Submission on the Proposed Canterbury Air Regional Plan

Form 5: Submissions on a Publicly Notified Proposed Policy Statement or Regional Plan under Clause 6 of Schedule 1 of the Resource Management Act 1991

Return your signed submission by 5.00pm, Friday 1 May 2015 to:
Freepost 1201
Proposed Canterbury Air Regional Plan.
Environment Canterbury
P O Box 345
Christchurch 8140

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**A**

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**Trade Competition**

Pursuant to Schedule 1 of the Resource Management Act 1991, a person who could gain an advantage in trade competition through the submission may make a submission only if directly affected by an effect of the proposed policy statement or plan that:

- adversely affects the environment; and
- does not relate to trade competition or the effects of trade competition.

Please tick the sentence that applies to you:

- [x] I could not gain an advantage in trade competition through this submission; or
- [ ] I could gain an advantage in trade competition through this submission. **If you have ticked this box please select one of the following:**
  - [ ] I am directly affected by an effect of the subject matter of the submission
  - [ ] I am not directly affected by an effect of the subject matter of the submission

Signature:  
Date: 23/4/15

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**B**

- [ ] I do not wish to be heard in support of my submission; or
- [ ] I do wish to be heard in support of my submission; and if so,
  - [x] I would be prepared to consider presenting your submission in a joint case with others making a similar submission at any hearing

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*Please note:
(1) All information contained in a submission under the Resource Management Act 1991, including names and addresses for service, becomes public information.*
(1) The specific provisions of the proposal that my submission relates to are: (Specify page number and subsection numbering for each separate provision).

<table>
<thead>
<tr>
<th>RULE 7.4</th>
<th>p 7-1</th>
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(2) My submission is that: (State concisely whether you support or oppose each separate provision being submitted on, or wish to have amendments made and the reasons for your views.)

- My submission seeks a provision for outdoor burning of some domestic waste, where the adverse effects are clearly minimal, and burning is the best practicable option.

- I request that an exempting provision for minimal effects be added to Rule 7.4 for the burning of treated stained or painted wood and plastics in rural areas, with the following conditions - as attached.

- Please read the attached explanation and relevant references to Objectives 5A and Policies 6.10 and 6.16 of the Plan, which provide for my proposal.

- Note the highly relevant references to the N.E.S.A.O. which govern this Plan, and the W.H.O. comments on dioxins, I have suggested in my proposed Conditions.

(3) I seek the following decisions from Environment Canterbury: (Please give precise details for each provision. The more specific you can be the easier it will be for the Council to understand your concerns.)

Add further pages as required.

Thank You,

[Signature]

Ma J.A. Kett
I am concerned about Rule 7.4 in the Proposed Canterbury Region Air Quality Plan.

This prohibits the burning of certain contaminants with no provision for minimal effects on the environment in spacious rural places distant from any risk to human health. This places an unjustified and unreasonable imposition on those disposing of small amounts of waste on infrequent occasions. It also necessitates the discharge of more contaminants through vehicle discharges in transporting such waste to an approved facility.

Upon checking the National Environmental Standards for Air Quality for provision for minimal effects or similar, I found guidance on how to apply the standards and I quote from S.14,:

“(1) The ambient air quality standards 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.” (my bolding).

This seems sensible, and is recognised in your Objective 5.8:

“It is recognised that air quality expectations throughout the region differ depending on location and the characteristics of the receiving environment.”

And Objective 5.9:

“Activities are spatially located so that they result in appropriate air quality outcomes being achieved both at present and in the future.”

Policy 6.10:

“All activities that discharge into air apply, at least, the best practicable option so that cumulative effects are minimised”. I believe that the burning of small amounts of domestic waste in rural areas with carefully restricted conditions controlling setback distances, contents, frequency, and quantity, will discharge fewer contaminants to air than the alternative of having to transport such material to a an approved site.

Policy 6.16 states:

“Avoid the outdoor burning of non-organic material in rural areas.” I submit the addition of the words quoted above from N.E.S.A.Q. ...”where people are likely to be exposed to the contaminant”.

Dioxins:

I assume dioxins are the contaminant of concern in burning plastics. I wondered how significant the burning of small amounts of plastics in remote areas would be, so I checked the W.H.O. media centre. Whilst not wanting to diminish the potential seriousness of the toxicity of dioxins, I have some quotes which bring some balance to this issue:

“Dioxins are found throughout the world in the environment”
"More than 90% of human exposure is through food"

"The highest levels of these compounds are found in some soils, sediments, and food. Very low levels are found in plants, water, and air."

**Request:**

I request that an exempting provision for minimal effects be added to Rule 7.4 for the burning of treated, stained, or painted wood and plastics in rural areas, with the following Conditions:

(a) where the site is four km or more from an urban area, or a sensitive site, and does not have adverse effects on any neighbouring properties.

(b) where such burning takes place on the property no more than once a month.

(c) where the distance to the nearest approved waste transfer facility is more than ten km.

(d) where the quantity to be burnt does not exceed 3 cubic metres in volume.

I recognise that my proposed measurements will need some consideration by professionally qualified staff, and I acknowledge that my proposals may only provide a starting point for such refinement. Differentiation between the contaminants included may also be appropriate.

I also note that Rule 7.10 provides a set of restrictions on rural outdoor burning which would provide controls over the above request if accepted.
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 expressly allowed by a resource consent, the ambient air quality standard for the contaminant does not apply to the site on which the resource consent is exercised.


Media centre

Dioxins and their effects on human health

Fact sheet No. 225
Updated June 2014

Key Facts

- Dioxins are a group of chemically-related compounds that are persistent environmental pollutants (POPs).
- Dioxins are found throughout the world in the environment and they accumulate in the food chain, mainly in the fatty tissue of animals.
- More than 90% of human exposure is through food, mainly meat and dairy products, fish and shellfish. Many national authorities have programmes in place to monitor the food supply.
- Dioxins are highly toxic and can cause reproductive and developmental problems, damage the immune system, interfere with hormones and also cause cancer.
- Due to the omnipresence of dioxins, all people have background exposure, which is not expected to affect human health. However, due to the highly toxic potential, efforts need to be undertaken to reduce current background exposure.
- Prevention or reduction of human exposure is best done via source-directed measures, i.e. strict control of industrial processes to reduce formation of dioxins.

Background

Dioxins are environmental pollutants. They belong to the so-called “dirty dozen” - a group of dangerous chemicals known as persistent organic pollutants (POPs). Dioxins are of concern because of their highly toxic potential. Experiments have shown they affect a number of organs and systems.

Once dioxins enter the body, they last a long time because of their chemical stability and their ability to be absorbed by fat tissue, where they are then stored in the body. Their half-life in the body is estimated to be 7 to 11 years. In the environment, dioxins tend to accumulate in the food chain. The higher an animal is in the food chain, the higher the concentration of dioxins.

The chemical name for dioxin is: 2,3,7,8- tetrachlorodibenzo para dioxin (TCDD). The name “dioxins” is often used for the family of structurally and chemically related polychlorinated dibenzo para dioxins (PCDDs) and polychlorinated dibenzofurans (PCDFs). Certain dioxin-like polychlorinated biphenyls (PCBs) with similar toxic properties are also included under the term “dioxins”. Some 419 types of dioxin-related compounds have been identified but only about 30 of these are considered to have significant toxicity, with TCDD being the most toxic.
Sources of dioxin contamination

Dioxins are mainly by-products of industrial processes but can also result from natural processes, such as volcanic eruptions and forest fires. Dioxins are unwanted by-products of a wide range of manufacturing processes including smelting, chlorine bleaching of paper pulp and the manufacturing of some herbicides and pesticides. In terms of dioxin release into the environment, uncontrolled waste incinerators (solid waste and hospital waste) are often the worst culprits, due to incomplete burning. Technology is available that allows for controlled waste incineration with low dioxin emissions.

Although formation of dioxins is local, environmental distribution is global. Dioxins are found throughout the world in the environment. The highest levels of these compounds are found in some soils, sediments and food, especially dairy products, meat, fish and shellfish. Very low levels are found in plants, water and air.

Extensive stores of PCB-based waste industrial oils, many with high levels of PCDFs, exist throughout the world. Long-term storage and improper disposal of this material may result in dioxin release into the environment and the contamination of human and animal food supplies. PCB-based waste is not easily disposed of without contamination of the environment and human populations. Such material needs to be treated as hazardous waste and is best destroyed by high temperature incineration in specialised facilities.

Dioxin contamination incidents

Many countries monitor their food supply for dioxins. This has led to early detection of contamination and has often prevented impact on a larger scale. In many instances dioxin contamination is introduced via contaminated animal feed, e.g. incidences of increased dioxin levels in milk or animal feed were traced back to clay, fat or citrus pulp pellets used in the production of the animal feed.

Some dioxin contamination events have been more significant, with broader implications in many countries.

In late 2008, Ireland recalled many tons of pork meat and pork products when up to 200 times the safe limit of dioxins were detected in samples of pork. This led to one of the largest food recalls related to a chemical contamination. Risk assessments performed by Ireland indicated no public health concern. The contamination was also traced back to contaminated feed.

In 1999, high levels of dioxins were found in poultry and eggs from Belgium. Subsequently, dioxin-contaminated animal-based food (poultry, eggs, pork), were detected in several other countries. The cause was traced to animal feed contaminated with illegally disposed PCB-based waste industrial oil.

Large amounts of dioxins were released in a serious accident at a chemical factory in Seveso, Italy, in 1976. A cloud of toxic chemicals, including 2,3,7,8-Tetrachlorodibenzo-p-dioxin, or TCDD, was released.
into the air and eventually contaminated an area of 15 square kilometres where 37,000 people lived.

Extensive studies in the affected population are continuing to determine the long-term human health effects from this incident.

TCDD has also been extensively studied for health effects linked to its presence as a contaminant in some batches of the herbicide Agent Orange, which was used as a defoliant during the Vietnam War. A link to certain types of cancers and also to diabetes is still being investigated.

Although all countries can be affected, most contamination cases have been reported in industrialized countries where adequate food contamination monitoring, greater awareness of the hazard and better regulatory controls are available for the detection of dioxin problems.

A few cases of intentional human poisoning have also been reported. The most notable incident is the 2004 case of Viktor Yushchenko, President of the Ukraine, whose face was disfigured by chloracne.

Effects of dioxins on human health

Short-term exposure of humans to high levels of dioxins may result in skin lesions, such as chloracne and patchy darkening of the skin, and altered liver function. Long-term exposure is linked to impairment of the immune system, the developing nervous system, the endocrine system and reproductive functions.

Chronic exposure of animals to dioxins has resulted in several types of cancer. TCDD was evaluated by the WHO's International Agency for Research on Cancer (IARC) in 1997 and 2012. Based on animal data and on human epidemiology data, TCDD was classified by IARC as a "known human carcinogen". However, TCDD does not affect genetic material and there is a level of exposure below which cancer risk would be negligible.

Due to the omnipresence of dioxins, all people have background exposure and a certain level of dioxins in the body, leading to the so-called body burden. Current normal background exposure is not expected to affect human health on average. However, due to the high toxic potential of this class of compounds, efforts need to be undertaken to reduce current background exposure.

Sensitive groups

The developing fetus is most sensitive to dioxin exposure. Newborn, with rapidly developing organ systems, may also be more vulnerable to certain effects. Some people or groups of people may be exposed to higher levels of dioxins because of their diet (e.g., high consumers of fish in certain parts of the world) or their occupation (e.g., workers in the pulp and paper industry, in incineration plants and at hazardous waste sites).

Prevention and control of dioxin exposure

Proper incineration of contaminated material is the best available method of preventing and controlling exposure to dioxins. It can also destroy PCB-based waste oils. The incineration process requires high
temperatures, over 850°C. For the destruction of large amounts of contaminated material, even higher temperatures - 1000°C or more - are required.

Prevention or reduction of human exposure is best done via source-directed measures, i.e. strict control of industrial processes to reduce formation of dioxins as much as possible. This is the responsibility of national governments. The Codex Alimentarius Commission adopted a Code of Practice for Source Directed Measures to Reduce Contamination of Foods with Chemicals (CAC/RCP 49-2001) in 2001. Later in 2006 a Code of Practice for the Prevention and Reduction of Dioxin and Dioxin-like PCB Contamination in Food and Feeds (CAC/RCP 62-2006) was adopted.

More than 90% of human exposure to dioxins is through the food supply, mainly meat and dairy products, fish and shellfish. Therefore, protecting the food supply is critical. One approach includes source-directed measures to reduce dioxin emissions. Secondary contamination of the food supply needs to be avoided throughout the food-chain. Good controls and practices during primary production, processing, distribution and sale are all essential in the production of safe food.

As indicated through the examples listed above, contaminated animal feed is often the root-cause of food contamination.

Food and feed contamination monitoring systems must be in place to ensure that tolerance levels are not exceeded. It is the role of national governments to monitor the safety of food supply and to take action to protect public health. When contamination is suspected, countries should have contingency plans to identify, detain and dispose of contaminated feed and food. The affected population should be examined in terms of exposure (e.g. measuring the contaminants in blood or human milk) and effects (e.g. clinical surveillance to detect signs of ill health).

What should consumers do to reduce their risk of exposure?

Trimming fat from meat and consuming low fat dairy products may decrease the exposure to dioxin compounds. Also, a balanced diet (including adequate amounts of fruits, vegetables and cereals) will help to avoid excessive exposure from a single source. This is a long-term strategy to reduce body burdens and is probably most relevant for girls and young women to reduce exposure of the developing fetus and when breastfeeding infants later on in life. However, the possibility for consumers to reduce their own exposure is somewhat limited.

What does it take to identify and measure dioxins in the environment and food?

The quantitative chemical analysis of dioxins requires sophisticated methods that are available only in a limited number of laboratories around the world. The analysis costs are very high and vary according to the type of sample, but range from over US$ 1000 for the analysis of a single biological sample to several thousand US dollars for the comprehensive assessment of release from a waste incinerator.
Increasingly, biological (cell- or antibody) -based screening methods are being developed, and the use of such methods for food and feed samples is increasingly being validated. Such screening methods allow more analyses at a lower cost, and in case of a positive screening test, confirmation of results must be carried out by more complex chemical analysis.

**WHO activities related to dioxins**

Reducing dioxin exposure is an important public health goal for disease reduction. To provide guidance on acceptable levels of exposure, WHO has held a series of expert meetings to determine a tolerable intake of dioxins.

In the latest expert meetings held in 2001, the Joint FAO/WHO Expert Committee on Food Additives (JECFA) performed an updated comprehensive risk assessment of PCDDs, PCDFs, and “dioxin-like” PCBs.

In order to assess long- or short-term risks to health due to these substances, total or average intake should be assessed over months, and the tolerable intake should be assessed over a period of at least 1 month. The experts established a provisional tolerable monthly intake (PTMI) of 70 picogram/kg per month. This level is the amount of dioxins that can be ingested over lifetime without detectable health effects.

WHO, in collaboration with the Food and Agriculture Organization (FAO), through the Codex Alimentarius Commission, has established a ‘Code of Practice for the Prevention and Reduction of Dioxin and Dioxin-like PCB Contamination in Foods and Feed’. This document gives guidance to national and regional authorities on preventive measures.

WHO is also responsible for the Global Environment Monitoring System’s Food Contamination Monitoring and Assessment Programme. Commonly known as GEMS/Food, the programme provides information on levels and trends of contaminants in food through its network of participating laboratories in over 50 countries around the world. Dioxins are included in this monitoring programme.

WHO also conducted periodic studies on levels of dioxins in human milk. These studies provide an assessment of human exposure to dioxins from all sources. Recent exposure data indicate that measures introduced to control dioxin release in a number of developed countries have resulted in a substantial reduction in exposure over the past two decades.

WHO is continuing these studies now in collaboration with the United Nations Environmental Programme (UNEP), in the context of the ‘Stockholm Convention’, an international agreement to reduce emissions of certain persistent organic pollutants (POPs), including dioxins. A number of actions are being considered to reduce the production of dioxins during incineration and manufacturing processes. WHO and UNEP are undertaking now global breast milk surveys, including in many developing countries, to monitor trends in dioxin contamination across the globe and the effectiveness of measures implemented under the Stockholm convention.

http://www.who.int/mediacentre/factsheets/fs225/en/
Dioxins occur as a complex mixture in the environment and in food. In order to assess the potential risk of the whole mixture, the concept of toxic equivalence has been applied to this group of contaminants.

During the last 15 years, WHO, through the International Programme on Chemical Safety (IPCS), has established and regularly re-evaluated toxic equivalency factors (TEFs) for dioxins and related compounds through expert consultations. WHO-TEF values have been established which apply to humans, mammals, birds and fish.

For more information contact:
WHO Media centre
Telephone: +41 22 791 2222
E-mail: mediainquiries@who.int

Publications
Exposure to dioxins and dioxin-like substances
pdf, 120kb
Evaluation of certain food additives and contaminants [pdf 911 kb]
Technical report

More about dioxins
Dioxins and dioxin-like substances
Global Environment Monitoring System
WHO’s work on chemical safety

http://www.who.int/mediacentre/factsheets/fs225/en/  24/03/2015