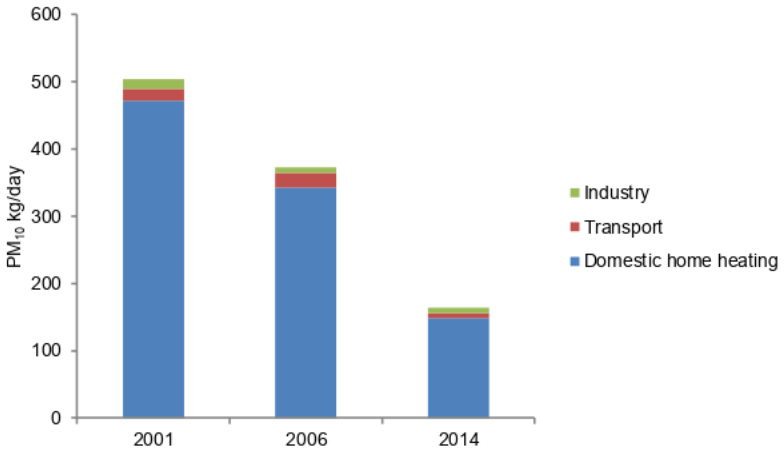

Figure 3-3: Estimated daily winter emissions by source for each inventory year for Airshed A

Review ME Report Section 2.8.1

Golders state that individual heating types are needed for the base year (2013) and assumptions regarding how those numbers will change under the status quo and the proposed national policy intervention. The status quo for each Council includes the impact of any measures they have implemented through an Air Plan. We see no evidence of this in the outputs. Moreover, the report shows a lack of understanding of the air plan measures adopted by Councils. We do not believe this information has been factored into the status quo projections.

The status quo projections require information on the base case appliance numbers. Appliance numbers are critical to the status quo projection and the assessment of the impact of policy measures. The method described by Golders for obtaining appliance numbers takes a screening level assessment (Wilton, 2015) and attempts to extract a detail level (inventory level) output by applying higher level detail variables. In the case of some of the airsheds Wilton (2015) includes the actual inventory emission estimates and for these towns the method described would be appropriate. This applies only to a small number of airsheds and is effectively negated for Nelson and Blenheim by the inclusion of out of date supplementary data (Wilton 2015 is based on the Nelson 2015 inventory and Blenheim 2012 inventory whereas the supplementary data is based on inventories for 2006 and 2005 respectively). Appliance numbers are included as a table in all Environet Reports and there are numerous inventory reports from which information could have been sourced. This information should have been sourced directly for each airshed.

The proportion of older (pre 2004 non-NES compliant) burners in each airshed is critical to the assessment of status quo projections and must be estimated for the base year for the projection analysis. Golders use a base year of 2013 but the appliance numbers and types are based on years ranging from 2005 (e.g., Blenheim and Nelson) to 2015 for Napier, Hastings and Havelock North. The figure below illustrates the change in older burners in Nelson A and Blenheim from 2005 to 2014 (Nelson) and 2005 to 2012 (Blenheim) to illustrate how inaccurate the estimates will be if not obtained for the correct year. From this we see that Nelson A pre NES burner numbers for 2005 are 5.5 times higher than for 2014 (closer to base year) and for Blenheim the 2012 numbers are more than a third lower in 2012. Accuracy in the base year appliance numbers is one of the most important aspects of projections modelling for assessing the status quo and the impact of policy options for domestic heating. This information is available in emission inventories which have been carried out in most airsheds with reasonable regularity. Golders have not attempted to access the most current information for the projections analysis and have adopted an approach that will be highly inaccurate.

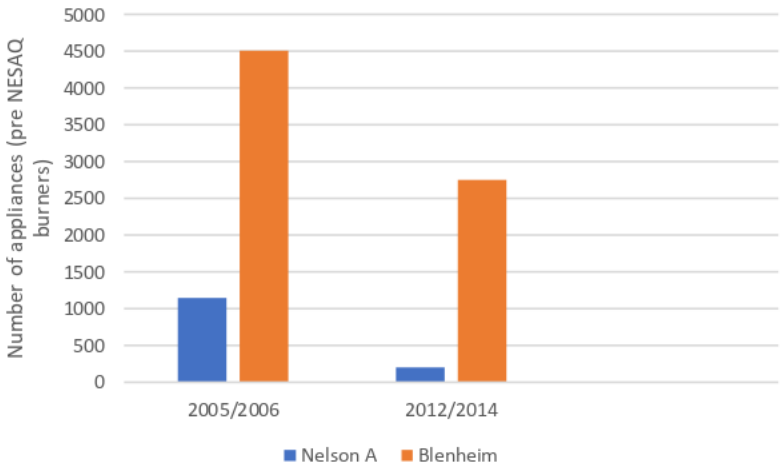

Figure 3-4: Number of pre NESAQ compliant wood burners installed in Nelson and Blenheim Airsheds

The assessment of status quo projections by Golders is not scientifically robust. The most significant variables required for the analysis have been collected using back of the envelope type calculations and incomplete and inaccurate reviews of air plan measures. For most airsheds there is a mismatch between emissions assessments (2005 for apportionment between sources and then 2005-2015 for appliance distributions) and the year used to represent concentrations. Consequently, the ratios used will be inaccurate. The estimate of the impact of the status quo will be significantly out as a result of not accurately quantifying for the baseline year the number of pre 2005 wood burners in use. It is our view that the outputs from the Golder work will vary significantly from the projections that have been commissioned by Councils to underpin the measures adopted in their air plans. The costs and benefits of the policy options can not be accurately assessed without an adequate baseline assessment.

3.4.3 Summary of cost benefit evaluation

The benefits assessment relies entirely on the scientific evaluation including the status quo projection for each airshed and an evaluation of the impact of each policy measure. The status quo assessment is not scientifically robust. The effectiveness of the impact of policy options as assessed by ME is not scientifically robust. There is essentially only a cost analysis and no analysis of the benefits of the policy measures.

It is unclear who has taken responsibility for assessing daily winter $PM_{2.5}$ or how this has been done. Based on the information given it would seem very unlikely that a robust method has been developed. This is particularly relevant given this standard, as proposed, is of questionable value.

3.4.4 Technical recommendations – cost benefit

The cost benefit analysis should be updated based on the $PM_{2.5}$ monitoring data for airsheds that it is available.

The $PM_{2.5}$ concentrations in other airsheds should be re-estimated.

The apportionment of anthropogenic sources should be updated for a year close to 2018 when monitoring data are available for $PM_{2.5}$. Linkages between anthropogenic source apportionment and status quo and policy option assessments should be retained to enable assessment of policy options with temporal components (e.g., prohibitions on outdoor burning during winter months only).

The status quo projections for each airshed should integrate all relevant emission inventory information (including appliances numbers). The number of pre 2005 (or other years for areas that introduced standards earlier) should be estimated for the baseline year (not just integrated based on the year of the inventory). They should take into account the existing regulatory measures in each location and their impact on PM_{10} and $PM_{2.5}$ concentrations over time.

A cost benefit analysis of the impact of the proposed daily $PM_{2.5}$ standard for each airshed including the likely impact of the likely management measures – such as the cost impacts of the introduction of ULEB for Nelson A (and other areas) should be carried out. An assessment looking at the impact on fuel poverty (such as that in Wilton, 2014a) of any such regulations is recommended.

The impact of the proposed policy options should be assessed relative to the status quo projection to assess the impact of the proposed policy. Results should be presented for three, not two scenarios, namely: 2018 concentration, projected year (e.g., 2028) status quo concentration, impact of policy measures concentration.

The costs and benefits of the proposed policy options should be considered individually as well as collectively.

3.5 Education as a tool

The NESAQ proposed amendment includes a section on education. The approach to identifying areas where education could be used to reduce particulate emissions appears somewhat ad hoc including issues with minimal impact on particulate whilst excluding factors found to have significant impacts. This section of the NESAQ could be greatly improved if the Ministry were to engage with people with specialise expertise in this area.

3.6 Review – technical advice

The quality of the technical aspects of the NESAQ are very poor. The outputs of the 2014 $PM_{2.5}$ assessments have been demonstrated (through monitoring) to not provide a reasonable approximation. No adequate assessment of the health basis for the guidelines and the appropriate setting of guideline levels has been carried out. The methods used for assessing the impacts of existing measures and providing an approach for estimating the impacts of policy options is grossly inadequate and the assessment of the impacts of policy options has no technical grounding. We have good understanding of the process of cost benefit analysis for air quality (having worked closely with an MfE economist in assessing the NESAQ for PM_{10}) but are not qualified to provide review comments on the economic methods and assumptions. We do note that the impact of policy options on air quality has been assessed by the economists and that this assessment is flawed. The technical information underpinning the economic analysis are inadequate and the outputs are nonsensical.

It is our view that the Ministry needs to review its procurement procedures with respect to air quality to ensure it is obtaining adequate technical expertise. Understanding of work-flow and relationships between projects at the Ministry level is also lacking. It is evident from the quality of the proposed NESAQ that procurement procedures, co-ordination of work set and potentially timeframes set by the Ministry are unsatisfactory.

4 REFERENCES

Foster, E. (1996). *Health effects of suspended particulate*. Canterbury Regional Council.

Kuschel, G., Metcalfe, J., Wilton, E., Guria, J., Woodward, A., Hales, S., & Rolfe, K. (2012). *Updated Health and Air Pollution in New Zealand Study*. Report funded by the Health Research Council of New Zealand, Ministry for the Environment, Ministry of Transport. www.hapinz.org.nz

WHO. (2005). *WHO Air quality guidelines for particulate matter, ozone, nitrogen dioxide and sulfur dioxide*. World Health Organization.

WHO. (2013). *Review of evidence on health aspects of air pollution – REVIHAAP project: Final technical report*. World Health Organization.

Wilton, E. (1998). *An investigation into management options towards reducing suspended particulate concentration in the Christchurch Air Shed*. Lincoln University.

Wilton, E. (2002). *Improving air quality in Nelson. An assessment of the effectiveness of management options for reducing PM10 concentrations in Nelson—Stage One*. Nelson City Council Report.

Wilton, E. (2014). *Nelson Air Quality Assessment – Meeting the NES for PM10 2014 update*.

Wilton, E., & Bluett, J. (2012). *Factors influencing particulate emissions from NES compliant woodburners in Nelson, Rotorua and Taumarunui 2007*. NIWA Client Report 2012- 013.

Wilton, E., & Zawar Reza, P. (2014). *Assessment of trends in PM10 concentrations in Airshed A and evaluation of airshed capacity*. Nelson City Council Technical Report.

Wilton, E., & Zawar Reza, P. (2015). *Air quality management in Nelson – the potential impact of an annual average PM2.5 NES*. Envirolink Report NLCC88.