



Ministry for the
Environment
Manatū Mō Te Taiao

PROPOSED AMENDMENTS TO THE National Environmental Standards >> for Air Quality

DISCUSSION DOCUMENT



**Proposed Amendments to the
National Environmental Standards
for Air Quality**

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This report may be cited as:
Ministry for the Environment. 2010. *Proposed Amendments to the National Environmental Standards for Air Quality: Discussion Document*. Wellington: Ministry for the Environment.

Published in June 2010 by the
Ministry for the Environment
Manatū Mō Te Taiao
PO Box 10362, Wellington 6143, New Zealand

ISBN: 978-0-478-33285-8 (print)
978-0-478-33286-5 (electronic)

Publication number: ME 1018

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This document is available on the Ministry for the Environment's website:
www.mfe.govt.nz

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Executive Summary

Overview of this document

In October 2004, the Government introduced the National Environmental Standards for Air Quality¹ (the air quality standards). The air quality standards are regulations made under section 43 of the Resource Management Act 1991 (RMA).

They include:

- seven standards banning activities that discharge significant quantities of dioxins and other toxics into the air
- five standards for ambient (outdoor) air quality
- a design standard for new wood burners installed in urban areas
- a requirement for landfills over 1 million tonnes of refuse to collect greenhouse gas emissions.

This document will focus on the ambient air quality standards.

The ambient air quality standards are the minimum requirements that outdoor air quality should meet in order to guarantee a set level of protection for human health and the environment. The phrase ‘set level of protection’ is used quite deliberately – it does not mean that all adverse health impacts will be avoided. This is because some pollutants (eg, PM₁₀) do not have a ‘safe’ threshold under which no adverse health impacts are experienced.

The Minister for the Environment Hon Dr Nick Smith announced a review of the air quality standards in 2009. This review focuses on the ambient air quality standards, particularly the regulation for particulate matter less than 10 microns in diameter (PM₁₀). The Minister specifically wishes to review three aspects of the PM₁₀ regulations:

- the number of permitted exceedances of the standard
- the restrictions imposed on industry consents (Regulations 17 to 19)
- the associated timeline of 2013 for airsheds to comply with the standards to prevent industry consent restrictions to take effect.

This discussion document looks at the proposed amendments to the air quality standards for PM₁₀ and how these amendments address the current gaps in the PM₁₀ regulations.

¹ Its full title is Resource Management (National Environmental Standards Relating to Certain Air Pollutants, Dioxins and other Toxics) Regulations 2004.

The problems addressed by this proposal

The Minister specifically wished to review three aspects of the regulations relating to PM₁₀ in the air quality standards:

- *The number of permitted exceedances.* In 2003, the Ministry for the Environment proposed an ambient PM₁₀ standard of 50 micrograms per cubic metre as a 24-hour average with five exceedances permitted per year. This proposal was reduced to one exceedance after consultation with regional councils; five are permitted in Australia to allow for bushfire hazard reduction burning, and this was considered unnecessary for New Zealand. The Minister for the Environment wishes to review that decision.
- *Equity.* The Minister considered the compliance aspects of the air quality standards inequitable. The air quality standards have significant implications for industry because, after 2013, regional councils cannot grant consent for discharges in over-allocated airsheds. The air quality standards may unfairly penalise industry because domestic heating, not industry, is the primary source of urban air pollution in most parts of New Zealand.
- *The target timeline of 2013.* Is it achievable (now that we are in 2010)? What are the costs and benefits of achieving it?

Policy objectives

The objectives of the air quality standards are to:

- provide greater certainty for industry by providing a ‘level-playing field’ that clarifies environmental expectations before the resource consent process
- support the protection of public health and the environment by providing a bottom-line standard that must not be breached
- provide greater certainty in resource consent decision making and regional plan preparation at the local level.

These objectives have not changed since the air quality standards were first promulgated in 2004.

Viable option packages

Almost all the proposed amendments are recommendations made by the Technical Advisory Group (TAG) for Air Quality. However, some of the TAG’s recommendations were not feasible within the current RMA. Because of this, additional analysis of alternative options was undertaken by the Ministry for the Environment to determine the option that could achieve similar outcomes to those sought by the TAG’s recommendations.

Following this analysis, the Minister for the Environment proposes the following approach to amending the air quality standards:

- increase the number of permitted exceedances of the ambient PM₁₀ standard from one to three
- make provision for the exclusion of exceptional events (eg, volcanic eruptions, bushfires, and Australian dust storms)

- repeal the prohibition on industry resource consents after 2013 extend the timeline for compliance to 2018
 - require information on airshed implementation plans from councils (via section 27 of the RMA)
 - require mandatory reporting of PM₁₀ monitoring results by regional councils after 2013 to improve transparency and accountability
- OR
- remove all industry consent restrictions
 - develop a Ministry for the Environment compliance strategy to assist the Minister for the Environment to monitor and review non-compliance by councils.

Costs and benefits

The New Zealand Institute of Economic Research (NZIER) was commissioned by the Ministry for the Environment (MfE) to review and update the national cost-benefit analysis of the national environmental standards on air quality undertaken in 2004 (MfE, 2004). The updated NZIER assessment of the costs and benefits modelled two scenarios – compliance with the standards by the original deadline of 2013 and an extension to 2020 – relative to current business as usual (NZIER, 2009). The updated cost-benefit analysis was then considered by the Technical Advisory Group when developing their recommendations.

In the preparation of this discussion document, the Ministry for the Environment considered the TAG recommendations and other proposed options for amending the standards, using the NZIER updated cost-benefit analysis as a basis for estimating the likely costs and benefits of each option. The NZIER cost-benefit analysis did not specifically model each of these options but was able to be extrapolated or interpolated, using a series of assumptions to enable comparison of each option, as outlined in appendix C.

The cost-benefit analysis shows that the nationwide impacts of the amendments proposed by the preferred options are expected to be positive.

Submissions

The Ministry for the Environment welcomes feedback on the proposal through submissions.

The Ministry will organise targeted workshops in Auckland, Wellington, Nelson, Christchurch and Dunedin. These will be with industry, air quality experts and Councils. It will discuss the proposal and seek further information on costs, benefits and impacts of this policy on those stakeholders. These workshops will be held in June 2010.

Anyone can make a submission. Submissions must be received by the Ministry for the Environment no later than 5.00 pm 9 July 2010. Further details on making a submission are included in section 6.

1 Introduction

On 10 June 2009, the Minister for the Environment Hon Dr Nick Smith announced a review of the Resource Management (National Environmental Standards Relating to Certain Air Pollutants, Dioxins and other Toxics) Regulations 2004 (the air quality standards). This is in line with the air quality proposal in the Blue Green Vision² and is part of the response to concerns raised in the Jobs Summit in February 2010.

The Minister specifically wishes to review three aspects of the regulations relating to particulate matter less than 10 microns in diameter (PM₁₀) in the air quality standards:

- *The number of permitted exceedances.* In 2003, the Ministry for the Environment proposed an ambient PM₁₀ standard of 50 micrograms per cubic metre as a 24-hour average with five exceedances permitted per year. This proposal was reduced to one exceedance after consultation with regional councils; five being that permitted in Australia to allow for bushfire hazard reduction burning and this being considered unnecessary for New Zealand. The Minister for the Environment wishes to review that decision.
- *Equity.* The Minister for the Environment further considers the compliance aspects of the air quality standards inequitable. The air quality standards have significant implications for industry because, after 2013, regional councils cannot grant consent for discharges in over-allocated airsheds. The air quality standards may unfairly penalise industry because domestic heating, not industry, is the primary source of urban air pollution in most parts of New Zealand.
- *The target timeline of 2013.* Is it achievable (now that we are in 2009)? What are the costs and benefits of achieving it?

The terms of reference for the review, as agreed with the Minister of Regulatory Reform, Hon Rodney Hide, are provided in appendix A.

To support the review, the Minister for the Environment engaged an independent Technical Advisory Group comprising the following members:

- Phil Barry, Chair, financial and economics adviser and independent consultant
- Kevin Mahon, Manager, Air Quality Policy, Auckland Regional Council
- Dr Deborah Read, public health physician and independent consultant
- Lawrence Yule, President, Local Government New Zealand; Mayor, Hastings District Council
- Kevin Rolfe, Director, Kevin Rolfe & Associates and independent consultant.

This Technical Advisory Group prepared an independent report for the Minister; *Air Quality – Getting the Balance Right: Report of the Technical Advisory Group on National Air Quality Standards*. This report was presented to the Minister on 17 November 2009. A copy is available on the Ministry's website (www.mfe.govt.nz).

² This document can be accessed at <http://www.national.org.nz/bluegreens/a%20bluegreen%20vision%20for%20new%20zealand.pdf>

After receiving the report from the Technical Advisory Group, the Minister considered advice from the Ministry for the Environment and consulted with the Minister of Regulatory Reform. The Minister then proposed a series of amendments to the air quality standards to Cabinet which were approved on 31 May 2010.

This discussion document seeks public input on these proposed amendments.

1.1 Purpose of this document

This discussion document has been prepared by the Ministry for the Environment to:

- help you understand the proposed amendments to New Zealand's air quality standards and the potential costs and benefits of these amendments
- help you to prepare questions and feedback
- guide you in making a submission.

The proposed amendments discussed in this document are especially important for:

- regional councils, because they are directly responsible for implementing the air quality standards
- industries located in polluted airsheds, because they may be affected by the current regulations and/or the proposed amendments
- people who live in polluted airsheds, because they are directly affected by the effectiveness of the air quality standards.

We have strived to make this document as accessible as possible but it contains significant technical content due to the subject matter. Readers are encouraged to read the background supporting information discussed in section 1.4. Readers may also email questions about this document to air@mfe.govt.nz or phone Rapunzel Mulawin on 04 439 7776 for further information.

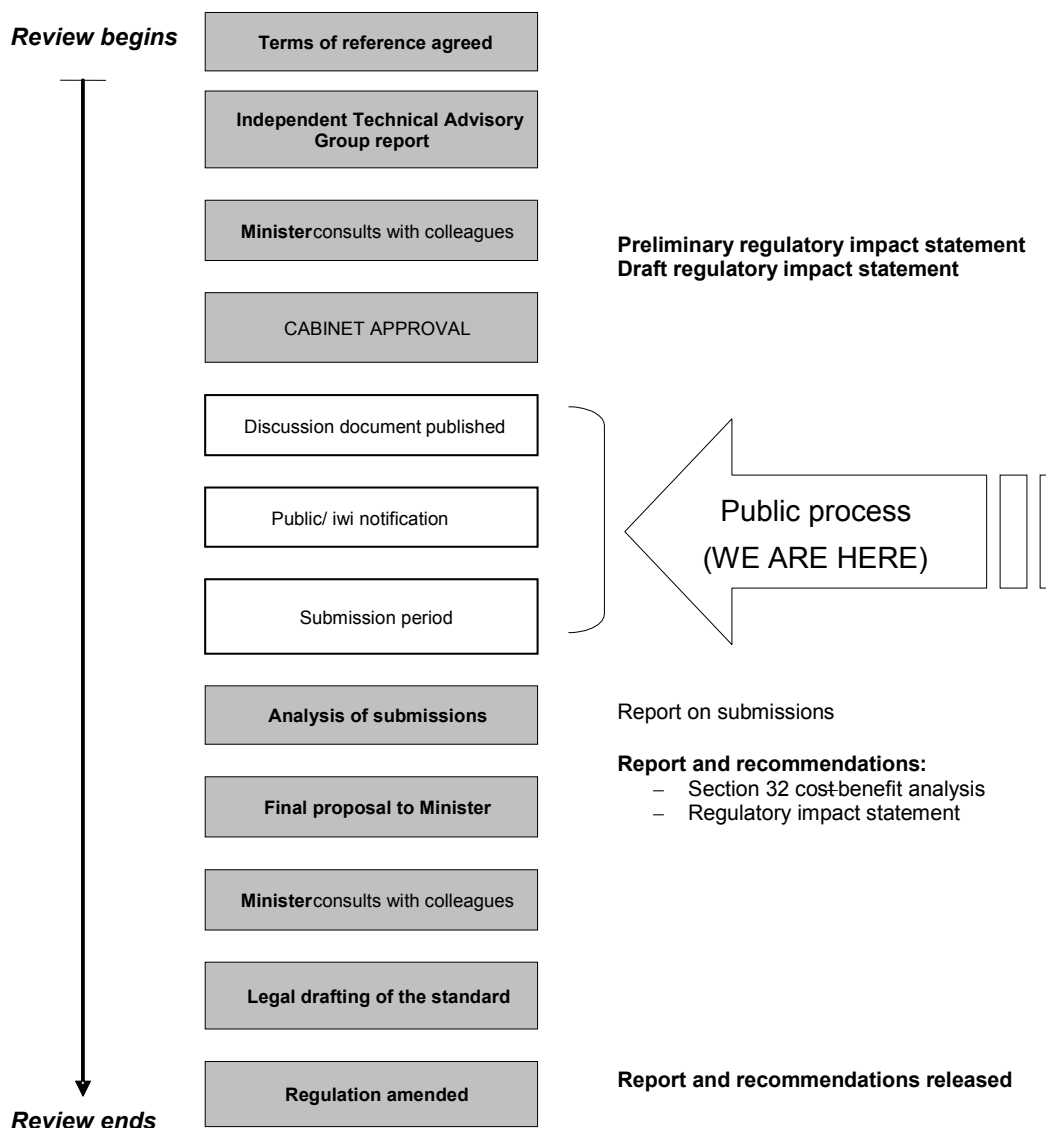
1.2 The process for reviewing national environmental standards

An outline of the process for reviewing a national environmental standard, including the submission process, is shown in figure 1. Cabinet approval to initiate public consultation was received in 31 May 2010. This discussion document provides your opportunity to make a formal submission on the proposed amendments.

A four-week submission period is provided to enable any formal approval or ratification of submissions that might be required by councils, committees or boards.

Readers should note that the process for amending a national environmental standard differs from statutory plan and resource consent processes in that there are no hearings, appeal provisions or First Schedule consultations. However, the RMA does require the Minister for the Environment to provide an opportunity for the public and iwi authorities to comment on the proposed amendments before legal drafting begins. That opportunity is provided through submissions on this discussion document.

Figure 1: The process for reviewing a national environmental standard



Details on how to make a submission are given in section 6. Appendix B also contains a submission template, together with some questions on aspects of the proposed amendments, to help you make your submission. However, you are welcome to provide feedback on any aspect of the proposed amendments and the submission template is not mandatory.

A regulatory impact statement (RIS) is required for any regulatory amendments that have significant direct impacts on the environment.³ The draft RIS considered by Ministers in approving this discussion document can be found on the Ministry for the Environment’s website (www.mfe.govt.nz). This discussion document contains, and invites comment on, the substantive elements of a regulatory impact statement.

³ Regulatory impact statements (RIS) are a policy tool widely used in OECD countries. A RIS examines and measures the likely benefits, costs and effects of new or changed legislation and regulations. A RIS is used to define problems and to ensure that government action is justified and appropriate.

At the end of the submissions process for the air quality standards the Ministry for the Environment will prepare the following documents for the Minister for the Environment:

- recommendations on proposed amendments to the air quality standards
- a formal evaluation of the alternatives, costs and benefits under section 32 of the RMA
- a revised regulatory impact statement.

The Minister will then consider these before deciding whether to recommend to the Governor-General that the air quality standards be amended.

1.3 Cost-benefit analysis

To further support the review of the air quality standards, the Ministry for the Environment contracted an independent economic appraisal of the air quality standards in June 2009. The resulting evaluation – *The Value of Air Quality Standards, Review and Update of Cost Benefit Analysis of National Environmental Standards on Air Quality* was prepared by the New Zealand Institute of Economic Research (NZIER, 2009).

The Technical Advisory Group peer reviewed by this report before it was finalised. Further information is provided on this report in section 5. A copy of the cost-benefit analysis is available on the Ministry's website (www.mfe.govt.nz).

1.4 Assumptions made

Cost and benefit analysis for the various options were derived from the NZIER updated cost-benefit analysis. The estimated yearly economic loss in value added to a region's economy was computed using the Auckland Regional Council Economic Model.

Economic opportunity costs and competition impacts have not been included in the analysis. The Ministry has no direct information on the economic opportunity costs facing industry which are influenced by air pollution regulations so has been unable to quantify such costs. The Ministry does not believe that competition impacts of air pollution interventions are material to industry.

The estimated costs for mandatory offsets do not include administrative costs which could add another 2–5 per cent.

A list of the assumptions used in the costs and benefits of each option is shown in appendix C.

This discussion document seeks further information from stakeholders to test out these assumptions.

1.5 Summary of available reports

This discussion document is supported by the following technical documents available on the Ministry for the Environment's website (click on publications, then air quality).

- *Air Quality – Getting the Balance Right, Report of the Technical Advisory Group on National Air Quality Standards* (Technical Advisory Group on National Air Quality Standards, November 2009)
- *The Value of Air Quality Standards, Review and Update of Cost Benefit Analysis of National Environmental Standards on Air Quality* (NZIER, October 2009)
- *2008 Report on Progress: National Environmental Standards for Air Quality* (Ministry for the Environment, June 2009)
- *Updated Users Guide to Resource Management (National Environmental Standards Relating to Certain Air Pollutants, Dioxins and Other Toxics) Regulations 2004 (Including Amendments 2005)* (Ministry for the Environment, October 2005).

Additional, relevant documents, also available on the Ministry for the Environment's website, include:

- *Environmental Report Card: Air Quality (Particulate Matter – PM₁₀)* (Ministry for the Environment, February 2009)
- *Health and Air Pollution in New Zealand: Main Report*, Fisher et al, June 2007)
- *Monitoring Air Quality in New Zealand* (Ministry for the Environment, June 2007)
- *Global Environmental Monitoring System Annual Reports* (Ministry for the Environment, 2000-2009)
- *Proposed National Environmental Standards for Air Quality: Analysis of the Costs and Benefits* (Ministry for the Environment, May 2004)
- *Health Effects of PM₁₀* (Ministry for the Environment, August 2003)
- *Ambient Air Quality Guidelines* (Ministry for the Environment, May 2002).

1.6 Consultation on the scope of the review

The Minister discussed the terms of reference and proposed Technical Advisory Group representatives with the Hon Rodney Hide, Minister of Local Government and Minister for Regulatory Reform.

Regional councils and unitary authorities are responsible for implementing the air quality standards. On behalf of the Minister, the Ministry consulted with all regional councils and unitary authorities on the terms of reference for a review. Comment was primarily technical in its focus, but councils were split on the scope of the review. Some proposed a much wider review to incorporate conflicting priorities such as long-term council community plans. Others considered the scope too broad and ambitious within the proposed timeframe.

Being mindful of the Government's commitment to reducing regulation, the Minister considered a wide-ranging review was not appropriate and instead focused the review on the regulations relating to PM₁₀.

2 What are the Air Quality Standards?

In October 2004, the Government introduced the National Environmental Standards for Air Quality (the air quality standards). The air quality standards are regulations made under section 43 of the Resource Management Act 1991. Their full title is Resource Management (National Standards Relating to Certain Air Pollutants, Dioxins and other Toxics) Regulations 2004.

The national environmental standards for air quality include 14 standards comprising:

- seven standards banning activities that discharge significant quantities of dioxins and other toxics into the air
- five standards for ambient (outdoor) air quality
- a design standard for new wood burners installed in urban areas
- a requirement for landfills over 1 million tonnes of refuse to collect greenhouse gas emissions.

This discussion document focuses on the ambient air quality standards, specifically the PM₁₀ regulations. A consolidated version of the regulations is provided in appendix D.

2.1 Air quality standards and regional plans

2.1.1 What about regional plans?

The Resource Management Act 1991 (RMA) promotes the sustainable management of natural and physical resources, including air. Under section 30 of the RMA, consenting authorities have a statutory responsibility to control discharges of contaminants into the air. Regional councils, therefore, have specific requirements for issuing discharge consents and undertaking air quality management through regional plans and policy statements.

All regional councils have regional plans that regulate air discharges. Some councils have regional plans specifically for air quality. These air plans detail the regional, and sometimes local or airshed-specific, management of air quality. Other councils have rules for air quality contained within broader regional plans. However, all plans contain specific rules about the types of discharges that are and are not allowed.

Regional plans and air plans are different for each region to reflect different local circumstances. Many plans contain more stringent criteria than those in the air quality standards (or the national ambient air quality guidelines, see below). One of the justifications for this is to allow adequate time for regional councils to respond if air quality is approaching unacceptable levels. The regional council process to develop and implement policy for emissions reduction takes several years, and so one of the ways that councils address this is by adopting 'target' values that are typically 66 per cent of the relevant standard or guideline value. This allows them a time buffer that helps ensure the air quality standards are not breached.

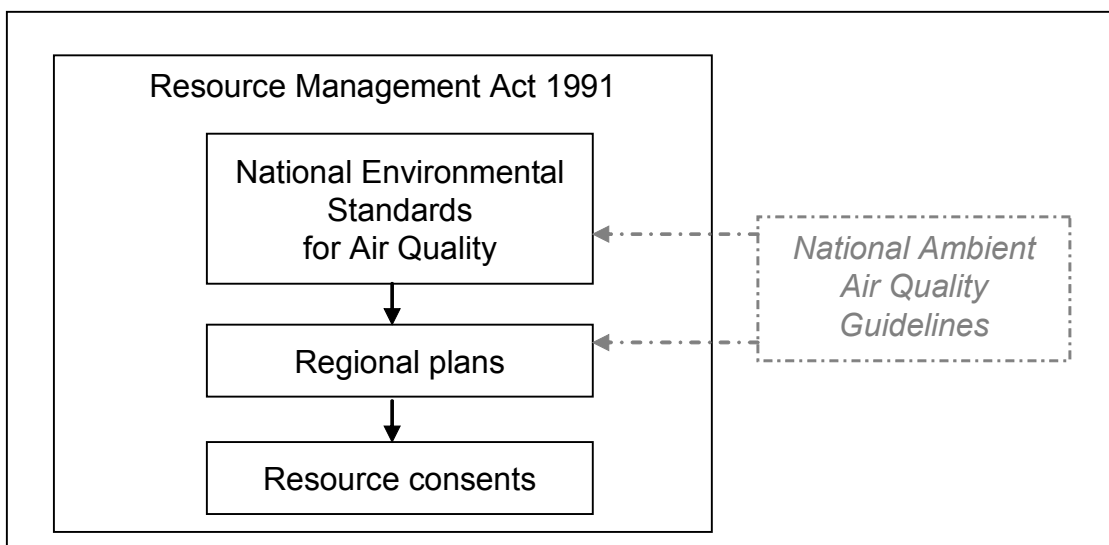
2.1.2 How do regional plans fit with the air quality standards?

The RMA is the overarching legislation. The air quality standards sit underneath and provide a national baseline for acceptable effects, with regional plans providing the details of how air quality is managed at the regional level. This is summarised in figure 2.

Note: If the air quality objectives in a regional plan are more stringent than the national environmental standards for air quality, then the regional plan takes precedence.

In addition, New Zealand also has national ambient air quality guidelines.⁴ These have no statutory standing, but because they were developed following a comprehensive review of international and national research, they are widely accepted among New Zealand practitioners. National ambient air quality guidelines apply for pollutants (and averaging periods) not covered by the air quality standards. The air quality standards, however, replace any previous guideline levels for that particular pollutant and averaging period.⁵

Figure 2: New Zealand air quality regulatory framework



2.2 Ambient air quality standards

The ambient air quality standards are the minimum requirements that outdoor air quality should meet in order to guarantee a set level of protection for human health and the environment.

The phrase ‘set level of protection’ is used deliberately – it does not mean that all adverse health impacts will be avoided. This is because some pollutants (eg, PM₁₀) do not have a ‘safe’ threshold under which no adverse health impacts are experienced.

⁴ Ministry for the Environment, 2002 available at: <http://www.mfe.govt.nz/publications/air/ambient-air-quality-may02/index.html>

⁵ In addition to the human health-based guidelines the national ambient air quality guidelines include criteria for ecosystem protection for sulphur dioxide, sulphate particulate, nitrogen dioxide, ammonia, ozone and fluoride.

The ambient air quality standards include a concentration level, a time average and a permitted number of exceedances that may occur per year. These standards cover five pollutants and took effect on 1 September 2005 (see table 1).

Table 1: Ambient air quality standards from 1 September 2005

Pollutant	Standard	Time average	Allowable exceedances per year
Carbon monoxide (CO)	10 mg/m ³	8-hour (running mean)	1
Nitrogen dioxide (NO ₂)	200 µg/m ³	1-hour	9
Ozone (O ₃)	150 µg/m ³	1-hour	0*
Particulate matter (PM ₁₀)	50 µg/m ³	24-hour	1
Sulphur dioxide (SO ₂)	350 µg/m ³ 570 µg/m ³	1-hour 1-hour	9 0*

* These levels are not to be exceeded at any time.

The standards are ambient, that is, they apply outdoors. In simple terms, the ambient standards apply in all regions of New Zealand, in any outdoor location where people may be exposed.

2.3 Airsheds

The air quality standards attach monitoring, reporting and consent decision restrictions to airsheds. In this context, the term ‘airshed’ can be considered to mean an ‘air quality management area’ (ie, an area delineated by the regional council for the purposes of managing air quality). The term airshed is analogous to ‘catchments’ or ‘watersheds’ which are used to discuss the management of rivers.

As at December 2009, the Minister had gazetted 71 airsheds on behalf of regional councils and unitary authorities in the *New Zealand Government Gazette*. These airsheds extend upwards from ground level, with no specified upper limit, and include coastal areas. Two of these airsheds, Awatoto and Whirinaki in Hawke’s Bay, only came into force in November 2009. These two airsheds are not discussed in detail in this document. This document will continue to refer to 69 airsheds in total.

All gazetted airsheds, except one, have been gazetted for the purpose of managing PM₁₀. The exception is the Marsden Point airshed which is gazetted for the management of sulphur dioxide (SO₂). Forty-three airsheds are continuously monitored for PM₁₀. The remaining airsheds are not monitored because they are not likely to exceed the PM₁₀ standard. This is in accordance with the regulations which only require monitoring in areas where the standard is likely to be exceeded.

With the exception of Otago, these gazetted airsheds are very close to the strict science-based definition of an airshed (ie, a geographical area within which air pollution can be retained for an extended period). In 2005, Otago Regional Council gazetted four airsheds that each contained a number of geographically separate towns and cities. For example, Otago Airshed 1 includes Arrowtown, Alexandra, Clyde, Cromwell, Naseby, Ranfurly and Roxburgh. The intent of this approach is to group together areas with similar meteorological and emission characteristics for management purposes and to minimise monitoring costs.

Maps of gazetted airsheds can be viewed on the Ministry website at:
<http://www.mfe.govt.nz/environmental-reporting/air/air-quality/pm10/nes/>

2.4 Monitoring and reporting requirements

The air quality standards require regional councils and unitary authorities to monitor air quality if it is likely that an ambient standard will be exceeded and to publicly report any breaches of the ambient standards within one month.

Air quality monitoring must be carried out where people are exposed and where the ambient standards are likely to be exceeded by the greatest margin or with the most frequency, whichever is the most likely. This means that councils must carry out monitoring in an area where the public is exposed to the ‘worst’ levels to ensure public health is protected.

The air quality standards specify standard monitoring methods that involve continuous measurement of air quality. Full details are available in Schedule 2 of the regulations (see appendix D).

2.5 PM₁₀ regulations

2.5.1 Permitted number of exceedances

The current permissible number of exceedances for daily (24-hour) PM₁₀ is one exceedance per year. A breach of the standard occurs when the PM₁₀ standard is exceeded more than once in a year. Complying airsheds exceed the standard once or not at all in a year.

2.5.2 Resource consent restrictions

In airsheds where the PM₁₀ ambient standard is breached, the regulations constrain the granting of consent for significant industrial discharges of PM₁₀.⁶ These constraints are phased out to 2013, to allow councils time to meet the ambient standards. These constraints also depend on the status of air quality in the airshed with more stringent requirements being placed on more polluted airsheds (discussed below).

Regulation 17 – Polluted airsheds

The air quality standards set restrictions on resource consents depending on:

1. the state of air quality in the airshed (ie, restrictions only apply to airsheds that exceed the PM₁₀ standard)
2. whether the impact of the discharge to be permitted is significant (ie, it must be likely to significantly increase the concentration of PM₁₀ in the airshed).

⁶ The regulations place different constraints upon the resource consent process depending upon the contaminant of concern. This discussion document deals only with the PM₁₀ regulations, which are under review. For a detailed discussion of consent restrictions for other ambient standards (eg, carbon monoxide, sulphur dioxide) please refer to the *Updated Users Guide to Resource Management Regulations 2004* (Ministry for the Environment, 2005). Available at: <http://www.mfe.govt.nz/publications/rma/user-guide-draft-oct05/index.html>

If the two conditions are satisfied (ie, the impact of the discharge is significant *and* it is into an airshed where the PM₁₀ standard is breached) then the application for consent must be considered in accordance with either a straight or curved line path to compliance with the PM₁₀ standard. Paths to compliance are defined in the air quality standards as follows:

curved line path means a curved line that

- (a) starts on the y axis of a graph at a point representing, as at 1 September 2005 or the date that the plan is publicly notified (whichever is the later), the concentration of PM₁₀ in the airshed; and
- (b) ends on the x axis of the graph at a point representing as at 1 September 2013, the ambient air quality standard for PM₁₀ in the airshed.

straight line path means a straight line that

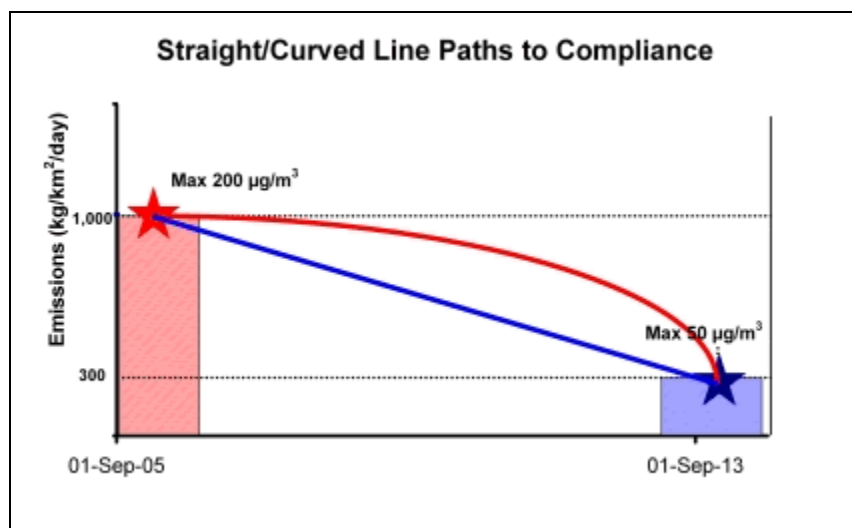
- (a) starts on the y axis of a graph at a point representing, as at the relevant date, the extent to which the concentration of PM₁₀ in the airshed breaches its ambient air quality standard; and
- (b) ends on the x axis of the graph at a point representing, as at 1 September 2013, the ambient air quality standard for PM₁₀ in the airshed.

relevant date means –

- (a) in the case of an airshed that is the region of a regional council, 1 September 2005;
- (b) in the case of an airshed that is part of the region of a regional council, the date of the notice in the Gazette that specifies the part to be a separate airshed.

The ‘straight line path’ and ‘curved line path’ are, therefore, *projections* of how the regional council will attain compliance with the PM₁₀ standard by 1 September 2013. The straight and curved line paths can be represented by plots of emissions versus time as shown in figure 3.

Figure 3: Straight and curved line paths to compliance



Under Regulation 17, the air quality standards constrain the granting of resource consents for *significant* discharges of PM₁₀, in airsheds that breach the PM₁₀ standard, between 1 September 2005 and 1 September 2013. Beyond 1 September 2013, Regulation 19 will take effect.

Offsets

Offsets are mitigation measures included in a proposal to ‘offset’ predicted impacts so emissions from the new activity are ‘offset’ by emission reductions elsewhere in the airshed. For example, an industrial development may reduce emissions from a hospital boiler located nearby, and so the reduced PM₁₀ emissions from the hospital boiler *offset* the proposed industrial discharges of PM₁₀ from the industrial development.

The air quality standards require that offsets must:

- be from another source into the same airshed
- take effect within one year after the grant of the resource consent
- be effective for the duration of the consent.

The air quality standards prescribe that the amount of an offset is to be determined by the path to compliance as follows:

- if the airshed is on or below the path to compliance then the offset must be at least equal to the change in concentrations caused by the resource consent, or
- if the airshed is above the path to compliance then the reduction must be at least equal to the amount of discharge permitted by the resource consent.

It may be noted that the air quality standards do *not* explicitly require that:

- the nature of the contaminants being ‘put-in’ needs to be similar to those ‘taken-out’
- the spatial and temporal improvement from the ‘take-out’ of emissions gives benefits in the area affected by the ‘put-in’ at the relevant time – other than being in the same airshed.

It should be noted that the regulations are silent on *who* undertakes the offset. This emissions offset may therefore, be carried out by the proponent of the proposed activity or a third party (eg, the regional council).

Regulation 18 – Non-polluted airsheds

Regulation 18 requires that, in areas where PM₁₀ levels do *not* exceed the ambient standard, councils must not give consent for discharges of PM₁₀ to air if the discharges are likely to cause the airshed to exceed the ambient standard.

This requirement is quite clear in relating the discharge to being the cause of the standard being exceeded. This means that in areas that have very low background levels of PM₁₀, it would not be permissible to grant consent to a large discharge of PM₁₀ that, on its own, caused a breach of the standard concentration. Similarly, in areas of relatively high background levels of PM₁₀ (but below the standard) it would not be permissible to grant consent to a small discharge of PM₁₀ if it pushed ambient levels in the airshed over the standard concentration.

Note that this regulation applies to *all* applications for resource consents for discharges of PM₁₀ – there is no test of ‘significance’.

Regulation 19 – Beyond 2013

The above constraints on resource consents apply from 1 September 2005 to 31 August 2013. After this date, the resource consent restrictions are significantly simplified. Specifically, Regulation 19 requires that after 1 September 2013, councils cannot issue *any* consents to discharge PM₁₀ in breaching airsheds. Further, councils cannot issue consents for any PM₁₀ discharge if it is *likely* to cause the airshed to exceed the PM₁₀ standard.

This regulation applies to *all* applications for resource consents for discharges of PM₁₀ – there is no test of ‘significance’.

Figure 4 shows the current PM₁₀ regulations.

2.5.3 Compliance by 2013

The compliance timeline of 1 September 2013 is linked with the implementation of the industry consent restrictions. The motivation for airsheds to comply by this date is that regional councils will retain their ability to issue industry consents (ie, it will not be affected by Regulation 19).

2.6 Amendments

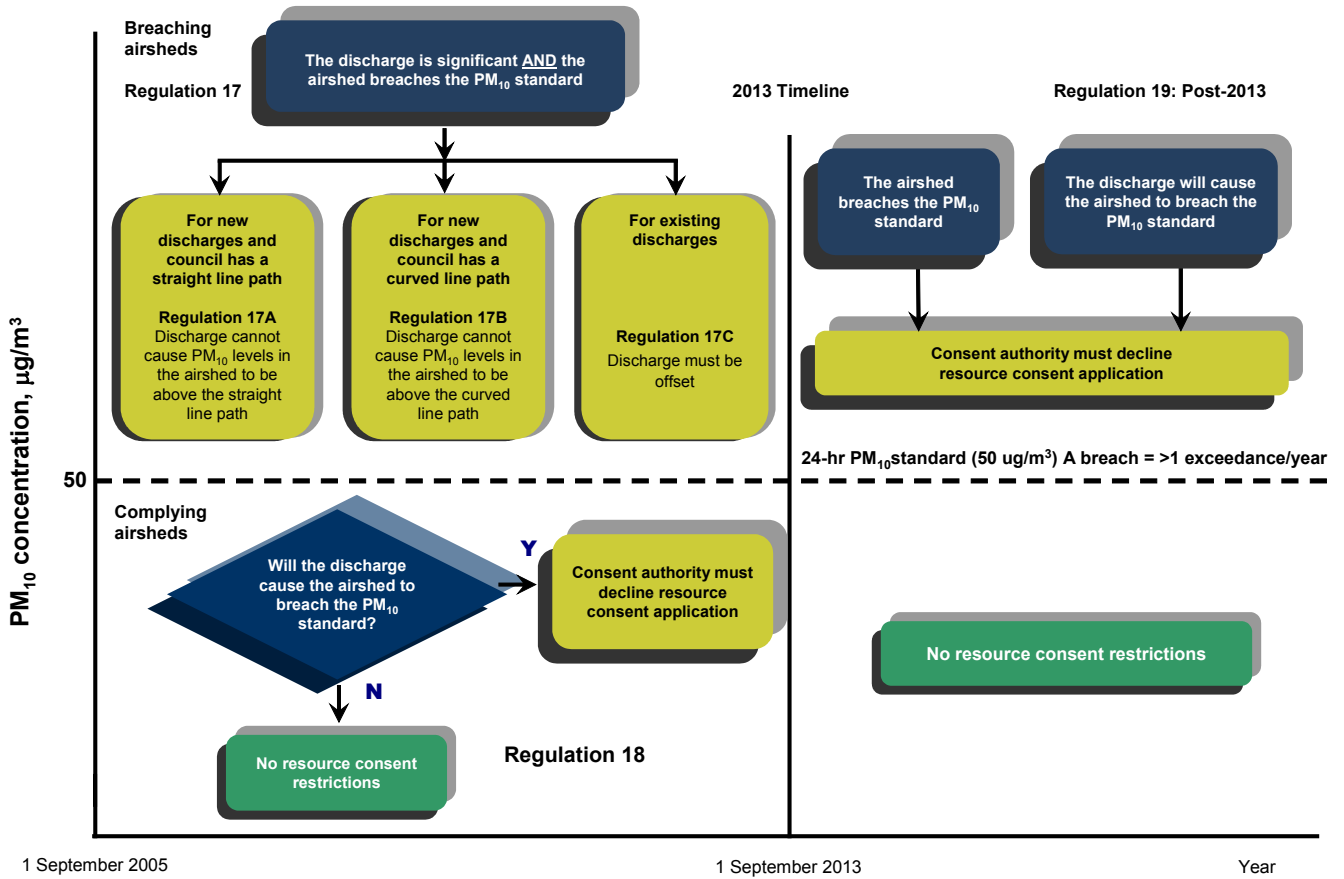
In July 2005, the air quality standards were amended at the request of local government. The 2005 amendments clarified that restrictions on granting resource consent only apply to ‘significant’ discharges and made explicit provision for the use of offsets.

The amendments also allowed for councils to choose a straight line path or a curved line path to achieve the ambient standard for PM₁₀ by 1 September 2013.

A number of other, very minor technical amendments to the air quality standards were made in 2004 and 2008, but these have no bearing on this discussion document.

A consolidated version of the regulations, including explanatory notes for all amendments is provided in appendix D. It is also available online (<http://www.mfe.govt.nz/laws/standards/consolidated-nes-aug2005.pdf>).

Figure 4: Current PM₁₀ regulations



3 Problem Definition

The objective of this review of the PM₁₀ regulations in the air quality standards is to ensure they provide the maximum net benefit to New Zealanders taking into account the economic, social and environmental benefits and costs of air pollution.

In 2007, the Health and Air Pollution in New Zealand (HAPINZ) epidemiological study estimated that around 1100 New Zealanders die prematurely each year due to air pollution from home heating, transport and industry. The study estimated the costs of this air pollution to be around \$1.14 billion per year (Fisher et al, 2007). The study was the first detailed quantitative assessment of the range of health effects from air pollution in New Zealand, including mortality, morbidity and restricted activity days.

3.1 Perceived stringency of the PM₁₀ standard

The standards currently allow one exceedance of the PM₁₀ standard per year. This is equivalent to one day per year, in that a breach of the standard occurs when the standard is exceeded on more than one day per year.

Comparison with international air quality regulations shows that other countries/organisations allow more exceedances in a year before the standard/guideline is breached. For example, Australia permits five exceedances of their national environmental protection measure⁷ for PM₁₀ and the World Health Organization accepts 3.65 exceedances of the global guideline for PM₁₀.⁸ This raises the question as to whether the current level of stringency is appropriate for New Zealand.

A related problem is that of exceptional events (eg, bushfires, dust storms from Australia, and volcanic eruptions). The current regulation is unclear on how to deal with these events (ie, whether to count these events as exceedances or not). Not providing this clarity may cause an airshed to breach the standard due to factors outside its control. This may lead to poor air quality management policy decisions and it may eventually lead to increased compliance costs for councils and industry.

3.2 Equity of current regulations

The air quality standards set a bottom line requirement, whereby no resource consent may be issued for any discharge of PM₁₀ after 2013 if the PM₁₀ standard is breached in the airshed where an industry is located. Neither the Act, nor most regional plans, requires resource consents for discharges from the domestic sector. This places the burden of these restrictions on industry (which do require resource consents).

⁷ This is to allow for bushfire hazard reduction burning.

⁸ WHO uses a percentile approach for the number of permitted exceedances. WHO specifies a 99th percentile limit which translates to 3.65 days per year.

However, studies have shown that domestic solid-fuel combustion is the primary source of PM₁₀ pollution during winter (June to August) when almost all exceedances of the standard occur. Hence these restrictions may not be equitable.

The current restrictions also create investment uncertainty because the continued operation of industries after 2013 depends on the compliance of the airshed in which they are located. This has significant economic and social implications.

3.3 Compliance with the PM₁₀ standard by 2013

The air quality standards were promulgated in 2004 with the aim of achieving compliance with the PM₁₀ standard (50 µg/m³ as a daily average, met everywhere, every day of the year but one) by 2013. In 2008, five years before the compliance timeline, there were still 26 airsheds, representing 49 per cent of New Zealand's population, that did not comply with the PM₁₀ standard. Figure 5 shows the average number of exceedances for each airshed for the period 2005 to 2008. Table 2 shows airshed rankings based on the number of exceedances and PM₁₀ levels from 2005 to 2008.

Significant air quality monitoring data has been collected in the five years since the National Environmental Standards for Air Quality took effect. The number of monitored airsheds increased from 29 in 2005 to 43 in 2008. Air quality monitoring data shows that compliance rates for monitored airsheds are yet to reach 50 per cent⁹ since the implementation of the standards. The Ministry publishes summary PM₁₀ data from all councils on an annual basis on its website (to view annual data click on a region and then an airshed).¹⁰

It is anticipated that in 2013 there will still be 10 airsheds that will not comply with the PM₁₀ standard with another five airsheds potentially also breaching. These 15 airsheds represent 45 per cent of New Zealand's population (see appendix E).

A study conducted by Public Health South (2006) showed that hospitalisation rates are significantly higher for residents of high pollution areas in Otago than for residents in low pollution areas. The study further showed that children under 5 years old living in areas with higher particulate levels are more than twice as likely to be admitted to hospital with a respiratory condition as children living in areas with low particulate levels. This demonstrates the health costs associated with non-compliance with the PM₁₀ standards.

Airshed compliance costs vary from council to council depending on the scale of non-compliance. This can range from \$60,000 to \$5.5 million per year as shown below:

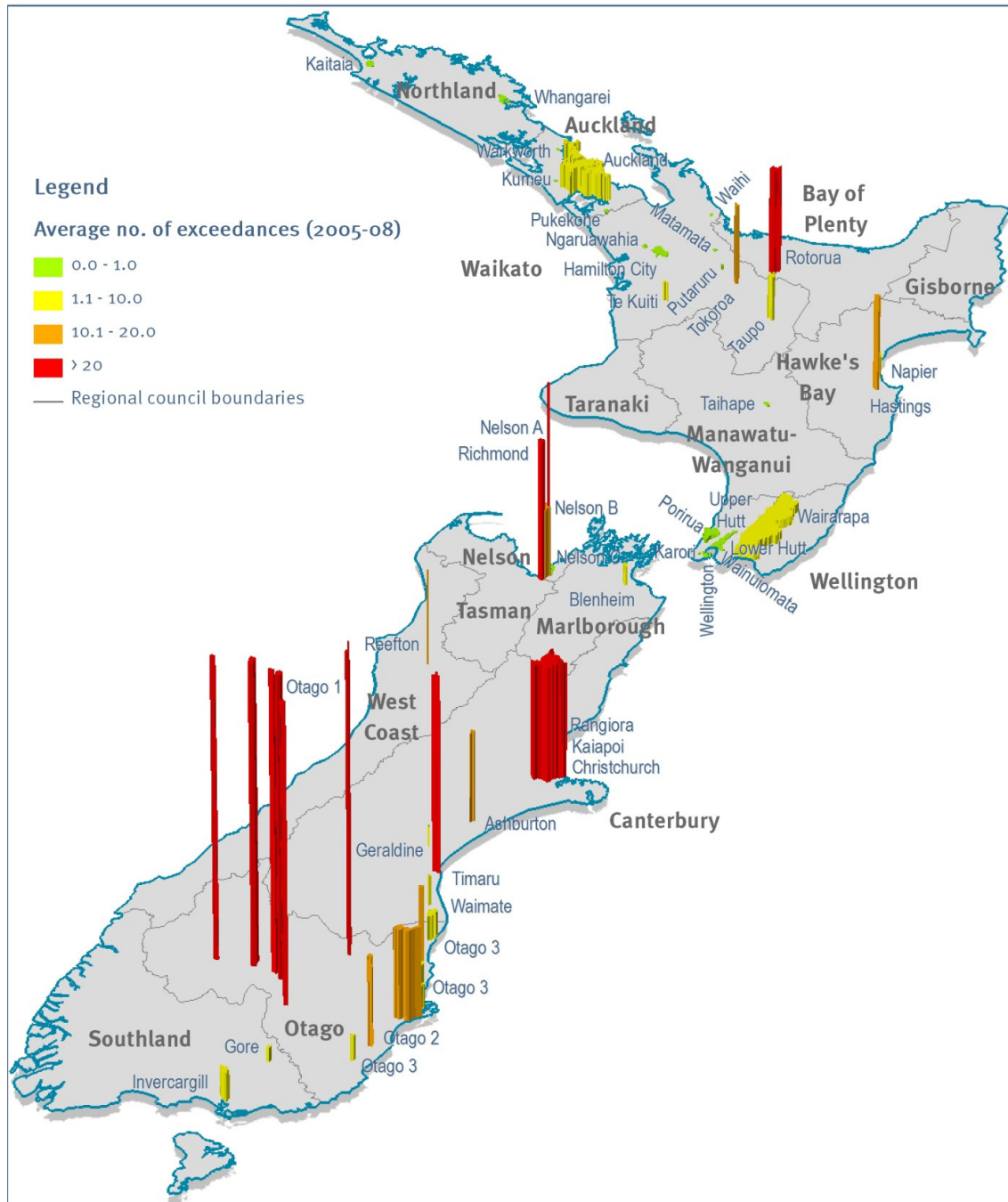
- Tasman District Council – has implemented a rule requiring an upgrade of a non-compliant burner at the time a house is sold in Richmond and estimate they are spending \$60,000 per year to educate people about changing around 1000 burners.
- Environment Bay of Plenty – is proposing a mixture of rules and financial assistance schemes, they estimate net costs of around \$10 million in their 10-year plan to target around 8500 burners in Rotorua.

⁹ The highest rate of compliance for monitored airsheds was in 2007 when 42 per cent of monitored airsheds complied with the standard. The lowest compliance rate was in 2006 when 27 per cent of monitored airsheds complied.

¹⁰ <http://www.mfe.govt.nz/environmental-reporting/air/air-quality/pm10/nes/>

- Environment Canterbury – has implemented a rate-based financial assistance programme for low-income households in Christchurch and budgeted nearly \$60 million over 11 years to take out around 30,000 burners.

Figure 5: Average yearly exceedances of the PM₁₀ standard between 2005 and 2008



Notes: Data shows average of available data for an airshed.

Otago 1 = Arrowtown, Cromwell, Clyde, Alexandra, Roxburgh, Ranfurly and Naseby.

Otago 2 = Palmerston, Mosgiel, Green Island, South Dunedin and Milton.

Otago 3 = Balclutha, Central Dunedin, North Dunedin, Port Chalmers and Waikouaiti.

Data sources: Auckland Regional Council, Environment Bay of Plenty, Environment Canterbury, Environment Southland, Environment Waikato, Greater Wellington Regional Council, Hawke's Bay Regional Council, Horizons Regional Council, Marlborough District Council, Nelson City Council, Northland Regional Council, Otago Regional Council, Tasman District Council, West Coast Regional Council.

Table 2: List of ranked airsheds, 2005 to 2008

Ranking	Gazetted airshed	Regional council	No. of exceedances per year	2nd highest PM ₁₀ concentration* (µg/m ³)
1	Otago 1	Otago Regional Council	91	122
2	Otago 2	Otago Regional Council	46	141
3	Christchurch	Environment Canterbury	27	172
4	Nelson A	Nelson City Council	51	108
5	Timaru	Environment Canterbury	36	130
6	Kaiapoi	Environment Canterbury	28	145
7	Rotorua	Environment Bay of Plenty	36	122
8	Richmond	Tasman District Council	21	111
9	Ashburton	Environment Canterbury	23	104
10	Hastings	Hawke's Bay Regional Council	28	93
11	Tokoroa	Environment Waikato	33	83
11	Reefton	West Coast Regional Council	21	102
13	Nelson B	Nelson City Council	24	95
14	Rangiora	Environment Canterbury	15	102
15	Invercargill	Environment Southland	9	110
16	Taupo	Environment Waikato	15	86
17	Otago 3	Otago Regional Council	11	66
18	Gore	Environment Southland	7	68
19	Waimate	Environment Canterbury	10	62
20	Te Kuiti	Environment Waikato	6	67
21	Auckland	Auckland Regional Council	6	63
22	Geraldine	Environment Canterbury	6	59
23	Napier	Hawke's Bay Regional Council	5	60
24	Marlborough	Marlborough District Council	5	54

Notes:

PM₁₀ daily standard = 50 µg/m³ with one exceedance permitted per year.

The ranking considers both number of exceedances and the concentration.

The table includes only airsheds with five or more exceedances per year.

Based on data from 2005–2008 (inclusive).

* The second highest concentration of PM₁₀ is presented to reflect one permitted exceedance per year.

Otago 1 = Arrowtown, Cromwell, Clyde, Alexandra, Roxburgh, Ranfurly and Naseby

Otago 2 = Palmerston, Mosgiel, Green Island, South Dunedin and Milton

Otago 3 = Balclutha, Central Dunedin, North Dunedin, Port Chalmers and Waikouaiti

Source data year:

2005
2006
2007
2008

This shows the extent of work and funds needed to comply with the standards. This approach ensures that regional councils and unitary authorities act and report consistently against a national standard. Councils have opportunities to tailor specific programmes and approaches to manage the particular air pollution problems they face in their area. Some have made good progress – others have taken little concrete steps. We invite comments on whether this approach of regional solutions to meet a national standard is effective and whether different approaches taken by individual regional councils and unitary authorities materially influences investment decisions and regional location decisions.

3.4 Policy objectives

The main objective of the PM₁₀ regulations review is to ensure they provide the maximum net benefit to New Zealanders taking into account the economic, social and environmental benefits and costs of air pollution. In line with this, the policy objectives of the air quality standards review are to:

- provide greater certainty for industry by providing a ‘level-playing field’ that clarifies environmental expectations before the resource consent process
- support the protection of public health and the environment by providing a bottom-line standard that must not be breached
- provide greater certainty in resource consent decision making and regional plan preparation at the local level.

Questions

1. Have the main problems been defined accurately?
2. Are there other problems you can think of that need to be addressed as a priority?
3. Do you agree with the policy objectives?
4. Do air quality standards materially influence industry investment decisions and regional location decisions?

4 What are the Options?

To a large extent, the focus of the review has been determined by the work of the Technical Advisory Group (TAG), an independent group commissioned by the Minister for the Environment. The work of this group was itself prescribed by the terms of reference for the review (refer to appendix A).

Standards are not stand-alone regulations that address a specific problem. Problems to be solved are interconnected and as such require a combination of options that would result in a realistic balance between benefits and costs. Options form part of a spectrum. At one end, options impose externalities on polluters to meet PM₁₀ standards; at the other end, increased certainty for industry and councils is likely to result in fairly slow implementation of air quality standards and therefore a delay in health benefits.

The TAG reported to the Minister in November 2009 (a copy of the report is on the Ministry website, www.mfe.govt.nz). This section discusses the recommendations of the TAG together with three other option packages which includes the Minister's proposed amendments.

4.1 Option 1 – TAG's recommendations

The TAG recommendations

- 1) Increase the number of permitted exceedances from 1 to 3
- 2) Exclude exceptional events from being counted as exceedances
- 3) Remove all industry consent restrictions
- 4) Extend timeline to 2020 (maximum)
- 5) Place a greater focus on education
- 6) Require mandatory reporting (PM₁₀ monitoring data)
- 7) Require councils to submit airshed implementation plans
- 8) Increased ministerial oversight
- 9) Investigate funding links (link funding in areas without a plan in place)

Recommendations

- 1) Increase the number of permitted exceedances from 1 to 3.**
- 2) Exclude exceptional events from being counted as exceedances.**

The TAG considered the current approach of allowing only one exceedance of the PM₁₀ standard per year to be too stringent in comparison with other countries. It therefore recommended increasing the number of permitted exceedances from one to three per year in line with the World Health Organization (WHO) global ambient air quality guidelines (WHO, 2006). Note that the 2006 WHO global air quality guidelines were published after the National Environmental Standards for Air Quality were promulgated in 2004.

The TAG also considered that the treatment of exceptional events warranted clarification and recommended that these be specifically excluded from counting as exceedances of the PM₁₀ standard. The TAG defined exceptional events as:

- volcanic and seismic activity
- exceedances due to transboundary pollution (such as from Australian bush-fires or dust-storms)
- structural and wild fires
- firework displays and other cultural traditions
- high-wind events.

Discussion

Particulate matter, as a pollutant, has no safe threshold. Any increase in the number of permitted exceedances increases the adverse health impacts of air pollution – including premature mortality. The WHO has established the adverse health effects of exposure to particulate matter through extensive epidemiological studies. Effects from particulate matter exposure have no safe threshold whereby no health effects are experienced. Increasing the number of permitted exceedances to three per year will, therefore, have increased adverse impacts on public health. The estimated increase in premature mortality with this option is an extra 24 deaths per year from 2011 to 2020 (refer to appendix F).

Based on current information, we do not anticipate that an increase in permitted exceedances to three per year will have a significant impact on the number of airsheds expected to comply by 2013. This is because problem airsheds are currently heavily over-allocated (ie, more than 10 exceedances per year). However, the increase will have a positive impact on the status of compliance for approximately three to six airsheds that currently have two to three exceedances of the standard per year.

The effects of exceptional events on airshed compliance may be greater than initially assumed. As an example, an average of over 3000 wildfires occur in New Zealand annually, burning almost 5900 hectares of grasslands, scrublands and forests.¹¹ Sixty per cent of these fires occur in the North Island and 34 per cent in the South Island.

Excluding exceedances to the PM₁₀ standard brought about by exceptional events is an effective way of showing true air quality in an airshed. This approach will provide greater clarity for councils in dealing with these events (ie, whether to count them as exceedances or not) and in drafting air quality management plans. It will also bring more investment certainty and equity because airshed compliance will not be based on uncontrollable events.

¹¹ Rural Fire Research Update retrieved from http://www.scionresearch.com/_data/assets/pdf_file/0007/4489/SCION-RFRU-Issue-3_web.pdf

Recommendation

3) Remove all industry consent restrictions

The TAG considered the industry consent restrictions to be inequitable because industry is typically not the key source for breaching the PM₁₀ standard in most urban areas of New Zealand. As a result, the TAG recommended repealing all of these restrictions.

This means the removal of both the current restrictions on granting consent (ie, reference to the straight/curved line paths when considering consents for significant discharges in polluted airsheds) and removal of the blanket prohibition on any consent after 2013 in polluted airsheds.

Discussion

Removing all industry consent restrictions would provide industry with certainty, because the process used in consents processing would refer to the established rules in the region's air plan. This option also has increased credibility, in that industry will not be unduly penalised and it involves no threat to industry operations. Critically, it gives councils the option to grant discharge consents for new industry as opposed to the status quo, which requires that consents be declined in breaching airsheds.

However, there may still be equity issues with this option. Although domestic emissions are the main source of PM₁₀ in winter (May to September), industrial emissions become a major or even the main source of PM₁₀ for the rest of the year¹² in some airsheds.

From a regulatory perspective, repealing all existing consent restrictions does not meet the original policy objective of providing support for the protection of public health and the environment by providing a bottom-line standard that must not be breached. Irrespective of equity issues, the straight/curved line path consent restrictions act to underline the importance of air quality by requiring that councils only give consent if doing so will not have an impact on meeting the PM₁₀ standard by 2013. Repealing these consent restrictions, therefore, removes this support for public health in decision-making.

Recommendations

- 4) **Extend timeline to 2020 (maximum)**
- 5) **Place a greater focus on education**
- 6) **Require mandatory reporting (PM₁₀ monitoring data)**
- 7) **Require councils to submit airshed implementation plans**
- 8) **Increased ministerial oversight**
- 9) **Investigate funding links (link funding in areas without a plan in place)**

The TAG recommended keeping the 2013 timeline in airsheds that are on track to complying with the PM₁₀ standard, but providing for maximum extensions up to 2020 through the use of Minister-approved airshed implementation plans.

¹² For example, emissions inventory data for Mosgiel (2005) shows that industry emissions comprise 100 per cent of emissions for three months (December to February) and that these are the main source of emissions for another four months of the year (March, April, October and November).

The TAG further recommended that the air quality standards provide both ‘sticks’ and ‘carrots’ to incentivise regional council actions to reduce air pollution through initiatives such as a greater focus on education and mandatory reporting.

The TAG recommended a greater focus on education so that people are more aware of the health hazards of particulate matter in the air. The Ministry has no funding allocated for this purpose, and in the current environment the Government is unlikely to fund greater effort in this area.

The TAG further recommended investigating the feasibility of linking funding for retrofits of Energy Efficiency and Conservation Authority (EECA) grants to the removal of open fires and non-compliant wood burners in areas where no plan is in place to meet the PM₁₀ standard.

Discussion

With respect to the timeframe, 2020 is 16 years from when the regulations were promulgated in 2004 and 10 years from now. It is therefore debatable how much of an incentive for action such an extension provides. There is also the issue of fairness to be considered. Some councils, such as Nelson City Council, have changed their regional plans and worked exceptionally hard to comply with the air quality standards by 2013. Other councils have yet to make any changes to their regional plans to meet the standards. Does providing a maximum extension to 2020 reward those councils that have failed to take action to date?

It should also be noted that providing extensions, on an airshed by airshed basis, does not fulfil the original purpose of the regulations to provide certainty and clarity for industry.

The TAG further recommended mandatory annual reporting by councils on ambient air quality monitoring in airsheds that don’t comply with the PM₁₀ standard. This reporting would, as a minimum, provide detailed information on air pollution levels and the potential impact this air pollution is having on the public. This would increase transparency and make the public aware of the state of air quality in their region.

The TAG recommended a maximum extension for compliance with the PM₁₀ standard of up to 2020 through the use of Minister-approved airshed implementation plans (AIPs). An airshed implementation plan is intended to be both a ‘stick’ and a ‘carrot’ for achieving compliance. Those councils not meeting the standard by 2013 will have to prepare an airshed implementation plan (‘stick’) whereas those councils that are meeting the PM₁₀ standard won’t need to prepare a plan (‘carrot’). Information that would be required in the AIP includes:

- what actions the council has taken to comply with the regulations since the regulations were promulgated in 2004
- any areas of non-compliance with the regulations
- what actions the council has taken to meet the PM₁₀ standard since 2004 and an assessment of the impact these actions have had
- what actions the council proposes in order to meet the PM₁₀ standard
- an assessment of the impact these actions will have
- the date by which the PM₁₀ standard will be achieved
- what impact the delay in meeting the PM₁₀ standard will have.

In connection with the recommendation for the submission of an AIP, the TAG also recommended increasing ministerial oversight through review of a council's AIP. The Minister may impose a plan if he does not approve the council's AIP (eg, by the Minister appointing a commissioner to develop a feasible plan). The proposed requirement for producing an AIP is a similar approach to the system in place in the United States, where the Environment Protection Agency's Administrator reviews and approves or declines these plans.

The Energy Efficiency and Conservation Authority (EECA) already delivers the Clean Heat Programme for the Minister for the Environment. This programme began in 2007 and provides \$1.1 million per year for retrofits of clean heat to low-income, pre-insulated houses in polluted airsheds.¹³ As such, the programme is already linked to areas with problem airsheds.

EECA also delivers the much larger Warm Up New Zealand: Heat Smart Programme for the Minister of Energy. The Warm Up NZ programme began in 2009 and provides grant funding of \$323 million over four years for insulation retrofits in approximately 180,000 houses and 80,000 clean heat appliances, in all parts of New Zealand. The programme ring fences a significant portion of the funds for community services card holders and further requires that insulation be retrofitted before clean heating is installed. The programme was initiated in response to health concerns (over poorly insulated under-heated houses) and to stimulate employment during a recession.

In fact the Warm Up NZ programme has delivered double the number of clean heat retrofits in its first four months of operation than the Clean Heat programme has since it started in 2007. Closer inspection shows that 67 per cent of these clean heat retrofits have been problem airsheds.

Hawke's Bay Regional Council provides a targeted rate for any ratepayer who wants to pay for their retrofit under Warm Up NZ through their rates, but houses inside an airshed most affected by local air pollution qualify for more funding as an incentive to reduce air pollution in these areas. Councils that have also implemented this scheme are Nelson City Council and Environment Canterbury. Other councils are considering the targeted rates scheme.

This means that service providers are not bound by any additional compliance or contractual obligations to deliver in a certain area, or to target any specific airsheds, but the local authority and EECA can incentivise clean heating in airsheds most affected by local air pollution through their own policies and funding.

4.1.1 Alternative options to achieve the aim of Minister-approved airshed implementation plans

It is not possible for a national environmental standard to require something that is not in the RMA. As a result, the requirement for AIPs and the subsequent increased ministerial oversight are currently not legally feasible. Further analysis was made to find alternative options that would achieve similar outcomes to what the TAG recommended.

Using the current oversight powers available to the Minister under the RMA could achieve what the TAG recommended. This would involve the power of the Minister to request information from councils (section 27). Provision of this information would be mandatory. The information

¹³ Clean Heat funds retrofits of either a low-emission wood burner, pellet burner, flued gas heater or heat pump.

requested can be modelled on the AIP recommended by the TAG. The advantage of this option is that it can be implemented immediately without the need for revising legislation.

An alternative to the TAG recommendation for increased ministerial oversight is the establishment of an air quality compliance strategy. This strategy would outline the complete suite of options the Minister may take when councils fail to take action to address non-compliance and airsheds continue to breach the standard. It includes using powers currently available to the Minister under the RMA (council review under section 24 and requirement of a plan change under section 25). The strategy could also include actions involving the linking/removal of funding and exploring other funding options (eg, voluntary targeted rates). This could be used in conjunction with the Minister's section 27 powers to achieve similar outcomes to the TAG recommendation for Minister-approved airshed implementation plans.

This option would provide certainty to councils by providing a clear picture of what possible sanctions their non-compliance might incur. Such an approach is aimed at ensuring councils are taking steps to reduce pollution levels in their airsheds.

4.2 Option 2

Option 2

- 5) Place a greater focus on education
- 6) Mandatory reporting (PM₁₀ monitoring data)
- 10) Retain one permitted exceedance
- 11) Retain industry restrictions
- 12) Retain the 2013 timeline
- 13) Use existing ministerial powers under the RMA (s27)*
- 14) Establish an air quality compliance strategy*
- 15) Investigate funding links (link funding to breaching airsheds)
- 16) National guidance on domestic emission restrictions

* These replace the TAG recommendation for Minister-approved AIPs.

This option puts the greatest weight on obtaining health benefits. It retains much of the status quo, but includes some of the TAG's recommendations and adds national guidance on domestic emission controls.

Retaining the status quo in light of the additional adverse health effects (including premature deaths) brought about by permitting additional exceedances will result in significant health benefits. However, not allowing the granting of industry consents in breaching airsheds after 2013 will bring about a transference of compliance costs to the industry sector.

Incorporating some of the TAG's recommendations on education, reporting and the alternative options for AIPs and increased ministerial oversight provides some balance by increasing councils' accountability.

16) National guidance on domestic emission restrictions

The major component of this option to address equity issues is the introduction of national guidance on domestic emission restrictions.

This seeks to target the main source of PM₁₀ emissions during winter. Studies have shown that solid-fuel home heating appliances (eg, open fires, wood burners, coal and multi-fuel heaters) emit the most PM₁₀ during winter when the use of home heating is at its peak.

Discussion

The option involves preparing guidance on domestic emission controls at the national level for councils with airsheds that breach the standard. An example of these controls include a rolling schedule of domestic emission controls that take effect every three years. Each stage would introduce additional controls if the airshed continued to breach the PM₁₀ standard.

Air quality monitoring data has shown this approach's effectiveness in reducing both PM₁₀ concentrations and the number of times the PM₁₀ standard is exceeded. This results in reduced pollution exposure. It also promotes equity, because domestic emissions are the main source of PM₁₀ emissions during winter, when almost all exceedances of the standards occur.

For example, an airshed that breaches in 2013 might result in a ban on new open fires in the airshed from 2013 onwards. An assessment at the end of the three-year period (2017) would be undertaken to see if the airshed complied with the standard. The airshed would no longer be subject to the second stage of restrictions if it complied, but if it breached from 2017 onwards it would be subject to additional restrictions. Another assessment would be conducted after three years to determine whether the airshed would be subject to further controls. It is anticipated that compliance would be achieved after three stages had taken effect. Appendix G shows a diagram of this process.

4.3 Option 3

Option 3

- 2) Exclude exceptional events from being counted as exceedances
- 5) Greater focus on education
- 6) Mandatory reporting (PM₁₀ monitoring data)
- 10) Retain 1 permitted exceedance
- 12) Retain the 2013 timeline
- 13) Use existing ministerial powers under the RMA (s27)*
- 14) Establish an air quality compliance strategy*
- 15) Investigate funding links (link funding to breaching airsheds)
- 16) National guidance on domestic emission restrictions
- 17) Introduce mandatory offsets for **all** discharge consents in breaching airsheds after **2013**

* These replace the TAG recommendation for Minister-approved AIPs.

This option aims to give equal weight to obtaining health benefits and ensuring equity. It retains the status quo for exceedances and the timeline but incorporates a revised offset requirement for industry. It also includes provisions for exceptional events and national domestic emission controls.

One permitted exceedance and the 2013 timeline are retained since PM₁₀ does not have a ‘safe’ threshold under which no adverse health impacts will be experienced. However, this option includes the TAG recommendation for the exclusion of exceptional events from being counted as exceedances.

This option proposes to remove the straight/curved line path condition for industry consents in breaching airsheds and industry consent restrictions after 2013. However, a revised offset¹⁴ requirement will be retained by making offsets mandatory for significant discharges (existing and new) in breaching airsheds. Just like the TAG recommendation, this gives councils the option to grant discharge consents for industry as opposed to the status quo, which requires that consents be declined in breaching airsheds.

This option promotes a ‘do no harm’ approach and ensures that emission levels do not get worse. As such, a level of public health protection is achieved. This option is less stringent than the current straight/curved line path requirements because it only ensures that things do not get worse, as opposed to mandating action to make things better. Like the option recommended by the TAG, an important feature of this option is that councils can continue to issue discharge consents for industry after 2013 as opposed to the status quo. It therefore appropriately addresses the need for industry discharge controls while providing industry with investment certainty. Councils and industry already have an idea of how this scheme works because it is included in the current regulations. Offsets are part of the conditions of three industrial consents issued by Environment Canterbury since standards took effect (refer to appendix H). Despite this, offsets may still be seen as an inequitable restriction on industry.

Finally, this option addresses domestic emissions management by incorporating a national guidance on domestic emission control.

¹⁴ Offsets mitigate the predicted impacts of an activity by reducing emissions elsewhere in the airshed.

4.4 The preferred options

The following two options generally have advantages over other options, in that they:

- allow councils more time to reduce PM₁₀ levels in their regions but retain enough pressure for councils to achieve compliance
- promote a ‘local solutions to local problems’ approach but with increased ministerial oversight.

The two options differ in that option 4a introduces mandatory offsets for **new** industry consents in breaching airsheds after 2018. Option 4b does not require mandatory offsets. Government is particularly interested in your views on whether mandatory offsets are an important element in incentivising regional councils and emitters to reduce PM₁₀ emissions.

4.4.1 Option 4a

Option 4a

- 1) Increase permitted exceedances from 1 to 3
- 2) Exclude exceptional events from being counted as exceedances
- 4) Extend timeline to 2018 (maximum)
- 6) Mandatory reporting (PM₁₀ monitoring data)
- 13) Use existing ministerial powers under the RMA (s27)*
- 14) Establish an air quality compliance strategy*
- 18) Introduce mandatory offsets for **new** industry consents in breaching airsheds after **2018**

* These replace the TAG’s recommendation for Minister-approved AIPs.

This option is almost completely based on the TAG’s recommendations with the exception of the inclusion of mandatory offsets for new industry consents in breaching airsheds and not putting more focus on education on top of existing programmes.

Discussion

This option is very similar to the TAG’s recommendations. The difference lies in the industries to be affected and the timeline for the mandatory offsets to take effect. This option only requires mandatory offsets for new industries in breaching airsheds. Moreover, councils are given more time to comply with the air quality standards before mandatory offsets take effect.

New industries will incur additional costs due to offsets, which may put them at a commercial disadvantage. On the other hand, mandatory offset requirements may steer them to adopt cleaner technologies from the start. It is also anticipated that airshed compliance will be achieved with increased ministerial oversight in the years leading up to 2018, thereby minimising the effects of mandatory offsets on industry.

The process new consent applicants need to follow to comply with the mandatory offset provision is the same as that discussed in section 2.5.2 of this document. The only difference is

that straight/curved line path requirements have been removed. In practice a new industry will be advised by their council that they are in a breaching airshed and need to identify suitable offsets. This will occur when the industry discusses its proposed consent with council. The industry will then need to either work with council (or through private negotiations) to convert other emitters to an amount equivalent to the estimated emissions the industry will produce. There is flexibility in terms of what form of offset the consent holder will opt for (eg, conversion of domestic fires or transport offsets) and who will undertake the offset (eg, consent holder, regional council or consultant). The offset condition is also time bound (one to three years). Compliance will be achieved after completing the conversions within the specified time. A list of existing consents with an offset condition is shown in appendix H.

This approach has proven successful in the areas it has been used in so far (eg, Environment Canterbury). We are interested in the feasibility of taking this approach in all over allocated airsheds and invite feedback on the feasibility of such an approach.

In this option, domestic emissions will be addressed through increased ministerial oversight. The Minister will play an active role in monitoring airshed performance by ensuring that councils are addressing air quality issues in their regions. The Minister also intends to take steps to address any gross non-compliance of the standards by establishing an air quality compliance strategy.

Air quality is influenced by various factors, each having a significant effect on pollution levels in an airshed. These include weather (eg, wind patterns, temperature), geography, and the number and type of emission sources (both natural and anthropogenic). For example, a smaller airshed with few emission sources may have higher pollution levels than a larger airshed with a greater number of emission sources. This can be caused by very stable conditions in the smaller airshed or the presence of temperature inversions that do not allow for pollutant dispersion. This shows the localised nature of air quality and the complexity of airshed management.

This reinforces this Government's opinion that local problems require local solutions.

This Government proposes to recognise the excellent work already done by some councils, while putting pressure on councils who have yet to take steps to address their air quality issues by using existing ministerial powers under the RMA.

A number of councils have already adopted domestic emission control measures and have included them in their regional air plans without the need for national restrictions. The process of preparing regional air plans increases community involvement through focused consultation, thereby increasing stakeholder buy-in. It also provides councils with more flexibility in managing air quality in their regions.

Overall, the Government wishes to provide a fair and effective air quality regulatory framework that supports public health protection and provides transparency and accountability.

4.4.2 Option 4b

Option 4b

- 1) Increase permitted exceedances from 1 to 3
- 2) Exclude exceptional events from being counted as exceedances
- 3) Remove all industry consent restrictions
- 4) Extend timeline to 2018 (maximum)
- 6) Mandatory reporting (PM₁₀ monitoring data)
- 13) Use existing ministerial powers under the RMA (s27)*
- 14) Establish an air quality compliance strategy*

This option is the same as option 4a in terms of permitted number of exceedances and the timeline for compliance. The only difference is that all industry consent restrictions have been removed (Regulations 17 to 19). Regional councils may grant resource consents to discharge PM₁₀ in all their airsheds (ie, both complying and breaching airsheds). Emission limits will be based on the region's air plan rules.

A summary of the options is shown in table 3.

Table 3: Summary of air quality review options

Option 1 – TAG’s recommendations	Option 2	Option 3	Option 4a	Option 4b
(1) Increase the number of permitted exceedances from one to three	(5) Place a greater focus on education	(2) Exclude exceptional events from being counted as exceedances	(1) Increase the number of permitted exceedances from one to three	(1) Increase the number of permitted exceedances from one to three
(2) Exclude exceptional events from being counted as exceedances	(6) Require mandatory reporting (PM ₁₀ monitoring data)	(5) Place a greater focus on education	(2) Exclude exceptional events from being counted as exceedances	(2) Exclude exceptional events from being counted as exceedances
(3) Remove all industry consent restrictions	(10) Retain one permitted exceedance	(6) Require mandatory reporting (PM ₁₀ monitoring data)	(4) Extend the timeline to 2018 (maximum)	(3) Remove all industry consent restrictions
(4) Extend the timeline to 2020 (maximum)	(11) Retain industry restrictions	(10) Retain one permitted exceedance	(6) Require mandatory reporting (PM ₁₀ monitoring data)	(4) Extend the timeline to 2018 (maximum)
(5) Place a greater focus on education	(12) Retain the 2013 timeline	(12) Retain the 2013 timeline	(13) Use existing ministerial powers under the RMA (s27)*	(6) Require mandatory reporting (PM ₁₀ monitoring data)
(6) Require mandatory reporting (PM ₁₀ monitoring data)	(13) Use existing ministerial powers under the RMA (s27)*	(13) Use existing ministerial powers under the RMA (s27)*	(14) Establish an air quality compliance strategy*	(13) Use existing ministerial powers under the RMA (s27)*
(7) Require councils to submit their airshed implementation plans	(14) Establish an air quality compliance strategy*	(14) Establish an air quality compliance strategy*	(18) Introduce mandatory offsets for <i>new</i> industry consents in breaching airsheds after 2018	(14) Establish an air quality compliance strategy*
(8) Establish increased ministerial oversight	(15) Investigate funding links (link funding to breaching airsheds)	(15) Investigate funding links (link funding to breaching airsheds)		
(9) Investigate funding links (link funding in areas without a plan in place)	(16) Introduce national guidance on domestic emission restrictions	(16) Introduce national guidance on domestic emission restrictions		
		(17) Introduce mandatory offsets for <i>all</i> discharge consents in breaching airsheds after 2013		

* These replace the TAG’s recommendation for Minister-approved AIPs.

4.4 Issues not addressed by the proposed amendments

The TAG made a number of additional recommendations that are outside the scope of this review. These are discussed below.

4.4.1 Additional ambient standards

The TAG recommended considering an additional annual PM₁₀ standard as well as additional daily and annual standards for particulate matter less than 2.5 microns in diameter (PM_{2.5}). This is because the majority of health research in recent years has focused on PM_{2.5}, which is reflected in the majority of other countries’ approaches to air quality standards. The TAG was sufficiently concerned at being perceived to fall behind other countries to make these recommendations for additional air quality standards despite them being outside the scope of the review.

Discussion

The World Health Organization (WHO) guideline for PM₁₀ was based on research developed for PM_{2.5} (hence the TAG's recommendations to scope additional air quality standards). The WHO guideline for PM₁₀ assumes that around 50 per cent of particulate matter is less than 2.5 microns in diameter.¹⁵ New Zealand urban areas are, however, heavily dominated by domestic solid fuel combustion emissions, which have a higher percentage of PM_{2.5} winter-time particulate matter is likely to comprise 80 per cent or more PM_{2.5}, which means a PM_{2.5} standard might be more stringent than a PM₁₀ standard.

However, shifting the focus from PM₁₀ to PM_{2.5} would not materially alter the activities being undertaken by regional councils to reduce air pollution from domestic solid fuel combustion (and transport in Auckland).

4.4.2 Transport emissions

Annex 7 of the TAG's report notes that although domestic fires are the dominant source of PM₁₀ air pollution for most urban areas in New Zealand, emissions from transport account for over 50 per cent of emissions in the Auckland region. The TAG report proposes the following options for addressing emissions from transport:

- a combination of emission screening with a limited number of tests on light-duty gross emitters (Auckland)
- emission testing of heavy-duty vehicles to improve maintenance and encourage retrofitting of diesel exhaust treatment (Auckland)
- an incentive scheme to increase the rate of change to better engines with fewer emissions of pollutants and greater fuel efficiency (all New Zealand).

Discussion

These options have been referred to the Minister of Transport.

Questions

5. Have the options achieved the policy objectives?
6. Have the options addressed the identified problems?
7. Which preferred option do you think should be considered?
8. Are you aware of any other costs or benefits of the options?
9. What current opportunities do you know of that could help reduce your emissions (eg, updating current equipment)? Do you see these opportunities as effective in reducing total emissions within an airshed? What are the costs of these alternative opportunities? What is stopping these opportunities from being introduced now?

¹⁵ The WHO's PM₁₀ guidelines are 50 µg/m³ as a daily average (with three exceedances permitted per year) and 20 µg/m³ as an annual average. These guidelines are derived for large urban populations in which vehicles and industry play a larger role than is typically the case in New Zealand urban areas, where domestic heating is the primary source.

10. What costs do stakeholders face when complying with resource consent restrictions required by air quality standards?
11. Is it practical to require mandatory offsets in over-allocated airsheds?
12. What is the scale of the economic impact of mandatory offsets on industry? We are particularly interested in:
 - a. The materiality of these impacts on your business (eg, what proportion of your total operating costs will these comprise and will it materially impact on your profitability)?
 - b. Will these costs impact on current or future investment decisions you are likely to make?
 - c. Any other impacts you see arising from a requirement to offset emissions?
13. Will mandatory offsets for new industries in breaching airsheds encourage industries to adopt cleaner technologies?
14. What costs will councils incur to comply with the proposed mandatory reporting of PM₁₀ monitoring data?
15. How effective are rules at the national level in addressing air quality issues (eg, managing emissions from various sources) compared with providing regional flexibility?

5 Costs and Benefits of the Preferred Option

The following discussion on economic analysis focuses on particulate matter (eg, PM₁₀) which nationally and internationally has received the most attention in air quality management because of their adverse health impacts and correlation with other pollutants.

5.1 Overview

A 2009 *New England Journal of Medicine* paper, which reviewed data for 51 US metropolitan areas between 1970 and early 2000s, concluded that:

A reduction in exposure to ambient fine-particulate air pollution contributed to *significant and measurable improvements* in life expectancy in the United States. (Pope et al, 2009).

This study adjusted for socio-economic and demographic variables as well as cigarette smoking. In addition, a 2007 report to the US Congress noted that federal regulations to control particulate air pollution were the most cost-effective regulations imposed by the US government. Specifically:

The majority of the large estimated benefits of EPA rules are attributable to the reduction in public exposure to a single air pollutant: fine particulate matter. (Office of Management and Budget, 2007).

Such findings support the Ministry's 2004 cost-benefit analysis for the air quality standards, which concluded that regulations to control particulate matter deliver a substantial benefit that is well in excess of their costs for New Zealand (Ministry for the Environment, 2004).

In June 2009, the Ministry for the Environment contracted an independent economic appraisal of the air quality standards. The resulting study, *The Value of Air Quality Standards: Review and Update of Cost Benefit Analysis of National Environmental Standards on Air Quality*, was prepared by the New Zealand Institute of Economic Research and finalised in October 2009 (NZIER, 2009).

The updated analysis differs from the 2004 analysis principally in revising the value attached to benefits, updating the costs to industry and local and central government, and estimating a potential cost to households in upgrading their wood burners. In particular:

- the value attached to lives saved and hospitalisation costs is higher than in the earlier analysis
- costs for territorial authorities, schools, hospitals and road authorities in the 2004 analysis have been removed because they are no longer relevant in the update
- costs to householders for upgrading wood burners, which were omitted from the 2004 analysis, have been explicitly modelled
- the discount rate has also changed, from 10 per cent in the 2004 analysis to 8 per cent in the updated analysis, in line with the Treasury's current default discount rate.

Table 4 summarises the costs and benefits analysed in 2004 and 2009.

Table 4: Summary of coverage of initial and updated cost-benefit analyses

	2004 analysis	2009 update
1. Benefits		
Willingness to pay to avoid: premature loss of life (pain and suffering) lost output/productivity/income	Included	Included
Direct benefits of avoiding GDP loss	Included	Included
Indirect benefits of avoiding GDP loss	Included	Not valued
Avoided costs of medical treatment	Not included	Included
Avoided loss of long term quality of life	Not included	Not valued
2. Costs		
2.1 Ambient air standards		
Regional councils administration/monitoring	Included	Updated
Territorial authorities administration	Included	Zero entry
Government information and administration	Included	Updated
Industry site adaptation measures	Included	Updated
Business forgone from consent constraints	Not included	Not valued
2.2 Activity standards for dioxins and other toxics		
Consenting of school and hospital incinerators	Included	Completed
Alternatives to tar seal burning	Included	Zero entry
Other activities: landfills, wire burning, etc	Zero entry	Zero entry
2.3 Costs associated with wood burners standard		
Householders costs of compliant burners	Zero entry	Included
Suppliers costs of compliant burners	Zero entry	Zero entry
Government/council subsidy	Included	Zero entry
3. Other factors taken into account		
Infant mortality	Not included	Included
Cost of hospitalisation (medical expenditures)	Not included	Included
Discount rate	10%	8%
Influences on the counterfactual	Not included	Allows for downward trend in wood burners and insulation/ clean heat initiatives

Source: NZIER.

The updated economic analysis was peer-reviewed by both an economist, Professor Basil Sharp (University of Auckland), and an air quality expert, Dr Gerda Kuschel (Emission Impossible) before being finalised. A copy is available on the Ministry's website (www.mfe.govt.nz).

The study assesses the costs and benefits of meeting the PM₁₀ standard by 2013 as shown in table 5. This table shows that if the PM₁₀ standard is achieved by 2013, the early realisation of health benefits would result in a net present value of \$955 million. This is the same benefit cost ratio as in the 2004 cost-benefit analysis but with a substantially higher net present value. If standard achievement is postponed until 2020, deferral of benefits is greater than the reduction in costs, reducing the net present value to \$159 million.

Table 5: Summary updated cost-benefit analysis*

PM₁₀ standard met by:	2013+	2020
Reduction in premature mortality (to 2020)	635	153
Reduction in hospitalisations (to 2020)	565	150
Reduction in restricted activity days (to 2020)	1,034,452	269,367
PV combined benefits \$million	1,289	232
PV costs \$million	333	74
NPV \$million	955	159

Source: NZIER.

* Period to 2020 discounted at 8%.

+ Status quo (A).

Notes: NPV = net present value; PV = present value.

The study shows that there are large differences in the distribution of costs across the community. The level and distribution of costs are predominantly driven by the number of households that incur the costs of upgrading wood burners. The analysis models this as potentially having rather more impact than the air quality standards prescribe, because more stringent measures might be applied by regional councils to comply with the PM₁₀ standard by 2013.

Costs and benefits of the status quo have been derived from the status quo (A) as shown above. This base status quo assumes that compliance will be achieved by 2013 leading to no industry penalties and the achievement of the full health benefits of the regulations.

However, we estimate that 10 airsheds are unlikely to comply with the standard by 2013 with another five airsheds possibly not complying. Because of this, an estimated status quo (B) was calculated based on the Ministry for the Environment's best estimate of current levels of actual and predicted compliance. The assumptions for status quo (B) include:

- compliance is achieved by 2017
- an estimated economic loss of \$22.3 million per year for three years in value added to a region's economy for each industry that fails to obtain a consent due to the industry restrictions
- two industries will be affected per year from 2014 to 2017.

The benefits of achieving compliance by 2017 are reduced from \$1,289 million (status quo (A)) to \$685 million (status quo (B)). This is mainly caused by health losses (eg, increase in premature deaths and hospitalisations). Costs, on the other hand, increase from \$333 million to \$485 million. This increase in cost is from the loss of value added to a region's economy from the affected industries. This includes effects on employment and downstream suppliers.

The following sections discuss the costs and benefits of the proposed amendments.

5.2 Costs

5.2.1 Preferred Option 4a

The estimated cost for preferred option 4a is \$126 million. The assumptions used in estimating this cost include:

- compliance with the standard is achieved by 2018
- a reporting cost of \$10,000 per council to comply with the mandatory reporting requirement (\$160,000 for the 16 regional councils)
- offset one new industry each year from 2019 to 2020
- cost of using ministerial powers is estimated at \$150,000 per year for 2014 and 2015
- all costs adjusted to 2008 dollars.

This results in a 71 per cent decrease in costs for compliance with the standards by 2013, from \$438 million to \$126 million. This is due to the significant decrease in costs from 2008 to 2013 compared with extending the compliance timeline to 2018.

5.2.2 Preferred Option 4b

The estimated cost for preferred option 4b is \$125 million. The assumptions used in estimating this cost include:

- compliance with the standard is achieved by 2018
- a reporting cost of \$10,000 per council to comply with the mandatory reporting requirement (\$160,000 for the 16 regional councils)
- cost of using ministerial powers is estimated at \$150,000 per year for 2014 and 2015
- all costs adjusted to 2008 dollars.

This results in a 71 per cent decrease in costs for compliance with the standards by 2013, from \$438 million to \$125 million.

5.2.3 Costs of offsets to industry

In preferred option 4a, if an airshed continues to breach the PM₁₀ standard beyond 2018, new industries applying for consent to discharge PM₁₀ will be required to offset their emissions by removing emissions from other sources in the airshed, such as domestic fires or transport. The costs of offsets will depend on the emissions mix in the airshed.

As an example, table 6 provides estimates for the costs of offsetting PM₁₀ emissions by considering typical emissions from domestic burners. These figures are based on NZIER estimates that the cost of replacing a wood burner is around \$3000 per burner, or \$2667 excluding GST (NZIER, 2009, p 39). As would be expected, it is more cost-effective to replace more polluting sources such as open fires or coal burners. These offset estimates do not include administrative costs which could add another 2–5 per cent. It would be reasonable, however, to assume that economies of scale would reduce the cost of replacing each burner such that administrative costs would not be significant overall.

Table 6: Typical PM₁₀ emissions from domestic burning

Source	Annual fuel use (tonnes/yr)	PM ₁₀ emission		No. burners to equal 1 tonne per year PM ₁₀	Offset cost per tonne PM ₁₀ \$000
		(g/kg)	(kg/yr)		
Open fire	4.7	30	142	7	21
Old wood burner	1.5	14	22	47	140
Multi-fuel burner	2.5	28	70	14	43
Coal burner	2.5	28	70	14	43

In areas where transport is a significant source of PM₁₀ emissions, another form of offset could be retrofitting old buses with diesel oxidation catalysts. This is estimated to cost \$34,000 per tonne of PM₁₀ offset (EFRU, 2005).

5.2.4 Costs to regional councils

Normal consent processes already require regional councils to estimate and assess significant emissions of PM₁₀ from industry. Similarly, the air quality standards already currently require significant emissions from existing industry in polluted airsheds to offset their emissions.

5.2.5 Costs to the Ministry for the Environment

The Ministry for the Environment will have to prepare detailed guidance on the proposed amendments for industry and regional councils. This will include:

- determination of the significance of discharges
- classification of exceptional events
- mandatory offset mechanisms.

This may entail new research and consultation to establish nationally accepted emission factors for some domestic sources (although emission factors for wood burners are well established, real-life emission factors for other sources such as open fires and coal burners may need further work).

The Ministry for the Environment estimates the cost of this research and consultation to be approximately \$80,000.

5.3 Benefits

The estimated total benefits of both the preferred options (4a and 4b) amount to \$534 million. The assumptions used in estimating these benefits are:

- base estimates used are from the updated cost-benefit analysis report of NZIER (refer to table 5)
- compliance is achieved by 2018
- all benefits are in 2008 dollars.

Total estimated benefits also decreased (22 per cent) with the preferred option. This is due to a decrease in health benefits resulting from the extension of the timeline for compliance and the increase in the permitted number of exceedances from one to three.

PM ₁₀ standard met by:	2013+	2020
Reduction in premature mortality (to 2020)	635	153
Reduction in hospitalisations (to 2020)	565	150
Reduction in restricted activity days (to 2020)	1,034,452	269,367
PV combined benefits \$million	1,289	232
PV costs \$million	333	74
NPV \$million	955	159

Source: NZIER.

* Period to 2020 discounted at 8%.

+ Status quo (A).

Notes: NPV = net present value; PV = present value.

The formula used in the interpolation of benefits if compliance is met by 2019 is:

$$\left[\left(\frac{2018 - 2013}{2020 - 2013} \right) \times \left(\text{Benefits (2020)} - \text{Benefits (2013)} \right) \right] + \text{Benefits (2013)}$$

resulting in the following equation:

$$\begin{aligned} &= ((0.7143) \times (\$232 \text{ million} - \$1,289 \text{ million})) + \$1,289 \text{ million} \\ &= (-\$755 \text{ million}) + \$1,289 \text{ million} \\ &= \$534 \text{ million.} \end{aligned}$$

5.3.1 Exclusion of exceptional events

This amendment might be considered a clarification amendment and as such, a continuation of the status quo. It does, however, have the benefit of increasing clarity and certainty for regional councils and industry applying for resource consents.

5.3.2 Repealing industry consent restrictions

Repealing the industry consent restrictions in the air quality standards removes potential costs for industry that may have been prohibited from being granted resource consent after 2013 in polluted airsheds.

5.3.3 Extending the timetable / mandatory reporting for non-compliant airsheds

The benefit of extending the timetable for compliance with the PM₁₀ standard is that it provides a pragmatic approach for those airsheds already assessed as unlikely to comply by 2013.

Mandatory public reporting on PM₁₀ in polluted airsheds, with an assessment of the impact the air pollution is having on the public has the benefits of providing transparency and support for public health protection. Additional benefits will be wider public understanding of the health impacts of air pollution and appreciation of the importance of regional council air quality management initiatives.

The inclusion of compliance reporting further provides accountability for regional councils charged with taking action to meet the PM₁₀ standard. It effectively ‘closes the loop’ by providing the community with information on what is (or isn’t) happening on air quality and what effect this is (or is not) having.

Overall, the preferred options result in a net present value of \$408 to \$409 million. Table 7 shows the summary of costs and benefits for the status quo and the preferred option.

Table 7: Summary of costs and benefits (status quo and preferred option)

	Status quo B	Preferred option 4a	Preferred option 4b
Combined benefits \$million	685	534	534
Costs \$million	438	126	125
Net present value \$million	247	408	409

Questions

16. Have we accurately reflected the range of costs and benefits arising from the proposals for a national environmental standard, and who might bear the costs or receive the benefits?
17. Are there any costs and benefits we have overlooked?
18. Do you have information that you would like to see included in the cost-benefit analysis that will be carried out after the submissions are received and analysed?

6 What Happens Next?

6.1 Making a submission

Anyone can make a submission on the proposed amendments.

You can make a submission using the form in Appendix B of this document and available on www.mfe.govt.nz. It is not mandatory to use this form but as a minimum, please include the following information with your submission:

1. Your name and postal address, phone number, and email address (where applicable).
2. The subject of your submission (ie, the proposed amendments to the ambient air quality standards).
3. Whether you support or oppose the proposed amendments.
4. Your submission, with reasons for your views.
5. Any changes you would like made to the proposed amendments.
6. The decision you wish the Minister for the Environment to make.

You must forward your submission to the Ministry for the Environment, PO Box 10362, Wellington 6143, or by email to air@mfe.govt.nz, in time to be received no later than **5.00 pm on 9 July 2010**.

Please note that your submission is public information and will be subject to release under the Official Information Act 1982.

6.2 What happens to submissions?

The Ministry will prepare a summary of submissions. The summary will be available through the Ministry's website, and hard copies will be available on request. Once submissions have been compiled, they will be considered during the development of the proposed amendments.

The Ministry will then prepare a report along with recommendations on the comments and subject matter of the amendments for the Minister for the Environment, including a section 32 (cost-benefit) analysis. The report and recommendations will be publicly notified. If the Minister's approval is given to continue developing the proposed amendments, the final wording will be drafted and the regulations amended accordingly.

6.3 Discussion questions

Your submission may address any aspect of the proposed amendments. However, we would also greatly appreciate any specific comments you may have on the following questions.

Problem definition

1. Have the main problems been defined accurately?
2. Are there other problems you can think of that need to be addressed as a priority?
3. Do you agree with the policy objectives?
4. Do air quality standards materially influence industry investment decisions and regional location decisions?

What are the options?

5. Have the options achieved the policy objectives?
6. Have the options addressed the identified problems?
7. What preferred option do you think should be considered?
8. Are you aware of any other costs or benefits of the options?
9. What current opportunities do you know of that could help reduce your emissions (eg, updating current equipment)? Do you see these opportunities as effective in reducing total emissions within an airshed? What are the costs of these alternative opportunities? What is stopping these opportunities from being introduced now?
10. What costs do stakeholders face when complying with resource consent restrictions required by air quality standards?
11. Is it practical to require mandatory offsets in over-allocated airsheds?
12. What is the scale of the economic impact of mandatory offsets on industry? We are particularly interested in:
 - a. The materiality of these impacts on your business (eg, what proportion of your total operating costs will these comprise and will it materially impact on your profitability)?
 - b. Will these costs impact on current or future investment decisions you are likely to make?
 - c. Any other impacts you see arising from a requirement to offset emissions?
13. Will mandatory offsets for new industries in breaching airsheds encourage industries to adopt cleaner technologies?
14. What costs will councils incur to comply with the proposed mandatory reporting of PM₁₀ monitoring data?
15. How effective are rules at the national level in addressing air quality issues (eg, managing emissions from various sources) compared with providing regional flexibility?

Costs and benefits

16. Have we accurately reflected the range of costs and benefits arising from the proposals for a national environmental standard and who might bear the costs or receive the benefits?
17. Are there any costs and benefits we have overlooked?
18. Do you have information that you would like to see included in the cost-benefit analysis that will be carried out after the submissions are received and analysed?

7 Implementing the Proposed Amendments

This section describes how we envisage the amended air quality standards being implemented from the perspective of regional councils and industries with significant discharges.

During this time, the Ministry for the Environment will prepare updated guidance to the air quality standards, including detailed guidance on how to administer offsets for industry in polluted airsheds. The guidance will further clarify what constitutes an exceptional event for the purposes of establishing exceedances of the PM₁₀ standard.

It is likely that the updated regulations will incorporate a one-year transitional period from the time of gazettal for mandatory reporting and industrial offsets to provide clarity and consistency for industry and regional councils.

Following consultation and analysis of submissions on the discussion document, the Government will make a decision on any regulatory amendments to be made. If the proposed amendments are approved, it is likely that that legal drafting will result in gazettal of new regulations in late 2010. Amendments to the PM₁₀ regulations will become effective 28 days after being gazetted, with an additional two-year transitional period.

7.1 Implementation risk management

There is a risk that councils currently on track to comply with the PM₁₀ standard by 2013 will, seeing the provision for extensions for compliance, delay air quality initiatives and resulting compliance.

A key component of the amendments will be an air quality compliance strategy. This strategy will be published by the Ministry as part of the amendments for addressing airshed compliance. The Ministry will also publish a guidance document on:

- determination of the significance of discharges
- classification of exceptional events
- mandatory offset mechanisms.

This guidance document will be similar to the users' guide document (Ministry for the Environment, 2005) published by the Ministry when the national environmental standards took effect.

7.2 Monitoring, evaluation and review

The Ministry for the Environment will work closely with regional councils to monitor the uptake of the amendments and evaluate implementation of the regulations. As part of the proposed amendments, the Minister will closely monitor airshed compliance and will require periodic (eg, annual) information from councils. A further evaluation will be carried out by the Ministry after five years of the amendments being implemented. This will assess the effectiveness of the reforms in achieving the policy intent.

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Abbreviations / Glossary

AIP	Airshed implementation plans.
Air quality standards	<p><i>Resource Management (National Standards Relating to Certain Air Pollutants, Dioxins and other Toxics) Regulations 2004</i>. Regulations made under sections 43 and 44 of the Resource Management Act 1991. The air quality standards include:</p> <ul style="list-style-type: none">• seven standards banning activities that discharge significant quantities of dioxins and other toxics into the air• five standards for ambient (outdoor) air quality• a design standard for new wood burners installed in urban areas• a requirement for landfills over 1 million tonnes of refuse to collect.
Airshed	<p>Airshed means:</p> <p>(a) the region of a regional council excluding any area specified in a notice under paragraph (b)</p> <p>(b) a part of the region of a regional council specified by the Minister by notice in the Gazette to be a separate airshed.</p>
Clean Heat Programme	EECA delivered programme for the Minister for the Environment. This programme began in 2007 and provides \$1.1 million per year for retrofits of clean heat to low-income, pre-insulated houses in polluted airsheds. Clean heat funds retrofits of either a low-emission wood burner, pellet burner, flued gas heater or heat pump.
EECA	Energy Efficiency and Conservation Authority.
HAPINZ	Health and Air Pollution in New Zealand, final report, Fisher et al, June 2007.
NES	National environmental standard. – a regulation under the Resource Management Act 1991.
NZIER	New Zealand Institute of Economic Research Inc.
Offsets	Mitigation measures included in a proposal to 'offset' predicted impacts so that emissions from the new activity are 'offset' by emission reductions elsewhere in the airshed. An example would be an industrial development helping to reduce emissions from a hospital boiler located nearby. The reduced PM ₁₀ emissions from the hospital boiler offset the proposed industrial discharges of PM ₁₀ .
PM₁₀	Particulate matter less than 10 microns in diameter.
PM_{2.5}	Particulate matter less than 2.5 microns in diameter.
PV	Present value.
RIS	Regulatory impact statement.
RMA	Resource Management Act 1991.
TAG	Technical advisory group for air quality.
Warm Up New Zealand: Heat Smart Programme	EECA delivered programme for the Minister of Energy. The Warm Up NZ programme began in 2009 and provides grant funding of \$323 million over four years for insulation retrofits in approximately 180,000 houses and 80,000 clean heaters, in all parts of New Zealand. The programme ring fences a significant portion of the funds for community services card holders and further requires insulation be retrofitted before clean heating being installed. The programme was initiated in response to health concerns (over poorly insulated, under-heated houses) and to stimulate employment during a recession.

Appendix A: Terms of reference: Ministerial Review of PM₁₀ Regulations in the Air Quality Standards

Regulation to be reviewed

Regulations 13–19 and Schedule 1 of the Resource Management (National Standards Relating to Certain Air Pollutants, Dioxins and Other Toxics) Regulations 2004.

Problem definition

Three aspects of the PM₁₀ regulations in the air quality standards require attention. First, the number of permitted exceedances needs review. In 2003, the Ministry for the Environment proposed an ambient PM₁₀ standard of 50 micrograms per cubic metre as a 24-hour average with five exceedances permitted per year. This proposal was reduced to one exceedance after consultation with regional councils; five being that permitted in Australia to allow for bushfire hazard reduction burning and this being considered unnecessary for New Zealand. The Minister for the Environment wishes to review that decision.

Second, the target timeline of 2013 could be looked at. Is it achievable? What are the costs and benefits of still achieving it?

Third, the Minister for the Environment considers the compliance aspects of the air quality standards inequitable. The air quality standards have significant implications for industry because, after 2013, regional councils cannot grant consent for discharges in over-allocated airsheds. The air quality standards may unfairly penalise industry because domestic heating, not industry, is the primary source of this pollution.

Specific objectives for the review

To review the PM₁₀ regulations in the air quality standards to ensure they provide the maximum net benefit to New Zealanders taking into account the economic, social and environmental benefits and costs of air pollution.

In scope

The review will determine the following.

- How much are the regulations relating to PM₁₀ costing? This should include economic costs (ie, costs of implementation), and health and social costs both prior to and post 2013.
- Who is bearing these costs?
- What are the benefits of the regulations relating to PM₁₀ prior to 2013 and post-2013 (including economic, health and social benefits)?
- Who is experiencing these benefits?
- How do the actual costs and benefits differ from the original cost-benefit analysis? Why?

- Are the regulations relating to PM₁₀ effective? This could include, but not be limited to:
 - What difference have they made?
 - Were they necessary?
 - Are the resource consent restrictions working (ie, have they been an effective driver of regional policy to improve air quality since the introduction of the standards)? If not, what can/should central government do about it?
 - Is the 2013 deadline appropriate? (The standards limit consent for industrial discharges but the primary source of pollution is domestic heating in most urban areas). If not, what are the alternatives?
 - Should we extend the deadline to some future date (with associated analysis of costs and benefits)? This could include increasing the number of permitted exceedances of the PM₁₀ ambient standard (eg, five exceedances). NB: The actual ambient standards (ie, concentration thresholds) are not under review.
 - Should we amend the 2013 deadline and use other methods to encourage regional councils to meet the standards? For example:
 - fines for non-achievement of ambient standards based on estimated health impacts
 - sanctions and Minister approved action plans for areas of non-attainment similar to US approach.

Out of scope

The original objectives of the PM₁₀ regulations in the air quality standards were:

- provision of greater certainty for industry by providing a ‘level-playing field’ that clarifies environmental expectations prior to the resource consent process
- support for the protection of public health and the environment by providing a bottom-line standard that shall not be breached
- provision of greater certainty in resource consent decision-making and regional plan preparation at the local level.

These policy objectives are still government priorities and are considered fit for purpose. Any fundamental review of these objectives is out of scope.

Quality assurance mechanism

The review will be informed by an independent report prepared by a technical advisory group. The Minister for the Environment will appoint a technical advisory group to invite written submissions from key stakeholders including:

- industry
- local government
- public health units of the district health boards
- central government agencies with portfolio responsibilities relating to air quality and public health.

Review principles

The review must be consistent with the government's policy on regulatory reform and deliver a feasible set of options for regulatory reforms and recommendations (if reform is required) that will:

- be the minimum necessary to achieve their objectives, having assessed costs, benefits, and risks
- be as generic and as simple as the sector allows
- use self regulatory approaches where appropriate
- be appropriately durable, predictable and adaptable
- where appropriate, accord with international best practice, being mindful of our commitment to a single economic market with Australia
- minimise compliance costs imposed
- aim to minimise adverse impacts on:
 - i. innovation and investment
 - ii. competition
 - iii. individual responsibility
 - iv. property rights.

Appendix B: Submission template on the proposed amendments to the air quality standards

Name	
Organisation/agency	
Postal address	
Phone number	
Email	

Discussion questions:

Problem definition

1. Have the main problems been defined accurately?
2. Are there other problems you can think of that need to be addressed as a priority?
3. Do you agree with the policy objectives?
4. Do air quality standards materially influence industry investment decisions and regional location decisions?

What are the options?

5. Have the options achieved the policy objectives?
6. Have the options addressed the identified problems?
7. What preferred option do you think should be considered?
8. Are you aware of any other costs or benefits of the options?
9. What current opportunities do you know of that could help reduce your emissions (eg, updating current equipment)? Do you see these opportunities as effective in reducing total emissions within an airshed? What are the costs of these alternative opportunities? What is stopping these opportunities from being introduced now?
10. What costs do stakeholders face when complying with resource consent restrictions required by air quality standards?
11. Is it practical to require mandatory offsets in over-allocated airsheds?
12. What is the scale of the economic impact of mandatory offsets on industry? We are particularly interested in:
 - a. The materiality of these impacts on your business (eg, what proportion of your total operating costs will these comprise and will it materially impact on your profitability)?
 - b. Will these costs impact on current or future investment decisions you are likely to make?
 - c. Any other impacts you see arising from a requirement to offset emissions?
13. Will mandatory offsets for new industries in breaching airsheds encourage industries to adopt cleaner technologies?
14. What costs will councils incur to comply with the proposed mandatory reporting of PM₁₀ monitoring data?
15. How effective are rules at the national level in addressing air quality issues (eg, managing emissions from various sources) compared with providing regional flexibility?

Costs and benefits

16. Have we accurately reflected the range of costs and benefits arising from the proposals for a national environmental standard and who might bear the costs or receive the benefits?
17. Are there any costs and benefits we have overlooked?
18. Do you have information that you would like to see included in the cost-benefit analysis that will be carried out after the submissions are received and analysed?

1. Preferred options

<p>Option 4a</p> <p>Proposed amendments</p>	<p>Increase the permitted number of exceedance of the PM₁₀ standard from one to three exceedances per year.</p> <p>Exclude exceptional events from counting as exceedances of the PM₁₀ standard.</p> <p>Extend the timeline for compliance to 2018.</p> <p>Require mandatory offsets for new industry consents in breaching airsheds after 2018 (ie, do no harm).</p> <p>Introduce mandatory reporting of PM₁₀ monitoring data.</p> <p>Use existing ministerial powers under the Resource Management Act 1991 (section 27).</p> <p>Establish an air quality compliance strategy.</p>
<p>Are you in favour of these amendments?</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>
<p>Reason/s</p>	
<p>Are there any changes you would like made to these proposed amendments?</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>
<p>If yes, what are these changes?</p>	

<p>Option 4b</p> <p>Proposed amendments</p>	<p>Increase the permitted number of exceedance of the PM₁₀ standard from one to three exceedances per year.</p> <p>Exclude exceptional events from counting as exceedances of the PM₁₀ standard.</p> <p>Extend the timeline for compliance to 2018.</p> <p>Remove all industry consent restrictions.</p> <p>Introduce mandatory reporting of PM₁₀ monitoring data.</p> <p>Use existing ministerial powers under the Resource Management Act 1991 (section 27).</p> <p>Establish an air quality compliance strategy.</p>
<p>Are you in favour of these amendments?</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>
<p>Reason/s</p>	
<p>Are there any changes you would like made to these proposed amendments?</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>
<p>If yes, what are these changes?</p>	

2. Costs and benefits

<p>Have we accurately reflected the range of costs and benefits arising from the proposed amendments, and who might bear the costs or receive the benefits?</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<p>If no, how can the estimates be improved?</p>	
<p>Are there any costs and benefits we have overlooked?</p>	
<p>Please provide any information that you would like to see included in the cost-benefit analysis that will be carried out after the submissions are received and analysed.</p>	

3. Decision/s you wish the Minister for the Environment to make

<p>Proposed amendments</p>	<input type="checkbox"/> Increase the permitted number of exceedance of the PM ₁₀ standard from one to three exceedances per year. <input type="checkbox"/> Exclude exceptional events from counting as exceedances of the PM ₁₀ standard. <input type="checkbox"/> Require mandatory offsets for new industry consents in breaching airsheds after 2018 (ie, do no harm). OR <input type="checkbox"/> Remove all industry consent restrictions. <input type="checkbox"/> Extend the timeline for compliance to 2018. <input type="checkbox"/> Introduce mandatory reporting of PM ₁₀ monitoring data. <input type="checkbox"/> Use existing ministerial powers under the Resource Management Act 1991 (section 27). <input type="checkbox"/> Establish an air quality compliance strategy. <input type="checkbox"/> Investigate the feasibility of funding links (denial of funding in breaching airsheds).
<p>Other proposed amendments you would like the Minister to make.</p>	

Appendix C: Assumptions used in the estimation of benefits and costs

Note:

- All costs are assumed to be in 2008 dollars and are for the period 2008 to 2020.
- The costs and benefits are calculated relative to ‘business as usual’ (ie, with no standards in place).
- The NZIER report¹⁶ uses the terminology ‘status quo’ for ‘business as usual’. However, in this regulatory impact statement ‘status quo’ means the current regulations, which are defined in the NZIER report as the ‘2013 option’.

Status quo

This estimated status quo is based on the Ministry for the Environment’s best estimate of current levels of actual and predicted compliance. This assumes compliance is achieved by 2017. This assumes an estimated economic loss of \$22.3 million in value added to a region’s economy per year for three years for each industry that fails to obtain a consent due to the industry restrictions. It further assumes that two industries will be affected per year from 2014 to 2017. The resulting estimated benefits amount to \$685 million while costs amount to \$438 million.

Option 1 – TAG recommendations

This package assumes compliance is achieved by 2019 (as some airsheds will achieve compliance before the 2020 maximum deadline).

Therefore, the health benefits are interpolated between the 2013 and 2020 benefits shown in the NZIER report and reduce to present value (PV) \$383 million.

The original costs are also derived from the modelling undertaken for the NZIER report and reduce to PV \$91 million. Additional costs of PV \$2 million are also included for the following components:

- education at \$50,000 per annum from 2011 to 2020
- mandatory reporting at \$10,000 per council per annum (ie, \$160,000 each year) from 2011 to 2020
- airshed implementation plans at \$100,000 one-off in 2011 for each likely non-complying airshed (ie, \$1.5 million)
- ministerial intervention at \$150,000 per annum for 2014 and 2015.

Together, the original and additional costs bring the total costs to PV \$93 million.

¹⁶ NZIER (2009). *The Value of Air Quality Standards: Review and Update of Cost Benefit Analysis of National Environmental Standards on Air Quality*, Report for the Ministry for the Environment, October 2009, Table 10, p.47.

Option 2

This package assumes that compliance will be delayed slightly to 2015 (over the original 2013 deadline).

Therefore, the health benefits are interpolated between the 2013 and 2020 benefits shown in the NZIER report and reduce to PV \$987 million.

The original costs are also derived from the modelling undertaken for the NZIER report and reduce to PV \$190 million. Additional costs of PV \$78 million are also included for the following components:

- loss of two existing industries whose consents are declined in non-complying airsheds (one each in 2014 and 2015) which cost their regional economies \$22.31 million per annum in value added for three years each until the economies recover
- education at \$50,000 per annum from 2011 to 2020
- mandatory reporting at \$10,000 per council per annum (ie, \$160,000 each year) from 2011 to 2020
- airshed implementation plans at \$100,000 one-off in 2011 for each likely non-complying airshed (ie, \$1.5 million)
- ministerial intervention at \$150,000 per annum for 2014 and 2015
- preparation of national domestic fire restriction guidance by the Ministry for the Environment at \$100,000 one-off in 2011

Together, the original and additional costs bring the total costs to PV \$268 million.

Option 3

This package assumes that compliance will be delayed slightly to 2015 (over the original 2013 deadline).

Therefore, the health benefits are interpolated between the 2013 and 2020 benefits shown in the NZIER report and reduce to PV \$987 million.

The original costs are also derived from the modelling undertaken for the NZIER report and reduce to PV \$190 million. Additional costs of PV \$3 million are also included for the following components:

- offsetting of two existing industries and two new industries in non-complying airsheds (one of each in 2014 and 2015) which costs the industries \$0.4 million each for a one-off payment
- education at \$50,000 per annum from 2011 to 2020
- mandatory reporting at \$10,000 per council per annum (ie, \$160,000 each year) from 2011 to 2020
- airshed implementation plans at \$100,000 one-off in 2011 for each likely non-complying airshed (ie, \$1.5 million)
- ministerial intervention at \$150,000 per annum for 2014 and 2015
- preparation of national domestic fire restriction guidance by the Ministry for the Environment at \$100,000 one-off in 2011.

Together, the original and additional costs bring the total costs to PV \$193 million.

Option 4a

This package assumes compliance is achieved by 2018.

Therefore, the health benefits are interpolated between the 2013 and 2020 benefits shown in the NZIER report and reduce to PV \$534 million.

The original costs are also derived from the modelling undertaken for the NZIER report and reduce to PV \$123 million. Additional costs of PV \$2.5 million are also included for the following components:

- mandatory reporting at \$10,000 per council per annum (ie, \$160,000 each year) from 2011 to 2020
- offset one industry each year from 2019 to 2020 (\$400,000 per industry for discharging five tonnes of PM₁₀ per year)
- airshed implementation plans at \$100,000 one-off in 2011 for each likely non-complying airshed (ie, \$1.4 million)
- ministerial intervention at \$150,000 per annum for 2014 and 2015.

Together, the original and additional costs bring the total costs to PV \$126 million.

Option 4b

This package assumes compliance is achieved by 2018.

Therefore, the health benefits are interpolated between the 2013 and 2020 benefits shown in the NZIER report and reduce to PV \$534 million.

The original costs are also derived from the modelling undertaken for the NZIER report and reduce to PV \$123 million. Additional costs of PV \$1.7 million are also included for the following components:

- mandatory reporting at \$10,000 per council per annum (ie, \$160,000 each year) from 2011 to 2020
- airshed implementation plans at \$100,000 one-off in 2011 for each likely non-complying airshed (ie, \$1.4 million)
- ministerial intervention at \$150,000 per annum for 2014 and 2015.

Together, the original and additional costs bring the total costs to PV \$125 million.

Appendix D: Consolidated version of the air quality standards

Resource Management (National Environmental Standards Relating to Certain Air Pollutants, Dioxins, and Other Toxics) Regulations 2004

SR 2004/309

Index

Silvia Cartwright, Governor-General

Order in Council

At Wellington this 6th day of September 2004

Present: Her Excellency the Governor-General in Council

Pursuant to section 43 of the Resource Management Act 1991, Her Excellency the Governor-General, acting on the advice and with the consent of the Executive Council (given on the recommendation of the Minister for the Environment after consultation in accordance with section 44 of that Act), makes the following regulations.

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- 2 Commencement
- 3 Interpretation

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Ambient air quality standards for contaminants

- 13 Ambient air quality standards
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Resource consents for discharges of PM₁₀

- 17 Application of Regulations 17A to 17C
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- 22 Discharge from woodburners installed on certain properties after 1 September 2005 prohibited
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Schedule 1: Ambient air quality standards for contaminants

Schedule 2: Monitoring methods for ambient air quality standards

Regulations

1 Title

These regulations are the Resource Management (National Environmental Standards Relating to Certain Air Pollutants, Dioxins, and Other Toxics) Regulations 2004.

2 Commencement

- (1) Regulation 11 comes into force on 1 October 2006.
- (2) Regulations 13 to 24 come into force on 1 September 2005.
- (3) The rest of these regulations come into force on 8 October 2004.

3 Interpretation

- (1) In these regulations, unless the context otherwise requires:

Act means the Resource Management Act 1991;

airshed means:

- (a) the region of a regional council excluding any area specified in a notice under paragraph (b);
- (b) a part of the region of a regional council specified by the Minister by notice in the Gazette to be a separate airshed;

ambient air quality standard means the standard prescribed by regulation 13(1);

backup flare means a flare that is designed to burn only when the principal flare to which it relates is not operating;

Basel Convention means the Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal, done at Basel on 22 March 1989;

cleanfill:

- (a) means a landfill that accepts only material that, when buried or placed, will not have an adverse effect on the environment; but
- (b) does not include a landfill that contains 5% or more (by weight) putrescible matter;

film:

- (a) means a cinematograph film, and any other material record of visual moving images that is capable of being used for the subsequent display of those images; but
- (b) excludes:
 - (i) anything that was not created primarily for showing at a cinema, broadcasting on television, or using for educational purposes; and
 - (ii) home movies;

hazardous waste means waste that:

- (a) belongs to one or more of the categories in Annex I of the Basel Convention; and
- (b) has one or more of the characteristics in Annex III of that Convention;

health care institution has the same meaning as in section 2(1) of the Health and Disability Commissioner Act 1994

high temperature hazardous waste incinerator means an incinerator that is designed and operated principally for burning hazardous waste at a temperature greater than 850°C as measured:

- (a) near the inner wall of the incinerator; or
- (b) at another point in the combustion chamber where the temperature is likely to represent the temperature in the incinerator;

landfill means a site where waste is disposed of by burying it, or placing it upon land or other waste;

multifuel heater means a domestic heating appliance designed to burn more than one type of solid fuel;

oil:

- (a) means petroleum in any form other than gas; and
- (b) includes crude oil, fuel oil sludge, oil refuse, and refined oil products (for example, diesel fuel, kerosene, and motor gasoline);

PM₁₀ means particulate matter that is:

- (a) less than 10 microns in aerodynamic diameter; and
- (b) measured in accordance with the United States Code of Federal Regulations, Title 40 – Protection of Environment, Volume 2, Part 50, Appendix J – Reference method for the determination of particulate matter as PM₁₀ in the atmosphere

solid fuel means a solid substance that releases useable energy when burnt (for example, wood and coal);

waste means substances or objects that are disposed of or intended to be disposed of;

woodburner:

- (a) means a domestic heating appliance that burns wood; but
- (b) does not include:
 - (i) an open fire; or
 - (ii) a multifuel heater, a pellet heater, or a coal burning heater; or
 - (iii) a stove that is:
 - (A) designed and used for cooking; and
 - (B) heated by burning wood.

- (2) A term or expression that is defined in the Act and used, but not defined, in these regulations has the same meaning as in the Act.

Prohibitions and restrictions on discharges from certain activities

4 Prohibition on discharges from certain activities

A discharge of a contaminant to air from an activity specified in any of regulations 6 to 12 is prohibited, except to the extent that the regulation provides otherwise.

5 Prohibition on granting of resource consents for certain activities

- (1) A resource consent may not be granted for a discharge of a contaminant to air from an activity specified in any of regulations 6 to 12, except to the extent that the regulation provides otherwise.
- (2) If a resource consent is granted for an activity, the activity is a discretionary activity for the purposes of the Act.

6 Lighting of fires and burning of waste at landfill

- (1) The lighting of fires and the burning of waste at a landfill are prohibited.
- (2) Subclause (1) does not apply if:
 - (a) the lighting of a fire is to control gas formed at the landfill; and
 - (b) the landfill complies with the requirements of regulations 25 to 27.

7 Burning of tyres

- (1) The burning of tyres is prohibited.
- (2) Subclause (1) does not apply if the tyres are burnt at industrial and trade premises that have:
 - (a) a resource consent for the discharge produced; and
 - (b) emission control equipment that is designed and operated to minimise emissions of dioxins and other toxics from the process.

8 Burning of bitumen

The burning of bitumen on a road is prohibited.

9 Burning of coated wire

- (1) The burning of wire coated with any material is prohibited.
- (2) Subclause (1) does not apply if the wire is burnt at industrial and trade premises that have:
 - (a) a resource consent for the discharge produced; and
 - (b) emission control equipment that is designed and operated to minimise emissions of dioxins and other toxics from the process.

10 Burning of oil

- (1) The burning of oil in the open air is prohibited.
- (2) Subclause (1) does not apply if:
 - (a) the burning is for creating special smoke and fire effects for the purposes of producing films; or
 - (b) the burning is for the purpose of training people to put out fires; or
 - (c) *Revoked*
 - (d) the burning is:
 - (i) done by means of a flare; and
 - (ii) for the purpose of undertaking health and safety procedures in the petroleum exploration and production industry or the petrochemical industry; and
 - (iii) permitted by a resource consent.
- (3) For the avoidance of doubt, subclause (1) does not apply if a discharge from the burning of oil is directed to the open air by a stack, chimney, or exhaust pipe (for example, emissions from a motor vehicle).

11 Incinerators at schools and healthcare institutions

The operation of an incinerator at a school or a healthcare institution is prohibited unless a resource consent has been granted for the discharge produced.

12 High-temperature hazardous waste incinerators

- (1) The operation of a high-temperature hazardous waste incinerator is prohibited.
- (2) Subclause (1) does not apply if the incinerator:
 - (a) is a crematorium; or
 - (b) is operating at the following places:
 - (i) 89 Paritutu Road, New Plymouth;
 - (ii) 816 Wairakei Road, Christchurch;
 - (iii) Hape Drive (perimeter road), Auckland International Airport, Auckland.

Ambient air quality standards for contaminants

13 Ambient air quality standards

- (1) The ambient air quality standard for a contaminant listed in the first column of the table in Schedule 1 is that the concentration of the contaminant must not exceed its threshold concentration except to the extent and in the circumstances (if any) listed in the third column of that table.
- (2) For the purposes of these regulations, an ambient air quality standard is breached if the concentration of the contaminant concerned exceeds its threshold concentration otherwise than to the extent and in the circumstances (if any) listed in the third column of the table in Schedule 1.
- (3) For the purposes of this regulation and Schedule 1, threshold concentration means the concentration of the contaminant listed in the second column of the table in Schedule 1 calculated over the time interval specified in that column.

14 Application of standards

- (1) The ambient air quality standard for a contaminant applies at any place:
 - (a) that is in an airshed; and
 - (b) that is in the open air; and
 - (c) where people are likely to be exposed to the contaminant.
- (2) However, if the discharge of a contaminant is permitted by a resource consent, the ambient air quality standard for the contaminant does not apply to the area that the resource consent applies to.

15 Regional council must monitor air quality if standard breached

If it is likely that the ambient air quality standard for a contaminant will be breached in an airshed, the regional council must:

- (a) monitor the airshed in relation to that contaminant; and
- (b) conduct the monitoring:
 - (i) in that part of the airshed where:
 - (A) there are one or more people; and
 - (B) the standard is breached by the greatest margin or the standard is breached the most frequently, whichever is the most likely; and
 - (ii) in accordance with the relevant method listed in Schedule 2.

16 Regional council must give public notice if standard breached

- (1) A regional council must give public notice if the ambient air quality standard for a contaminant is breached in an airshed in its region.
- (2) The notice must:
 - (a) be given periodically, at least once a month, until the standard is no longer being breached; and
 - (b) be given in accordance with the Act; and
 - (c) include:
 - (i) the name of the contaminant to which the notice relates; and
 - (ii) the time and place at which the standard was breached; and
 - (iii) the extent to which the standard was breached.

Resource consents for discharges of PM₁₀

17 Application of regulations 17A to 17C

- (1) Regulations 17A to 17C apply to an application for a resource consent to discharge PM₁₀ into an airshed before 1 September 2013, if:
 - (a) the concentration of PM₁₀ in the airshed already breaches its ambient air quality standard; and
 - (b) the discharge to be permitted by the resource consent is likely to increase significantly the concentration of PM₁₀ in the airshed.
- (2) Regulation 17A applies to an application if:
 - (a) there is no regional plan that applies to the airshed; or
 - (b) there is a regional plan that applies to the airshed, but the plan does not comply with regulation 17B(2).
- (5) Regulation 17B applies to an application if there is a regional plan that applies to the airshed and the plan complies with regulation 17B(2).
- (6) Regulation 17C applies to an application if the application cannot be granted under regulation 17A or regulation 17B and either:
 - (a) the concentration of PM₁₀ in the airshed, at the time the application is decided, is on or below the straight line path or the curved line path; or
 - (b) the application has been made in circumstances to which section 124 applies and the concentration of PM₁₀ in the airshed, at the time the application is decided, is above the straight line path or the curved line path.
- (7) In this regulation and regulations 17A to 17C:

curved line path means a curved line that

 - (a) starts on the y axis of a graph at a point representing, as at 1 September 2005 or the date that the plan is publicly notified (whichever is the later), the concentration of PM₁₀ in the airshed; and
 - (b) ends on the x axis of the graph at a point representing as at 1 September 2013, the ambient air quality standard for PM₁₀ in the airshed

regional plan includes a proposed regional plan

relevant date means:

- (c) in the case of an airshed that is the region of a regional council, 1 September 2005;
- (d) in the case of an airshed that is part of the region of a regional council, the date of the notice in the Gazette that specifies the part to be a separate airshed;

straight line path means a straight line that:

- (c) starts on the y axis of a graph at a point representing, as at the relevant date, the extent to which the concentration of PM₁₀ in the airshed breaches its ambient air quality standard; and
- (d) ends on the x axis of the graph at a point representing, as at 1 September 2013, the ambient air quality standard for PM₁₀ in the airshed.

17A Application must be declined if discharges likely to cause concentration of PM₁₀ in airshed to be above straight line path

- (1) A consent authority must decline an application for a resource consent to which regulation 17(2) applies if the discharge to be permitted by the resource consent is likely to cause, at any time, the concentration of PM₁₀ in the airshed to be above the straight line path.
- (2) This regulation does not prevent an application declined under this regulation being decided under regulation 17C if that regulation applies to the application.

17B Application must be decided in accordance with regional plan if regional plan provides for curved line path

- (1) An application to which regulation 17(3) applies must be granted or declined in accordance with the regional plan applying to the airshed if the regional plan complies with subclause (2).
- (2) The regional plan must contain:
 - (a) a curved line path that shows how the ambient air quality standard for PM₁₀ will be achieved in the airshed on or before 1 September 2013; and
 - (b) rules that ensure that an application for a resource consent is declined if the grant of the resource consent is likely to cause, at any time, the concentration of PM₁₀ in the airshed to be above the curved line path.
- (3) This regulation does not prevent an application declined under this regulation being decided under regulation 17C if that regulation applies to the application.

17C Other applications must be declined unless discharges offset

- (1) The consent authority must decline an application for a resource consent to which regulation 17(4) applies unless the applicant reduces the amount of PM₁₀ discharged from another source into the same airshed.
- (2) If, at the time the application is decided, the concentration of PM₁₀ in the airshed:
 - (a) is on or below the straight line path or the curved line path, the reduction in discharges must be equal to or greater than the concentration of PM₁₀ in the airshed above the straight line path or curved line path caused by the discharge permitted by the resource consent;
 - (b) is above the straight line path or the curved line path, the reduction in discharges must be equal to or greater than the amount of the discharge permitted by the resource consent.

- (3) The reduction in discharges of PM₁₀ must:
 - (a) take effect within one year after the grant of the resource consent; and
 - (b) be effective for the duration of the resource consent.

18 Resource consents for PM₁₀ discharges before 1 September 2013 if concentration in airshed does not breach standard

- (1) This regulation applies to an application for a resource consent to discharge PM₁₀ into an airshed:
 - (a) where the concentration of PM₁₀ in the airshed does not breach its ambient air quality standard; and
 - (b) if the application is made before 1 September 2013.
- (2) A consent authority must decline an application for a resource consent to which subclause (1) applies if the discharge to be permitted by the resource consent is likely, at any time, to cause the airshed to exceed the ambient air quality standard for PM₁₀.

19 Resource consents for PM₁₀ discharges after 31 August 2013

After 31 August 2013, no resource consent to discharge PM₁₀ into an airshed may be granted if:

- (a) the concentration of PM₁₀ in the airshed breaches its ambient air quality standard; or
- (b) the granting of the resource consent is likely, at any time, to cause the concentration of PM₁₀ in the airshed to breach its ambient air quality standard.

Resource consents for discharges of other contaminants

20 Resource consents for discharge of carbon monoxide, oxides of nitrogen, and volatile organic compounds

- (1) A consent authority must decline an application for a resource consent to discharge carbon monoxide into air if the discharge to be permitted by the resource consent:
 - (a) is likely, at any time, to cause the concentration of that gas in the airshed to breach its ambient air quality standard; and
 - (b) is likely to be a principal source of that gas in the airshed.
- (2) A consent authority must decline an application for a resource consent to discharge oxides of nitrogen or volatile organic compounds into air if the discharge to be permitted by the resource consent:
 - (a) is likely, at any time, to cause the concentration of nitrogen dioxide or ozone in the airshed to breach its ambient air quality standard; and
 - (b) is likely to be a principal source of oxides of nitrogen or volatile organic compounds in the airshed.
- (3) In this regulation, volatile organic compound:
 - (a) means a hydrocarbon based compound with a vapour pressure greater than 2 millimetres of mercury (0.27 kilopascals) at a temperature of 25°C; but
 - (b) does not include methane.

21 Resource consents for discharge of sulphur dioxide

A consent authority must decline an application for a resource consent to discharge sulphur dioxide into air if the discharge to be permitted by the resource consent is likely, at any time, to cause the concentration of sulphur dioxide in the airshed to breach its ambient air quality standard.

Wood burners

22 Discharge from woodburners installed on certain properties after 1 September 2005 prohibited

- (1) The discharge of particles to air from a woodburner installed after 1 September 2005 in a building on a property with an allotment size of less than 2 hectares is prohibited.
- (2) Subclause (1) does not apply if the discharge from the woodburner complies with:
 - (a) the design standard in regulation 23; and
 - (b) the thermal efficiency standard in regulation 24.

23 Design standard

- (1) The design standard for a woodburner is a discharge of less than 1.5 gram of particles for each kilogram of dry wood burnt.
- (2) The discharge must be measured in accordance with the method specified in Australian/New Zealand Standard AS/NZS 4013:1999, Domestic solid fuel burning appliances – Method for determination of flue gas emissions.

24 Thermal efficiency standard

- (1) The thermal efficiency standard for a woodburner:
 - (a) is the ratio of useable heat energy output to energy input (thermal efficiency); and
 - (b) must be not less than 65%.
- (2) The thermal efficiency must be calculated in accordance with the method specified in Australian/New Zealand Standard AS/NZS 4012:1999, Domestic solid fuel burning appliances – Method for determination of power output and efficiency.

Control of greenhouse gas emissions at landfills

25 Application of regulations 26 and 27

- (1) Regulations 26 and 27 apply to a landfill if:
 - (a) the landfill:
 - (i) has a total capacity of not less than 1 million tonnes; and
 - (ii) contains not less than 200 000 tonnes of waste; and
 - (iii) is or is likely to be accepting waste; and
 - (b) the waste in or to be included in the landfill is likely to consist of 5% or more (by weight) of matter that is putrescible or biodegradable.

- (2) However, regulations 26 and 27 do not apply to a landfill until 8 October 2007 if the landfill:
 - (a) has a total capacity of not less than 1 million tonnes of waste; and
 - (b) on 8 October 2004:
 - (i) contains not less than 200 000 tonnes of waste; and
 - (ii) is accepting waste; and
 - (c) does not operate a gas collection system.
- (3) Regulations 26 and 27 do not apply to a cleanfill.

26 Control of gas

- (1) No person may allow the discharge of gas to air from a landfill.
- (2) Subclause (1) does not apply if the landfill has a system for the collection of gas from the landfill:
 - (a) that is designed and operated to ensure that any discharge of gas from the surface of the landfill does not exceed 5 000 parts of methane per million parts of air; and
 - (b) in which the gas is:
 - (i) flared in accordance with regulation 27; or
 - (ii) used as a fuel or for generating electricity.

27 Flaring of gas

- (1) If gas collected at a landfill is destroyed by flaring:
 - (a) the system for the principal flare or flares must:
 - (i) comply with the requirements in subclause (2); or
 - (ii) achieve at least the same effect as the system in subclause (2); and
 - (b) the system for the backup flare must:
 - (i) comply with the requirements in subclause (3); or
 - (ii) achieve at least the same effect as the system in subclause (3).
- (2) The system for a principal flare must:
 - (a) have a flame arrestor; and
 - (b) have an automatic backflow prevention device, or an equivalent device, between the principal flare and the landfill; and
 - (c) have an automatic isolation system that ensures that, if the flame is lost, no significant discharge of unburnt gas from the flare occurs; and
 - (d) have a continuous automatic ignition system; and
 - (e) have a design that achieves a minimum flue gas retention time of 0.5 seconds; and
 - (f) be designed and operated so that gas is burned at a temperature of at least 750°C; and
 - (g) have a permanent temperature indicator; and
 - (h) have adequate sampling ports to enable emission testing to be undertaken; and
 - (i) provide for safe access to sampling ports while any emission tests are being undertaken.
- (3) The system for a backup flare must have:
 - (a) a flame arrestor; and
 - (b) an automatic backflow prevention device, or an equivalent device, between the backup flare and the landfill; and

- (c) an automatic isolation system that ensures that, if the flame is lost, no significant discharge of unburnt gas from the flare occurs; and
 - (d) a continuous automatic ignition system.
- (4) A principal flare must be operated at all times unless it has malfunctioned or is shut down for maintenance.
- (5) A backup flare must be operated if, and only if, a principal flare is not operating.

Schedule 1: Ambient air quality standards for contaminants

In the following table:

1-hour mean:

- (a) means a mean calculated every hour on the hour for the preceding hour; and
- (b) in relation to a contaminant at a particular location for a particular hour, means the mean of not more than 10-minute means, collected not less than once every 10 seconds, for the contaminant at that location during that hour;

24-hour mean:

- (a) means a mean calculated every 24 hours at midnight for the preceding 24 hours; and
- (b) in relation to a contaminant at a particular location for a particular 24-hour period, means:
 - (i) the mean level at which the contaminant is recorded in the air, by continuous sampling of the air at that location, throughout that 24-hour period; or
 - (ii) the mean of the 1-hour means for that contaminant at that location for the preceding 24 hours;

running 8-hour mean:

- (a) means a mean calculated every hour on the hour for that hour and the preceding 7 hours to give 1 running 8-hour mean per hour; and
- (b) in relation to a contaminant at a particular location for a particular hour, means the mean of the 1-hour means for that contaminant at that location for that hour and the preceding 7 hours.

Contaminant	Threshold concentration	Permissible excess
Carbon monoxide	10 milligrams per cubic metre expressed as a running 8-hour mean	One 8-hour period in a 12-month period
Nitrogen dioxide	200 micrograms per cubic metre expressed as a 1-hour mean	9 hours in a 12-month period
Ozone	150 micrograms per cubic metre expressed as a 1-hour mean	Not to be exceeded at any time
PM ₁₀	50 micrograms per cubic metre expressed as a 24-hour mean	One 24-hour period in a 12-month period
Sulphur dioxide	350 micrograms per cubic metre expressed as a 1-hour mean	9 hours in a 12-month period
	570 micrograms per cubic metre expressed as a 1-hour mean	Not to be exceeded at any time

Schedule 2: Monitoring methods for ambient air quality standards

Contaminant	Monitoring method
Carbon monoxide	Australian Standard AS 3580.7.1:1992, Methods for sampling and analysis of ambient air – Determination of carbon monoxide – Direct-reading instrumental method
Nitrogen dioxide	Australian Standard AS 3580.5.1:1993, Methods for sampling and analysis of ambient air – Determination of oxides of nitrogen – Chemiluminescence method
Ozone	Australian Standard AS 3580.6.1:1990, Methods for sampling and analysis of ambient air – Determination of ozone – Direct-reading instrumental method
PM ₁₀	United States Code of Federal Regulations, Title 40 – Protection of Environment, Volume 2, Part 50, Appendix J – Reference method for the determination of particulate matter as PM ₁₀ in the atmosphere; or Australian/New Zealand Standard AS/NZS 3580.9.6:2003, Methods for sampling and analysis of ambient air – Determination of suspended particulate matter – PM ₁₀ high volume sampler with size-selective inlet – Gravimetric method
Sulphur dioxide	Australian Standard AS 3580.4.1:1990, Methods for sampling and analysis of ambient air – Determination of sulphur dioxide – Direct-reading instrumental method

Martin Bell
Acting for Clerk of the Executive Council.

SR 2004/309

Explanatory Note [NB: These explanatory notes should be read in conjunction with explanatory notes (detailed below) for subsequent amendments.]

This note is not part of the regulations, but is intended to indicate their general effect.

These regulations are the Resource Management (National Environmental Standards Relating to Certain Air Pollutants, Dioxins, and Other Toxics) Regulations 2004. The purpose of the regulations is to provide a guaranteed level of protection to people in New Zealand from certain contaminants in the air. The regulations prescribe:

- standards and prohibitions for various activities that discharge dioxins and other toxics into the air; and
- standards for air quality in relation to certain contaminants; and
- standards and controls on emissions from domestic woodburners (including a minimum thermal efficiency requirement); and
- controls on greenhouse gas emissions from landfills.

Regulation 11, which relates to the use of incinerators at schools and healthcare institutions, comes into force on 1 October 2006. Regulations 13 to 24, which relate to the contaminants listed in the first column of the table in Schedule 1, and emissions from woodburners, come into force on 1 September 2005.

The rest of the regulations come into force on 8 October 2004.

Regulation 4 prohibits a discharge to air from any activity specified in regulations 6 to 12 except to the extent that the regulation provides otherwise. Regulation 5 prohibits the granting of a resource consent for a discharge of a contaminant to air from any activity specified in regulations 6 to 12, except to the extent that the regulation provides otherwise. Under regulation 5(2), if a resource consent is granted for an activity, the activity is a discretionary activity for the purposes of the Resource Management Act 1991.

Regulations 13 to 21 deal with ambient air quality standards for carbon monoxide, nitrogen dioxide, ozone, particulate matter that is less than 10 microns in aerodynamic diameter (PM₁₀), and sulphur dioxide. The air quality standards are prescribed in regulation 13(1) by reference to the permissible concentrations of the contaminants in the second column of the table in Schedule 1, calculated over the time interval specified in that column, and the permissible excesses of the contaminants in the third column of that table. The standards apply in any airshed, being a place:

- that is in a region or part of a region specified by the Minister by notice in the Gazette; and
- that is in the open air; and
- where people are likely to be exposed to the contaminant.

If the standard for a contaminant is likely to be breached in an airshed, the regional council must:

- monitor the airshed in relation to the contaminant; and
- give public notice of the breach.

Regulations 17 to 19 relate to discharges of PM₁₀. The regulations provide for a staged implementation until 1 September 2013.

Regulations 22 to 24 relate to the discharge of particles to air from woodburners. After 1 September 2005, for woodburners installed in buildings on properties with an allotment size of less than 2 hectares, such discharges are prohibited unless certain design and thermal efficiency standards are met.

Regulations 25 to 27 relate to the control of greenhouse gas emissions at landfills, including the use of flaring systems to destroy the emissions.

Date of notification in Gazette: 9 September 2004.

These regulations are administered in the Ministry for the Environment.

SR 2004/433

This note is not part of the regulations, but is intended to indicate their general effect.

These regulations, which come into force on the 28th day after the date of their notification in the Gazette, make 2 technical amendments to the Resource Management (National Environmental Standards Relating to Certain Air Pollutants, Dioxins, and Other Toxics) Regulations 2004 (“the principal regulations”).

Regulation 3 clarifies that the definition of oil in the principal regulations does not include gas.

Regulation 4 – amended by SR 2005/214.

Date of notification in Gazette: 16 December 2004.

These regulations are administered in the Ministry for the Environment.

SR 2005/214

This note is not part of the regulations, but is intended to indicate their general effect.

These regulations, which come into force on the 28th day after the date of their notification in the Gazette, amend the Resource Management (National Environmental Standards Relating to Certain Air Pollutants, Dioxins, and Other Toxics) Regulations 2004 (“the principal regulations”).

Regulation 3 amends regulation 3(1) of the principal regulations by substituting new definitions of airshed and hazardous waste. The new definition of airshed clarifies that an airshed is the region of a regional council, and that where a Gazette notice specifies a part of a region as a separate airshed the remainder of the region is still an airshed. The new definition of hazardous waste is a technical amendment that aligns the definition with the definition of that term in the Basel Convention.

Regulation 4 amends regulation 10(2) of the principal regulations which prohibits the burning of oil in the open air subject to certain exceptions. The amendments omit a redundant exception, and provide a new exception for oil burnt by means of a flare if done for certain purposes and permitted by a resource consent.

Regulation 5 amends regulation 14 of the principal regulations, which specifies the circumstances in which the ambient air quality standard for a contaminant applies. The amendment provides an exception. If the discharge is permitted by a resource consent, the standard does not apply to the area that the resource consent applies to.

Regulation 6 revokes regulation 17 of the principal regulations, which requires a consent authority to decline in certain circumstances an application for a resource consent to discharge PM₁₀ before 1 September 2013, and substitutes new regulations 17 to 17C.

New regulation 17 specifies the circumstances in which new regulations 17A to 17C apply. The new regulations apply to applications for resource consents to discharge PM₁₀ into an airshed before 1 September 2013 if the concentration in the airshed already breaches its ambient air quality standard and the discharges to be permitted by the resource consents are likely to increase significantly the concentration of PM₁₀ in the airshed.

New regulation 17A applies if there is no regional plan or proposed regional plan that applies to the airshed or there is a regional plan or proposed regional plan that applies to the airshed but the plan does not comply with new regulation 17B(2). An application to which new regulation 17A applies must be declined if the discharge to be permitted by the resource consent is likely to cause, at any time, the concentration of PM₁₀ in the airshed to be above the straight line path (as defined).

New regulation 17B applies if there is a regional plan or proposed regional plan that applies to the airshed and the plan provides for a curved line path (as defined). A consent authority may grant or decline the application in accordance with the plan or proposed plan.

New regulation 17C applies if the application cannot be granted under new regulation 17A or new regulation 17B, and either the concentration of PM₁₀ in the airshed is on or below the straight line path or the curved line path, or the application is made in circumstances to which section 124 of the Act applies and the concentration of PM₁₀ is above the straight line path or the curved line path.

New regulation 17C requires a consent authority to decline the application unless the applicant reduces the amount of PM₁₀ discharged from another source into the same airshed. The reduction must be equal to or greater than the increase in the concentration of PM₁₀ above the straight line path or curved line path (if the concentration of PM₁₀ is on or below the straight line path or curved line path) or equal to or greater than the amount permitted by the resource consent (if the concentration of PM₁₀ is above the straight line path or curved line path). The reduction must take effect within 1 year after the grant of the resource consent and be effective for the duration of the consent.

Regulation 7 amends regulation 20 of the principal regulations, which requires a consent authority to decline an application for a resource consent to discharge carbon monoxide, nitrogen dioxide, or ozone if the discharge is likely to breach the ambient air quality standard and is likely to be the principal source of the gas in the airshed. The amendments:

- (a) omit references to nitrogen dioxide and ozone on the basis that nitrogen dioxide and ozone are formed in the atmosphere from other compounds; and
- (b) add a new subclause (2) requiring a consent authority to decline an application for a resource consent to discharge oxides of nitrogen or volatile organic compounds if the discharge is likely to cause the concentration of nitrogen dioxide or ozone in the airshed to breach its ambient air quality standard, and is likely to be a principal source of oxides of nitrogen and volatile organic compounds in the airshed.

Date of notification in Gazette: 28 July 2005.

These regulations are administered in the Ministry for the Environment.

Appendix E: Population in airsheds breaching the standards

Table A1: Airsheds unlikely to comply by 2013

Airshed	Population
Rotorua	44,613
Christchurch	330,424
Kaiapoi	7,970
Timaru	25,007
Hastings	26,497
Otago 2	49,795
Auckland	1,156,104
Taupo	18,727
Tokoroa	12,928
Reefton	939
Total	1,673,004

Table A2: Airsheds that will possibly not comply by 2013

Airshed	Population
Ashburton	13,113
ORC 1	13,203
Napier	32,817
Invercargill	41,618
Te Kuiti	4,412
Total	105,163

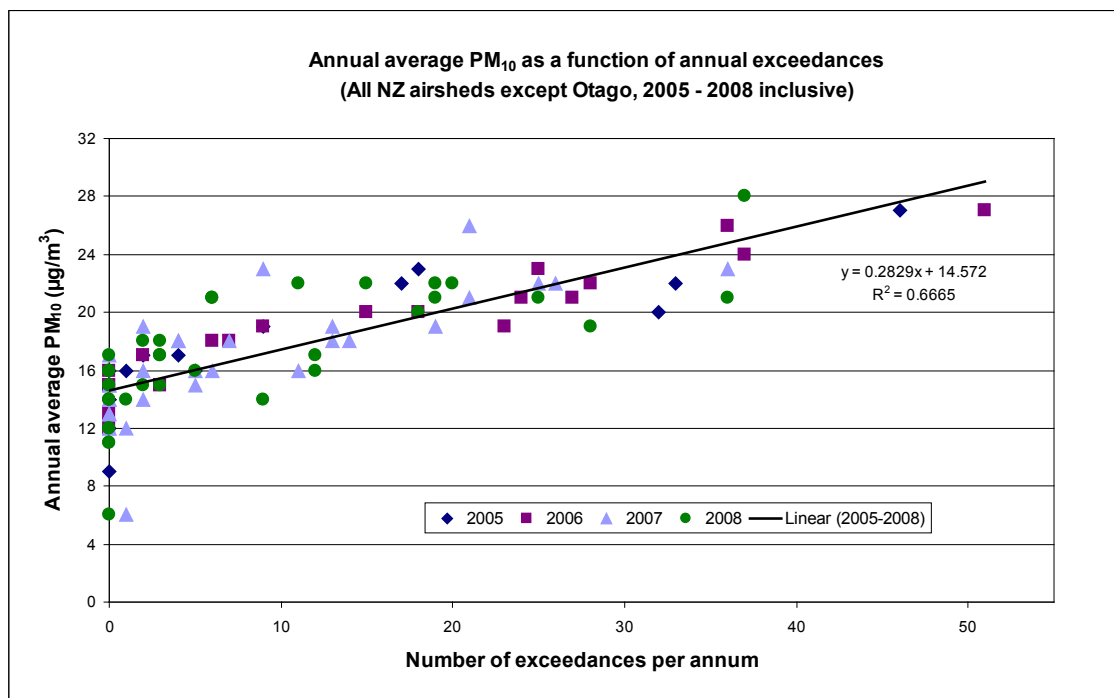
Table A3: Percentage of New Zealand's population living in airsheds

Population	Number	Percentage of total NZ population
Total NZ population (2006)	4,027,947	
Total population living in airsheds	2,653,566	66%
Population living in airsheds unlikely to comply	1,673,004	42%
Population living in airsheds with the possibility not to comply	105,163	3%

Appendix F: Estimation of additional premature deaths if permitted exceedances are increased from one to three

The figure below shows how the annual average PM₁₀ concentration varies with the number of exceedances. This is based on monitoring data for all New Zealand airsheds from 2005 to 2008 (except Otago whose data are excluded because their airsheds include towns that are separated by considerable distance).

Figure A1: Annual average PM₁₀ as a function of annual exceedances, all New Zealand airsheds except Otago, 2005–2008 inclusive



Applying linear regression, the results yield the following relationship:

$$\begin{aligned} \text{Annual average PM}_{10} \text{ concentration (in } \mu\text{g/m}^3\text{)} \\ = 0.2829 \times \text{number of PM}_{10} \text{ exceedances} + 14.572 \end{aligned}$$

Using this formula:

- one exceedance results in an annual average PM₁₀ concentration of 14.85 µg/m³
- three exceedances result in an annual average PM₁₀ concentration of 15.42 µg/m³.

Therefore, going from one to three exceedances increases annual PM₁₀ concentrations by 3.8 per cent.¹⁷

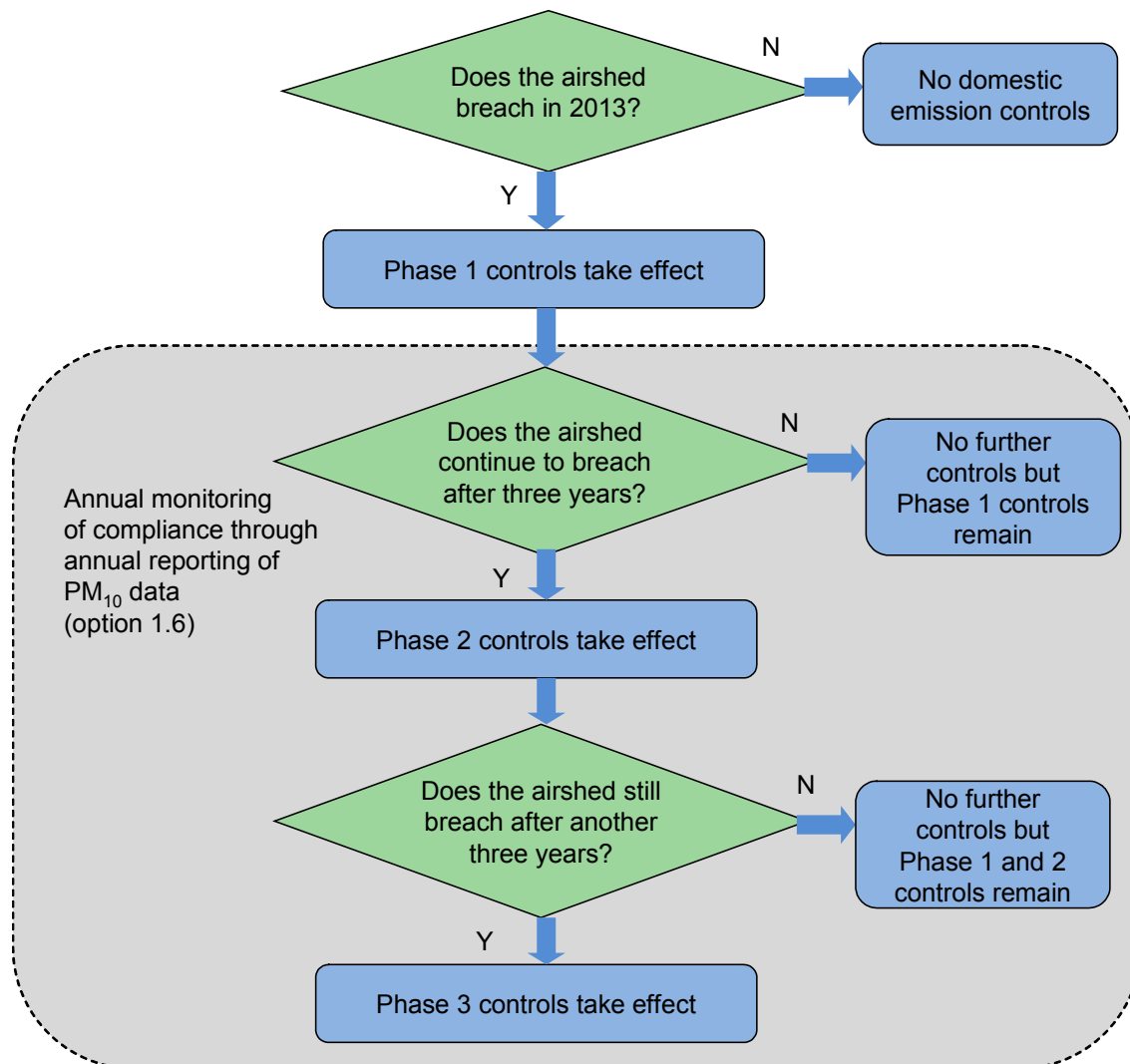
As the equations used to calculate the health effects are proportional to annual PM₁₀ concentrations the resultant health effects will also increase by 3.8 per cent.

The following assumptions have been used:

- discount rate: **8%**
- increase in annual PM₁₀ with exceedances increasing from 1 to 3: **3.8%**
- social cost per injury:
 - premature deaths: \$3.35 million/case
 - hospitalisations: **\$8,404/case**
 - restricted activity days: **\$46.50/day**.

¹⁷ Equals $(15.42-14.85)/14.85$.

Appendix G: Implementation process for domestic emission controls



Examples of controls

Phase 1

- No new domestic solid-fuel open fires.
- No new domestic solid-fuel burners (ie, cap airshed allocation).
- All new coal and multi-fuel domestic solid-fuel burners must be clean and efficient.
- Use of existing domestic solid-fuel open fires will be prohibited when the house is sold.
- Use of existing domestic coal, multi-fuel and wood burners >15 years old will be prohibited when the house is sold.

Phase 2

- Use of existing domestic solid-fuel open fires is prohibited.
- Use of existing domestic coal, multi-fuel and wood burners >15 years old is prohibited unless they are clean and efficient.
- Use of existing domestic coal, multi-fuel and wood burners is prohibited when the house is sold unless they are clean and efficient.

Phase 3

- Use of existing domestic coal, multi-fuel and wood burners is prohibited unless they are clean and efficient.

Appendix H: Existing resource consents with offset provisions

An example of a consent holder voluntarily offsetting their emissions is provided by NZ Dairies Ltd. This plant has a coal-fired boiler consent to discharge 7.4 kg/hr of total suspended particulates (70 per cent of which is PM₁₀). NZ Dairies voluntarily funded the replacement of 36 open fires and older wood burners with either pellet burners or heat pumps in the neighbouring Waimate airshed. Over 80 per cent of these were conversions to heat pumps. This resulted in a total offset cost of \$115,520. This includes purchase and installation costs (average of \$3,210/conversion).

All consents were issued by Environment Canterbury.

Table A4: List of existing resource consents with offset provisions

Consent holder	Offset condition
<p>Solid Energy New Zealand Ltd Various locations in the Canterbury region Consent number: CRC093443 Validity: September 2009 to August 2044 (35 years)</p>	<p>At least once every 12 months, from the commencement of this consent, the consent holder shall provide a report to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, containing the following information:</p> <ul style="list-style-type: none"> (a) The number of houses in the Clean Air Zones, and the location of each of these houses, in which a pellet boiler has been installed under this consent; (b) The number of houses in the Clean Air Zones, and the location of each of these houses, in which a pellet burner has been installed by the consent holder as a replacement for an existing solid fuel burner other than a pellet burner, and which does not appear on the list produced in accordance with conditions of consent CRC083611; and (c) For each Clean Air Zone, if the number of houses listed under condition (9)(b) is less than three times the number of houses listed under condition (9)(a), the consent holder shall report on the steps to be undertaken to increase that ratio to three to one.
<p>Spark Energy Limited Throughout Christchurch Consent number: CRC101973 Validity: March 2010 to March 2045 (35 years)</p>	<p>At least once every 12 months, from the commencement of this consent, the consent holder shall provide a report to the Canterbury Regional Council (Attention: Manager Compliance and Enforcement) containing the following information:</p> <ul style="list-style-type: none"> (a) The number of houses and the location of each of these houses, in which a pellet boiler has been installed under this consent in Clean Air Zone 1; (b) The number of houses in Clean Air Zone 1 and the location of each of these houses in which a pellet burner or a heat pump has been installed by the consent holder as a replacement for an existing solid fuel burner other than a pellet burner, and which does not appear on the list produced in accordance with conditions of consent CRC083611.1 or CRC093443; and (c) If the number of houses in which a pellet boiler has been installed is more than the sum of number of pellet burners installed under condition 9(b) divided by three plus the number of heat pumps installed under condition 9(b), then the consent holder shall report on the steps taken to rectify the deficit.
<p>Meridian Energy 122 Meadows Road, Washdyke Consent number: CRC101564 Validity: March 2010 to March 2045 (35 years)</p>	<ul style="list-style-type: none"> (a) Discharges under this consent shall be from the operation of boilers with a maximum total net output capacity of not more than 20 megawatts. (b) After a period of 12 months from the date on which this consent is first exercised, the discharges shall be from boilers running at a maximum total net output capacity of not more than: <ul style="list-style-type: none"> (i) 16.5 megawatts, at any time when consent CRC930053 is being exercised; or (ii) 17.8 megawatts when the activities described in conditions (2) to (10) inclusive, of consent CRC951898 are occurring; or (iii) 14.3 megawatts when consent CRC930053 is being exercised and when discharges described in conditions (2) to (10) inclusive, of consent CRC951898 are occurring. (c) The consent holder shall inform the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, of the date on which this consent is first exercised.