Non-natural farm waste scoping study

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Report prepared for Environment Canterbury by
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Non-natural Farm Waste Scoping Study

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- 7 June 2012
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Executive Summary

Agriculture plays a major role in Canterbury’s economy, producing 30% of the gross regional output and covering over 60% of the region’s 4.22 million hectares. Farming produces a wide variety of waste streams including construction waste (timber and metal) and hazardous wastes (agrichemicals and paints).

Environment Canterbury is conducting a preliminary analysis of the work required to develop a strategy to address perceived negative impacts arising from non-natural farm waste management in the Canterbury region. As a first step, Environment Canterbury commissioned Sinclair Knight Merz (SKM) to prepare a non-natural farm waste scoping study.

The scoping study aimed to develop a high level understanding of current non-natural farm waste disposal practices and data, as well as to identify any central and local government programmes or initiatives (both statutory and non-statutory) to manage non-natural farm waste. From this overview, high level options for non-natural farm waste disposal and recycling in Canterbury and barriers to responsible non-natural farm waste management should be identified. This would allow recommendations to be made to Environment Canterbury on the best way to address the identified issues.

The scoping study found that:

- A lack of data is hampering the ability to assess non-natural farm waste quantities, disposal practices, and environmental impacts;
- There are no specific central or local government work programmes aimed specifically at farm waste;
- There are some industry-led schemes but they focus on a particular waste stream and not waste in general;
- Any plan provision within the Canterbury region that contains effects-based rules can be difficult for a lay person to interpret and understand whether their activities will contravene any permitted conditions; and
- The generation and management of non-natural farm waste is largely unregulated in Canterbury (at most covered by generic permitted activity rules) and that there are limited actions in Waste Minimisation and Management Plans that specifically target non-natural farm waste.

A more complete data set will allow the environmental impacts of non-natural waste and current waste flows to be understood. Once a better understanding of non-natural farm waste is understood, then discussion can be had on the most effective way to address any undesirable impacts or behaviours including the use of statutory, non-statutory, voluntary and other measures.

Two recommendations are made to Environment Canterbury:

**Recommendation One: Form a Good Data Set**

In the absence of robust waste data and knowledge of current waste practices it is difficult to identify priorities or make recommendations on the most appropriate waste stream or farming group to work with to ensure the appropriate disposal of waste.
A data set could be gained in several ways but it is recommended that Environment Canterbury carries out one or more pilot studies focussed on a selection of farms to develop an understanding of where waste is generated. To help implement this recommendation, it is recommended that Environment Canterbury works with industry groupings as well as district and city councils to develop and run a pilot study.

**Recommendation Two: Develop a Waste Strategy**

An effective waste strategy is likely to address a mix of three components:

- Policy and drivers for improved waste management;
- Infrastructure to enable improved waste management; and
- Behaviour change initiatives to support improved waste management.

These are interrelated and the implementation methods below will help ensure that an effective non-natural farm waste strategy for the Canterbury region is developed. To inform the development of a waste strategy, Environment Canterbury should: research good practices internationally; identify drivers for change; consult with Iwi; and prioritise waste streams to address.
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1. Introduction

1.1. Background

Agriculture plays a major role in Canterbury’s economy, producing 30%\(^1\) of the gross regional output and covering over 60% of the region’s 4.22 million hectares. Farming produces a wide variety of waste streams including construction waste (timber and metal) and hazardous wastes (agrichemicals and paints). With such a wide variety of waste streams, it is important to ensure that waste management options are available to enable farmers not only to minimise their waste, but also to divert or dispose of it in the most practical way possible.

Environment Canterbury is the Regional Council tasked with managing Canterbury’s natural resources including air, water and land. This is achieved through a series of policies, rules and programmes that aim to mitigate or control the adverse affects of potentially damaging activities on people and the environment. Environment Canterbury seeks to support local farmers and rural businesses, encouraging the sustainable use of natural resources while preventing the pollution of Canterbury’s water, air and soil from inappropriate agricultural waste disposal practices.

Environment Canterbury is conducting a preliminary analysis of the work required to develop a strategy to address perceived negative impacts arising from non-natural farm waste management in the Canterbury region. As a first step, Environment Canterbury commissioned Sinclair Knight Merz (SKM) to prepare a non-natural farm waste scoping study.

1.2. Project Aims

The overall aim of this scoping study is to provide a general overview of non-natural farm waste in Canterbury, both in relation to current waste disposal practices and currently available alternative practices. The findings will provide baseline information to build a non-natural farm waste strategy for the Canterbury region.

This scoping study specifically aims to:

- Provide an overview of current non-natural farm waste management in Canterbury (and provide baseline data if this is available)
- Summarise the Canterbury region’s District Council’s District Plan rules and initiatives that specifically address non-natural farm waste\(^2\)
- Provide a brief overview of the national context including any policies, plans, initiatives that central Government has to specifically deal with non-natural farm waste

\(^{1}\) Sourced from http://www.localgovt.co.nz/site/Local_Government/find_a_council/by_region/Canterbury/default.aspx

\(^{2}\) Note that a review of district council waste assessments and waste management plans was not required for this work
1.3. Structure of the Scoping Study

This scoping study is structured to allow the reader to understand the broader context in which non-natural farm waste is currently managed in Canterbury and New Zealand and therefore, what steps may be appropriate for Environment Canterbury to take as it prepares a non-natural farm waste management strategy.

The study firstly reviews the current state of knowledge and practices for non-natural farm waste management. This includes:

- The definition of non-natural farm waste
- Current state of non-natural farm waste knowledge
- Central Government work programmes that may address (directly or indirectly) non-natural farm waste
- Voluntary schemes that specifically address non-natural farm waste
- Local Authority Plan provisions and views on non-regulatory methods for managing non-natural farm waste in its district/city boundaries
- Examples of other New Zealand local authorities’ advocacy material specifically addressing the issue
- Issues that may affect Iwi.

The second half of the study uses this research and identifies:

- Options for non-natural farm waste disposal and recycling in Canterbury
- Barriers to responsible non-natural farm waste management
- Recommendations for Environment Canterbury to start addressing the issues identified.

1.4. Definition of Non-natural Farm Waste

For the purposes of this study, the following definition of ‘non-natural farm waste’ will be used.

**Non-natural**

a) Anything that is not existing in, or formed by, nature (natural purposes)
**Farm**

a) Land used for cultivating crops, garden plants and/or rearing livestock

**Waste**

a) Means anything disposed of or discarded
b) Includes a type of waste that is defined by its composition or source (for example, organic waste, electronic waste, or construction and demolition waste)

c) To avoid doubt, includes any component or element of diverted material, if the component or element is disposed of or discarded.

### 1.4.1. Examples of Waste Types

Farm waste can arise from a wide spectrum of activities on farms. This includes domestic activities (i.e. the farm house) as well as activities specific to the farming activity being undertaken. For the purposes of this report, the waste stream has been split into ‘natural’ and ‘non-natural’ waste.

### 1.4.1.1. Non-natural Farm Waste Categories

- **Table 1 Non-natural farm waste categories and examples**

<table>
<thead>
<tr>
<th>Non-natural Farm Waste Category</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vehicle and machinery waste</td>
<td>Antifreeze, batteries, brake pads, oils, filters, tyres, unusable vehicles and machinery, waste fuel</td>
</tr>
<tr>
<td>Plastic packaging</td>
<td>Feed bags, animal health packaging, fertiliser bags, agro-chemical containers, seed bags, feed bags, horticultural film, shrink wrap, plastic wrap and general plastic packaging</td>
</tr>
<tr>
<td>Animal health products</td>
<td>Animal health treatments, swabs and dressings, sheep dip, syringes, medicines</td>
</tr>
<tr>
<td>Non-packaging plastic</td>
<td>Bale twine, net wrap, tree guards, cores for silage sheets, greenhouse and tunnel film, mulch film, crop cover, silage plastic</td>
</tr>
<tr>
<td>Hazardous waste</td>
<td>Agro-chemical concentrates, asbestos, batteries, medicines, fluorescent light tubes, electrical waste, treated timber</td>
</tr>
<tr>
<td>Metal, glass, rubber</td>
<td>Oil drums, paint tins, pallets, aerosols</td>
</tr>
<tr>
<td>Cardboard and paper</td>
<td>Packaging, feed bags, seed bags</td>
</tr>
<tr>
<td>Construction and demolition waste</td>
<td>Gibboard (can be referred to as plasterboard), plywood, concrete, windows, timber (treated and untreated)</td>
</tr>
</tbody>
</table>

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3 i.e. Horticulture and agriculture activities. Marine farming is not included in this study.

4 Sourced from the Waste Minimisation Act 2008

5 Adapted from *The Code of Good Agricultural Practice for the Prevention of Pollution of Water, Air and Soil.* (UK) Department of Agriculture and Rural Development. August 2008

6 For the purposes of this study, Environment Canterbury considers untreated timber a non-natural farm waste due to the processing required.
1.4.1.2. Natural Farm Waste Types

To provide some clarity, the following are examples of natural waste streams:

- Livestock manure
- Milk
- Livestock carcass
- Unused seed
- Vegetation
- Ash (unless contaminated)
- Yard washings
- Wood (Hedge trimmings, tree prunings)
- Ditch and water way dredging (unless they are contaminated)

Over use of materials i.e. the application of fertiliser beyond recommended limits, although not an efficient use of a resource, is not included as non-natural farm waste for this study.
2. Farming in Canterbury

The rural sector is a significant part of Canterbury’s economy producing 30% of the gross regional output. The majority of the economy is urban-based, contributing more than 50% of the gross regional output. In 2011, a total of 2,910,207 hectares of land in the region was used for agricultural purposes, over 60% of the region’s 4.22 million hectares. Farming activity is predominately based on pastoral and mixed farming sectors followed by horticulture, viticulture and other special agrarian industries. The forestry and logging sectors are comparatively small.

2.1. Waste Data

Generally, the availability of waste data (quantity and composition) in New Zealand is limited. What information that does exist relates to solid waste disposal in landfills and this is improving due to legislation such as the Waste Minimisation Act 2008. However, data specifically related to non-natural farm waste is still difficult to source.

In the Canterbury region, the most appropriate source of waste data is the Canterbury Waste Data Report, produced by Environment Canterbury. This is an annual summary of the region’s publicly available waste data. This report acknowledges that ‘non-non-natural’ farm waste is not quantified:

“[This report] does not include data from most commercial sources, such as recycling companies dealing directly with businesses, nor does it include onsite disposal such as farm dumps and home composting.”

The most relevant source of information sourced from outside Canterbury was an investigation into Taranaki’s Rural Waste Stream. 90 farmers were surveyed. It was estimated that approximately 525 tonnes of plastic wrap, 8,750 tonnes of household waste, 32,440 plastic containers as well as between 84 - 162m³ of waste engine and hydraulic oil are generated in the Taranaki rural region each year. The report contains further breakdown and analysis and is available on the Taranaki Regional Council website or on the Sustainable Farming Fund website. Overall, the Taranaki report was based on a small sample and it is not appropriate to extrapolate the results of the survey to Canterbury due to sample size and differences in farming activities and waste management services. However, the methodology used could be used as the basis for a similar exercise in Canterbury.

The Ministry for the Environment Solid Waste Analysis Protocol (SWAP) Programme provides solid waste composition survey results from four landfills. Two of these are rural areas (Matamata-Piako and Kaikoura). There is also information available from the Gisborne, Westland and Marlborough District

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7 Sourced from http://www.localgovt.co.nz/site/Local_Government/find_a_council/by_region/Canterbury/default.aspx
landfills. However, this only provides information on waste to landfill which is just one of the options for non-natural farm waste disposal.

Further efforts to identify non-natural farm waste data were unsuccessful. Discussions with Central Government (Ministry for the Environment) and voluntary scheme providers (3R group) confirmed that an acceptable non-natural farm waste data set is not available.

This lack of data means that non-natural farm waste quantities cannot be estimated with any confidence. However, based on an understanding of farming activities likely waste types (composition – as described in Section 1.4) can be identified without comment on likely quantities.

2.2. Disposal Methods

There are a variety of options that are likely to be available to the rural sector for the disposal or recovery of non-natural farm waste. The figure and descriptions below provide a simple overview of the options. The lack of waste data means that quantities of waste disposed/recovered through each method cannot be gathered, although the Taranaki Regional Council (2005) report suggests that the majority of the 90 survey respondents bury, or burn and bury, their waste in on-farm pits. A URS (2003)\(^\text{11}\) report suggests that the majority of waste plastics are burnt on farm.

Figure 1 is a simple waste-flow diagram of the disposal options for non-natural farm waste. Each option is described below Figure 1.

\[\text{Figure 1 Waste-flow diagram. Non-natural farm waste disposal options}\]

On-Farm Options

- Burning – uncontrolled burning of waste. Often in open piles or small farm incinerators, i.e. complete combustion is unlikely to occur
- Reuse – saving/storing materials or parts of materials for reuse on the farm
- Burying – placing waste in on-farm pits specifically dug for disposal of waste and located an appropriate distance from waterways
- Recovery – recovering the energy from the waste through controlled burning such as the use of wood in stoves or digestion with the use of biogas for heating
- Disposal on to land (on-farm ‘flytipping’). Placement of waste without thought of environmental consequences.

Off Farm Options

- Landfill/cleanfill – use of regulated landfills and cleanfills
- Uncontrolled disposal (‘flytipping’). Placement of waste without thought of environmental consequences
- Recycling – use of recognised recycling schemes either provided by local authorities or voluntary providers
- Reuse – giving materials to reuse providers such as reuse shops or organisations that may refurbish equipment etc
- Specialist disposal – controlled, high temperature burning of materials (usually hazardous substances). Material is often collected for destruction or treatment prior to disposal. This does not include technology for the burning of general waste to create energy, as occurs internationally, as this practice does not commonly occur in New Zealand.

2.2.1. Environmental Impacts

The environmental impacts of the disposal options noted above are not generally understood at a regional scale. This is due to a lack of data on quantities of waste being disposed and the specific environmental issues associated with each option.

One relevant report identified was a life-cycle analysis study focussed on waste plastics from farming activities. The URS study Life Cycle Analysis for the Management of Waste Farm Plastics (URS 2003)\(^\text{12}\) involved some initial analysis of likely quantities and environmental effects of plastic waste on farms. The report documents a life-cycle assessment (LCA) of five options for the management of the two predominant types of waste farm plastics (HDPE chemical containers and LDPE film) compared with the status quo. The waste management options considered were:

- On-farm burial
- On-farm burning
- Drop off at a collection facility for recycling

- Drop off at a transfer station for landfiling
- Drop off at a transfer station for incineration and energy recovery.

The comparative LCA of five scenarios for the management of two types of waste farm plastic (HDPE chemical containers and LDPE film) indicates that a program whereby farmers drop off waste plastics at transfer stations for recycling into products as a replacement for virgin plastic, will have the least negative effect on the environment.
3. National Context

This section provides a review of current policies, work programmes or initiatives that occur nationally.

3.1. Central Government Perspective

The Ministry for the Environment has the primary responsibility for waste policy and strategy in New Zealand. Other agencies (the Environmental Protection Authority, Ministry for Primary Industries (formally Ministry for Agriculture and Forestry), New Zealand Trade and Enterprise and Ministry of Foreign Affairs and Trade) have work programmes that may indirectly affect non-natural farm waste management, so have been included.

3.1.1. Ministry for the Environment

The Ministry for the Environment is the Government’s primary adviser on the New Zealand environment and international matters that affect the environment. The Ministry for the Environment has no current policy or work programmes specifically addressing non-natural farm waste. However, there are two work programmes that contain components with relevance to specific non-natural farm wastes: product stewardship and the Waste Minimisation Fund.

Product stewardship schemes are initiatives that help reduce the environmental impact of manufactured products. More information is contained in Section 3.2.

The Waste Minimisation Fund is designed to boost New Zealand’s performance in waste management. More information on the Fund is contained in Section 3.3.

3.1.2. Environmental Protection Authority (EPA)

The Environmental Protection Authority is the Government agency responsible for regulatory functions concerning New Zealand's environmental management. This includes the regulation of hazardous substances, new organisms, ozone depleting chemicals and hazardous waste exports and imports. It is a relatively new government agency, having taken some roles from the Environmental Risk Management Authority (ERMA), the Ministry of Economic Development (MED) and MfE.

The EPA mandate covers hazardous substances, hence the storage and disposal of agrichemicals are covered by the EPA functions where regulations may be needed. For example, the EPA has materials concerning banned pesticides on farms. This material explains how to store and safely dispose of these materials. This information is included as Appendix 3.

3.1.3. Ministry for Primary Industries

The Ministry for Primary Industries (comprising the former Ministry of Agriculture and Forestry, the New Zealand Food Safety Authority and the Ministry of Fisheries) has no strategy or focus on non-

natural farm waste. The Ministry does have a funding programme – the Sustainable Farming Fund\(^{14}\) – and some waste-related projects have been funded in the past, such as the Taranaki Rural Waste report referred to in Section 2.1.

### 3.1.4. New Zealand Trade and Enterprise/Ministry of Foreign Affairs and Trade

The growing importance of sustainability as a market driver in some of New Zealand’s food and beverage export markets has led the Ministry of Foreign Affairs and Trade and New Zealand Trade and Enterprise (NZTE) to form a Sustainable Food Exports Group. The Group is a forum for industry and officials to share information on sustainability trends and developments in offshore markets. Waste is not a direct focus but is a subset of some of the topics that are focused on such items as pesticides in food, natural capital calculations or greenhouse gas footprint\(^{15}\). This provides a driver for the New Zealand producer to reduce waste. NZTE also prepares a quarterly report\(^{16}\) for business people highlighting trends and issues in key markets. This report is a useful summary of drivers for improved management of waste by producers of primary products.

### 3.2. Product Stewardship Schemes

Product stewardship schemes are initiatives that help reduce the environmental impact of manufactured products. When a product stewardship scheme is introduced, anyone involved in the product life-cycle such as producers, brand owners, importers, retailers and consumers accepts responsibility for its environmental effects.

In New Zealand, the purpose of product stewardship, as set out in the Waste Minimisation Act 2008, is to encourage (and, in certain circumstances, require) people and organisations involved in the life of a product to share responsibility for:

- Ensuring effective reduction, reuse, recycling or recovery of products
- Managing environmental harm arising from the product when it becomes waste.

Under the Waste Minimisation Act, the Minister for the Environment has the ability to recognise product stewardship schemes for their efforts. This recognition is known as accreditation.

There are two schemes that are relevant for farms across New Zealand: Plasback and Agrecovery. More information on both is contained in Sections 3.2.1 and 3.2.2.


\(^{15}\) For example if an overseas buyer is comparing the greenhouse gas footprint of a NZ product and a competitor then the NZ producer may wish to reduce waste sent to landfill thereby reduce the greenhouse gas footprint and increase the competitiveness of the product in that market

3.2.1. Plasback

Plasback is the trans-Tasman name for the Tapex Group's Product Stewardship programmes in both Australia and New Zealand. Plasback operates Agpac's\textsuperscript{17} Product Stewardship scheme to recover used farm plastics for recycling\textsuperscript{18}. This programme has developed a network of collectors throughout New Zealand allowing farmers access to an ‘on-farm collection’ to remove the problem of used bale wrap.

Through the Plasback programme, six waste streams are collected:

1) Balewrap and silage sheets
2) Polypropylene recycling
3) HDPE drum recycling
4) HDPE drum recovery (drums must be from the Ecolab or FIL ranges)
5) Vineyard nets (HDPE monofilament products only)
6) Twine (polypropylene twine).

3.2.2. Agrecovery

The Agrecovery Rural Recycling programme\textsuperscript{19} is run by 3R\textsuperscript{20} and governed by the Agrecovery Foundation - a not-for-profit charitable trust. Trustees are:

- Horticulture New Zealand
- Federated Farmers
- Agcarm
- Fonterra
- Waikato Regional Council (for local government).

Agrecovery seeks to educate the public to reduce waste and encourage conscious purchasing decisions by supporting the brands that participate in Agrecovery. There are currently three programmes operating across New Zealand. These are:

- Agrecovery Containers
- Agrecovery Wrap
- Agrecovery Chemicals.

The following is a brief description of the programmes sourced from the 3R website.

\textsuperscript{17} Agpac is New Zealand's largest supplier of crop packaging products and have been operating a Product Stewardship programme for the last six years.
\textsuperscript{18} http://www.plasback.co.nz/
\textsuperscript{19} www.agrecovery.co.nz
\textsuperscript{20} www.3R.co.nz
3.2.2.1. Agrecovery Containers

Launched in 2007, the Agrecovery Container Recycling programme provides a recycling programme for 1-60 litre plastic agrichemical, animal health and dairy hygiene containers. The programme is supported by a large number of companies in these industries that collected a levy for every litre/kilo of eligible product placed on the New Zealand market. This levy is then paid to the Agrecovery Foundation to operate the programme.

Farmers, growers and other users can take their eligible triple-rinsed plastic containers to the nationwide network of collection sites. Only containers from participating brand owners can be recycled through the programme free of charge. Other brands / products require the purchase of user-pay stickers.

The Agrecovery truck services the collection sites when they have accumulated sufficient volumes of plastic containers. The truck includes mobile shredding technology, which allows the containers to be shredded into small plastic chips. The plastic chip is then recycled by a New Zealand company and remanufactured into a variety of uses including underground utility cable covers. The processing and appropriate reuse of collected plastic within New Zealand is a key part of the Agrecovery philosophy.

The Agrecovery Chemical Collection is currently under review (as at May 2012), by a working group comprising industry and local government representatives. The aim of the review is to understand what is working well with the scheme and what the barriers are to farmers utilising the system. The review also intends to identify the improvements needed in order to make the scheme as effective as possible. The review is led by industry but with the backing of central and local government.

3.2.2.2. Agrecovery Wrap

The Agrecovery wrap recycling programme recycles baled silage wrap.

The programme allows farmers to purchase packets of wrap recycling bags from most rural retailers or direct from Agrecovery. Each packet of wrap bags costs $67.50 (inc. GST) and contains 5 bags, enough to recycle approximately 60 wraps (equivalent to around $1 per round bale). All costs, including collection, are contained within the bag price.

Farmers are instructed to ‘shake, roll and stuff” used silage wrap into the recycling bags and then log the full bags with Agrecovery for collection. Collection events take place around the country as sufficient volumes of bags have been logged for collection. Silage wrap will also be processed in New Zealand and again processed into appropriate end use plastics.

3.2.2.3. Agrecovery Chemicals

The Agrecovery Chemicals programme is not a recycling programme, but rather provides users of chemicals in agriculture a nationwide system for the collection and disposal of unwanted and expired chemicals.

Its funding comes from three streams: funds contributed by participating brand owners under the existing Agrecovery container programme levy, Government contributions and user charges. Users can book
chemicals for disposal via a custom-built, on-line booking system on the Agrecovery website or by contacting Agrecovery directly.

Once a certain volume of chemical bookings have been received for a region, a collection event will be scheduled. Users who have booked are advised of the location of the event in their region. Specialised contractors will operate at these collection events to safely handle the chemicals booked for disposal. Some chemicals will be sent off-shore for destruction while others will be disposed of within New Zealand.

3.2.2.4. Agrecovery Large Drums

A product stewardship programme for larger drums (over 60 litres) is available. Drums will be:

- Recycled to approved end-use applications, or
- Reconditioned for reuse by New Zealand-based manufacturers / fillers, or
- Supplied back to brand owners where demand exists.

3.2.3. Tyrewise

The Product Stewardship Foundation has recently (14 March 2012) been awarded $133,000 to explore recycling options for used tyres. The Foundation will work with tyre industry importers and retailers to identify the best way to recycle and re-use used tyres.

Other key stakeholders in the scheme include the Motor Trade Association and project manager, 3R. The report to the Government is due April 2013.

3.2.4. The Waste Exchange

The Waste Exchange21 is an on-line tool designed to help business and other organisations find markets for by-products, surplus materials and waste. Through The Waste Exchange, waste generators can find alternative pathways to landfill for their waste by connecting with organisations and people who are able to reuse unwanted materials.

The Waste Exchange is a free service available to all business and industry and may be used by non-profit organisations, schools and individuals to locate materials they need.

At the time of research (March 2012), there were no listings for materials in the South Island. Historically, waste exchanges have operated well when heavily promoted and supported by users actively identifying materials and potential end uses for materials rather than passive web-based listings.

3.3. Waste Minimisation Fund

The Waste Minimisation Fund is designed to boost New Zealand performance in waste management. Administered by the Ministry for the Environment, it funds waste minimisation projects that increase resource efficiency, reuse, recovery and recycling of waste, and decrease waste to landfill.

21 http://www.nothrow.co.nz/
Through the Fund, the Ministry for the Environment is funding several projects that may have applications to the management and minimisation of non-natural farm waste in the region. Summaries of schemes that may be relevant are contained in Appendix A.1. They have been included for information and no assessment of their suitability or operating capability in Canterbury has been made.

3.4. Industry Schemes

There are a number of industries that have their own environmental schemes which can be a response to a number of drivers. Examples include voluntary agreements (e.g. Clean Stream Accord), market assurance schemes (overseas buyers such as Sainsbury’s have their own standards for producers, GlobalGAP\(^22\)) or in an effort to improve health and safety (e.g. when dealing with chemicals e.g. Growsafe\(^23\)). A review of the schemes is outside the scope of this study but it is recommended that work with industry groups be looked at as a way to engage with the rural sector. This is explored more in the recommendations.

\(^{22}\) http://www.globalgap.org/
\(^{23}\) http://www.growsafe.co.nz/
4. Canterbury Local Authorities

Non-natural farm waste can come in many forms, and there are regional and district council functions and plans to consider from a regulatory perspective. This section contains a summary of district council statutory and non-statutory methods for managing non-natural farm waste.

This has been gained through a review of plans and discussions with waste officers.

As non-natural farm waste could be addressed by several statutory provisions, a key word search was used to search local authority plans. The choice of words was derived from our experience in working with these plans. These key words were:

- Solid waste / landfill – such as domestic waste, vehicle parts and bodies
- Landfill – chemical and packaging of farm goods
- Hazardous materials and liquids/hazardous substances
- Contaminants – storage of fuels
- Offal
- Recycling
- Transfer station(s).

The review of plans does not cover sewerage waste disposal or animal waste apart from offal pits. A number of the district and city plans analysed contain rule provisions relating to sewerage waste or effluent waste. However, these regulated activities do not relate to non-natural farm waste within the scope of this project.

The focus was on rural zone rules, and those relating to hazardous waste, contaminants, or substances. However, other chapters have been reviewed, including health and wellbeing sections of plans where there may be regulations on non-natural farm waste.

4.1. Geographical Context of Study

Figure 2 illustrates the ten Territorial Local Authorities (TLAs) located within Canterbury region. All ten TLAs have rural zones including Christchurch City Council, and the Banks Peninsula District Plan which is within the Christchurch City Council jurisdiction.

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24 i.e. use words typically used in plans as opposed to terms that may be used in a more general sense. For example we searched for provisions relating to Transfer Stations and Landfill (terminology commonly used in plans) rather than dump, tip or pit.

25 Although wastewater from dwellings on a farm are regulated in some plans.
4.2. District Council Plan Provisions

Each of the district councils has different planning provisions that could apply to the management of non-natural farm waste. The following table summarises the provisions that district plans have, or omit, in respect to the different types of non-natural farm waste26. This Section provides an overview of what the statutory plans cover, and if so, how. Where plans do not cover non-natural farm waste, then this is noted. Table 2 summarises the issues covered by each plan.

The summary paragraphs within each subsection also note each Council’s comments on how non-natural farm waste is addressed in their area. What this assessment does not provide is why a Council has, or has not, chosen to address non-natural farm waste within the plan provisions.

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26 Latest plans at March 2012 were reviewed
Table 2 Overarching Rule Assessment

<table>
<thead>
<tr>
<th>Issue Addressed in Plan</th>
<th>Council</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Kaikoura</td>
</tr>
<tr>
<td>Hazardous substances (including fuels)</td>
<td>Y</td>
</tr>
<tr>
<td>Solid waste disposal on farms (e.g. landfill)</td>
<td>N</td>
</tr>
<tr>
<td>Contamination or chemicals</td>
<td>N</td>
</tr>
<tr>
<td>Recycling</td>
<td>N</td>
</tr>
<tr>
<td>Transfer station</td>
<td>N</td>
</tr>
<tr>
<td>Building materials</td>
<td>N</td>
</tr>
<tr>
<td>Offal pits</td>
<td>N</td>
</tr>
</tbody>
</table>

Y=Yes, N=No.

4.3. Analysis of District Plans

The following sections provide a summary of the most relevant sections from Statutory Plans. The relevant plan provisions are contained as Appendix A.2.

The subsections below are provided to set the context of the content of each plan, and this generally illustrates that the plans are a mixture of zone-based provisions and effects (or activity) based provisions.

In understanding these sections, it is valuable to note that non-natural farm waste is a potential issue through its life cycle (from its manufacturing through to distribution, use and disposal) and although the different life cycle aspects could be managed through district plan provisions, this report primarily focuses on the use and disposal aspects.

4.3.1. Kaikoura District Council

Kaikoura District Plan contains Sections 5-17 covering District-Wide Issues, Objectives, Policies and Rules, and Sections 18-24, covering a range of zones. Section 9 (Hazardous Substances) is the most relevant section in respect to non-natural farm waste. Reviews of the rules have not found any

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27 in relation to proximity of building and subdivision development
28 only in relation to bottle or scrap storage
prescriptive provisions relating directly to non-natural farm waste. There are prescriptive provisions relating to fuels, lubricants (contaminants) and the associated storage volumes and facilities.

Kaikoura officers advised that the Council has a resource recovery programme which is part of the Zero Waste Management Plan (adopted June 2009). Through non-regulatory methods, officers have worked with the agricultural sector to uphold the Council’s Agricultural Recovery Programme. This involves the collection of materials such as chemical containers, balage wrapping and fencing wire. Locally, within Kaikoura, the retailers (CRT and PGG) of chemicals (drench, sprays etc) have agreed that they will not sell chemicals unless they have certification of the disposal through the resource recovery programme. This forms part of the private programme with AgPac (www.agpac.co.nz); which the Council is part of, through a joint working party.

4.3.2. Hurunui District Council

The Hurunui District Plan contains Section A – District-wide rules, which includes A1-A10, and Section B – Environments of Special Concern. Section A10 is the only relevant section in respect to non-natural farm waste. A review of the rules has only found generic rules. For example, A1.2.10 (screening of non-residential activities), that does not detail non-natural farm waste specifically. The ‘screening of non-residential activities’ is not defined in the definition of the Plan, and relies on council officers’ interpretation of activities that need to be screened. Some waste materials are covered, such as a demolished building covered under A1.2.12 (demolished buildings), which states ‘all material from demolished or partly demolished buildings shall be removed from a site within 2 months of the demolition being completed’. No other provisions (Sections) specifically cover non-natural farm waste.

Officers confirmed that the A.10 section of the District Plan addressed hazardous substances and waste management. The Plan does not specifically cover any other non-natural farm waste. Hurunui District Council does have non-regulatory methods for dealing with agrochemical containers. These are included in its Draft Waste Minimisation and Management Plan: that it will run the Agrecovery Programme at Culverden. Officers recognise that they also need skips for collection points for containers at Cheviot, whilst PGG provides a drop-off point at its premises in Amberley.

The Council also collects containers from farms where they have been triple rinsed, which are subsequently recycled through Agrecovery.

4.3.3. Waimakariri

The Waimakariri District Plan covers District-wide rules in Chapters 21-36. Only Chapters 23, 31, and 36 have been found to contain rules relating to non-natural farm waste. These were regarding locating landfills close to the margins of waterways (Rule 23.4.2), hazardous or liquid waste close to dwellings (Rules 31.13 & 31.16), and information required for subdivision consents where hazardous substances have been disposed (Rule 36.2). While these provisions do not specifically address the disposal of non-natural farm waste, they deal with hazardous waste from farms and general non-natural farm waste disposed of to on or off-site landfills. The hazardous substance provisions set limits and storage provisions.
Officers have confirmed that the District Plan does not address non-natural farm waste to a level which addresses disposal of containers, wire, balage wrapping or crop protection nets. Officers did confirm that the District Plan contains provisions as noted above. Officers advised that for the Council issues such as effluent spreading from pig and chicken farming were more significant in respect to reverse sensitivity and groundwater effects.

The Waste Management Officer from WDC advised that non-natural farm waste had been raised as an issue in the district; however this issue has not directly been addressed within the Waste Management Plan. The Council has taken a non-regulatory approach - promotion and awareness raising by advertising the Agrecovery programme on the Council’s website. Furthermore, promotion of the extended hours and locations of its transfer stations encourages appropriate non-natural farm waste disposal. The Council works collaboratively with Environment Canterbury staff on waste minimisation initiatives, including the Regional Joint Waste Management Committee, similar to most of the district councils in the region.

### 4.3.4. Christchurch City

The Christchurch City Plan is divided into general and zone specific rules. Parts 4 (Rural Zones) and 11 (Health and Safety) have provisions relating to non-natural farm waste. Part 4 provides rules for offal pits, and Part 11 contains a range of provisions to manage the storage, manufacturing, use, and disposal of hazardous substances.

The officers have confirmed that those rules identified by SKM are the key provisions that might manage non-natural farm waste. The offal pit rule (CC Plan) has very specific conditions for permitting offal pits, whereas the odour rules are subject to the generation of ‘offensive’ or ‘objectionable’ odour and the sensitivity of the receiving environment.

The officer managing the Waste Management Plan (WMP) for Christchurch City Council advised that non-natural farm waste is not addressed in the WMP; however that Plan is due for review in July 2012. The officer noted that Christchurch City Council contributes to how some non-natural farm waste is managed in terms of the Hazardous Waste Management Plan (Environment Canterbury document) which addresses issues with chemicals and recovery of waste liquids and chemicals. Additionally, Christchurch City Council officers sit on the Canterbury Waste Management Committee.

### 4.3.5. Christchurch City Council (Banks Peninsula District Plan)

The Banks Peninsula District Plan (under the administration of Christchurch City Council) contains rules within two parts of the Plan. Part V covers zone rules, and Part VI covers general provisions.

Only Chapter 37 has been found to contain rules relating to non-natural farm waste. The provisions in this chapter relate to controlling hazardous substances and waste management, in respect to the volumes and facilities to store specific contaminants.

Communications with a Senior Planner managing the Banks Peninsula District Plan, which is administered by the Christchurch City Council, advised that there are no specific non-natural farm waste provisions in the District Plan apart from the hazardous waste management section.
4.3.6. Selwyn

The Selwyn District Plan Rules are divided into two sections – a township volume and a rural volume.

It has been assumed that farm activities (and therefore non-natural farm waste) are addressed in the Rural Volume, which is where our assessment has been restricted to. Within this volume, Chapters 1, 7, 8, and 9 contain rules relating to non-natural farm waste. Generally, these rules address permitted offal pits in the Port Hills (Rule 1.4.2.3), non-complying disposal of hazardous substances, activities relating the generation, storage and disposal of solid waste (Rule 8.1), and the scale of waste activities (Rule 9.4.1).

Officers from Selwyn District Council confirmed the assessment that apart from the rules specified (waste generation rules), the District Plan does not specifically cover non-natural farm waste. Planning officers were aware of the non-regulatory methods that Selwyn District Council has used as a one off to encourage farmers to dispose of their containers at the waste recovery park.

The Waste Management Officer advised that the Waste Management Plan does not specifically address non-natural farm waste. The Plan does address the need for the waste recovery park, where activities such as the Agrecovery programme are facilitated. There has been a one-off process where the Council has allowed for free deposit of farm plastics, especially containers, provided containers were triple rinsed. The Council considers its role is one of support to the Agrecovery programme.

4.3.7. Ashburton

The proposed Ashburton District Plan is divided into sections, which cover both general and zone specific rules. Only Chapter 16 was found to have rules relating to non-natural farm waste. Chapter 16 contains provisions relating to general hazardous substances, and sets out rules for managing hazardous substances based on site standards.

Officers from Ashburton confirmed that the District Plan does not have any significant provisions addressing non-natural farm waste, other than storage and management of hazardous substances. They accepted that activities such as offal pits have been considered permitted, whilst not listed in the proposed District Plan, due to the Plan being more of an effects-based plan. An effects-based plan is where the provisions regulate the effects on the environment, rather than the regulating the activities.

The Waste Management Officer advised that they do not have provisions within their WMP regarding non-natural farm waste, and the provisions that address this matter is only to the extent that waste services are extended into more dense populations, on the rural fringe of townships (i.e. by geography), where services include refuse and recycling collection and additional refuse and recycling depots (transfer stations) for rural areas.

4.3.8. Timaru

The Timaru District Plan is divided into several sections, which cover both general and zone specific rules: only Chapter 6 was found to have rules relating to non-natural farm waste. These address hazardous substances, and set out rules for managing the use and/or storage of hazardous substances based on site standards.
The Planning Officer was not aware of rule provisions that related to non-natural farm waste, other than hazardous substances as noted above.

The Waste Management Officer advised that there are no programmes currently planned to address non-natural farm waste, nor is the waste stream specifically targeted in its Waste Management and Minimisation Plan. Due to resourcing constraints, the focus of waste management and minimisation assistance tends to be where demand is, currently urban business, schools and commercial sectors. If queries do come in for rural waste assistance, reference is made to the Agrecovery and Plasback programmes. Should initiatives be developed around non-natural farm waste, then the Council is interested in being involved.

4.3.9. Mackenzie

The Mackenzie District Plan includes sections which cover both general and zone specific rules. Chapters 7 (Rural) and 10 (Hazardous Substances) have provisions relating to non-natural farm waste. Chapter 7 addresses offal pits and rubbish collection/recycling activities. Chapter 10 contains a range of provisions to manage the storage and use of hazardous substances.

Assessment requirements under 16.6.a (Outdoor Recreational Activities) contains matters relevant to waste including (iv) litter and waste. It is assumed that for recreational activities (which could be undertaken in rural zones) requiring consent, litter and waste matters are considered as part of that consent.

The officer spoken to was not aware of any rule provisions from the District Plan other than those outlined above.

The Waste Management Officer advised that the Council had until 1 July 2012 to get the Waste Minimisation and Management Plan in place. It is the officer’s intention to address non-natural farm waste through the collection services/drop-off locations providing enhanced service to farmers. The Council has been trying to persuade Agrecovery to install a collection point at Fairlie, given the nearest are at Geraldine (46 kms) and Omarama (130 kms). That collection point could possibly be located at CRT or PGG retail outlets where the materials are purchased.

4.3.10. Waimate

The Waimate District Plan includes sections which cover both general and zone specific rules. Only Chapter 12 was found to have rules relating to non-natural farm waste. These are general hazardous substances rules, and set-out rules for managing the use, storage, and disposal of hazardous substances based on site standards.

The Planning Officer from Waimate District Council advised that the provisions identified above were the main rules managing non-natural farm waste. Issues relating to dairy farming, stock management and effluent, effluent tanks, factory farming and effluent disposal were managed through provisions within Chapter 4 (Rural Zone). However, those were all related to animal waste.
The Waste Management Officer advised that the Waste Management Plan did not address non-natural farm waste, other than the standard provisions for household and recycling collections, which does extend into some rural environments.

4.3.11. Waitaki

The Waitaki District Plan includes sections which cover both general and zone specific rules. Only Chapter 16 was found to have rules relating to non-natural farm waste. These are general hazardous substances rules, and set-out rules for managing the use and/or storage of hazardous substances based on site standards.

The Planning Officer from Waitaki District Council was not aware of any planning provisions that related to non-natural farm waste that were not otherwise addressed in the hazardous substances section of the Plan, as outlined above. In the view of the officer, the only ancillary rule provisions that might impact on the size of an offal pit were the earthwork provisions. However, they have not been aware of consents issued for offal pits that contravened the earthwork rules.

The Waste Management Officer advised that there are no current work programmes that will address non-natural farm waste. It is not specifically addressed in the Waste Management Plan and there are no future work programmes planned. Very few waste related queries are received from the rural sector but when there are queries, it is normally regarding chemical waste and plastic drum disposal. The Council refers these queries to the Plasback and Agrecovery schemes.

4.4. Analysis of Canterbury Regional Council’s Statutory Framework

Environment Canterbury is the Regional Council tasked with managing the Canterbury’s natural resources, including air, water and land. This is achieved through a series of policies, rules and programmes that aim to mitigate or control the adverse affects of potentially damaging activities on people and the environment.

4.4.1. Proposed Canterbury Regional Policy Statement

The proposed Canterbury Regional Policy Statement (pCRPS) gives an overview of the significant resource management issues facing the region, including issues of resource management significance to Ngāi Tahu. The purpose of the pCRPS is to set out objectives, policies and methods to resolve those resource management issues and to achieve the integrated management of the natural and physical resources of Canterbury.

Chapter 19 of the proposed Canterbury Regional Policy Statement outlines a framework for waste minimisation and management. Although this chapter is not specifically focussed on non-natural farm waste, it provides a framework for waste in general, which includes all the waste streams that comprise non-natural farm waste.

4.4.2. Natural Resources Regional Plan

The Natural Resources Regional Plan provides rules for activities based on policies in the pCRPS. It is divided into a number of sections that cover Iwi natural resource management, air quality, water quality
and quantity, lake and river beds, wetlands and soil conservation. Among these issues, Chapters 3 (Air Quality) and 4 (Water Quality) are most relevant for non-natural farm waste.

Environment Canterbury has just released a draft of its proposed Land and Water Plan (pLWP) for public comment, separate from the RMA consultation process. The LWP will come into place late 2013 and will provide the key context for delivery of the Canterbury Water Management Strategy. At this stage, it is unclear what actual effect this will have on the policies or rules relating to non-natural farm waste management.

4.4.3. Chapter 3 Air Quality

The air quality objectives, policies and rules relevant to non-natural farm waste are included in Appendix 2. These provisions are important to non-natural farm waste as they apply to the burning of waste - particularly polyethylene wrap and offal, and air discharges from waste management processes.

4.4.4. Chapter 4 Water Quality

The water quality objectives, policies, and rules relevant to non-natural farm waste are included in Appendix A.2. These provisions are important to non-natural farm waste as they apply to discharges that might affect the quality of surface or ground water. This chapter also covers the impact that offal pits and hazardous substances may have on water bodies.

4.4.5. Summary

The NRRP rules (Environment Canterbury’s Regional Plan) address farm waste in the greatest detail. Relevant provisions are provided in Appendix A.2, however the most relevant provisions are summarised below.

- Rule AQL30A (Air Quality Chapter of the NRRP) addresses the discharge of contaminants into air from outdoor burning of polyethylene agricultural wrap and treats this as a restricted discretionary activity. After 1 January 2014, the activity will be prohibited. This currently manages and, in time, prohibits the burning of polyethylene agricultural wrap. Effects-based conditions of rule AQL30A also contain provisions that are subject to the dispersal or deposition of particles, where the polyethylene agricultural wrap comes from, ensuring air quality is not causing an objectionable or offensive effect beyond the boundary, and other matters as listed in Appendix A.2.

- AQL9 sets out a permitted rule subject to an effects-based measure for the discharge of contaminants into air from burning in any large-scale fuel burning device. If farmers were using such devices they may be restricted (by conditions) from burning of rubber, rubber tyres, metals and materials containing metals, cables, materials containing asbestos, medical waste, pathological wastes, quarantine waste and animal waste, dried animal faeces, synthetic material, motor vehicle parts, foams, fibreglass, batteries, chemicals, paint and other surface coating materials, tar, or any type of plastic or sludge from industrial processes.

- The Regional Council provisions that relate to water quality (chapter 4 of the NRRP) specifically contain effects-based provisions which manage the effects of discharges of contaminants into water or onto land where the contaminants may enter a waterbody or groundwater (e.g. WQL1 or WQL3). The conditions under those permitted rules are associated with volumes, concentrations, receiving
environments and dilution levels, so it is difficult to ascertain if non-natural farm waste will trigger those rules. WQL 17 sets out a permitted rule for the discharge of an agrichemical or agrichemical equipment or container washwater, subject to conditions. Those conditions include specific methods of “discharge” including being applied in accordance with:

- Hazardous Substances and New Organisms Act 1996
- The manufacturer’s (of product being applied) instructions
- Section 5 and Appendices L and S of NZS 8409:2004 Management of Agrichemicals
- Five metres of surface water, or a bore or well or within the Christchurch Groundwater Protection Zones 1, 1A, 1B, 1C, 1D or 2 unless, subject to certain (small) scale and protective measures,
- Is carried out by a person who holds a GROWSAFE® Pilots’ Agrichemical Rating Certificate
- Flight paths shall be recorded by an on-board differential global positioning system
- The discharge in the bed of an Alpine-upland river or Hill-fed-upland river in Map Volume Part 1 Planning Maps shall not occur between the first day of September and the last day of November in any year.

- WQL 22 manages the discharges from offal pits in production land including refuse, subject to 12 conditions. Those conditions (Appendix A.2) include the size, location, number within a defined area and proximity to sensitive environments, security (fencing) and restricting any liquid petroleum products, industrial solvents, or agrichemicals being discharged into an offal pit.

- WQL38A rule sets out the use of land to store a hazardous substance, and lists standard volumes, handling and storage methods allowing the activity to be a permitted activity.

In summary, while the Regional Council rules regulate burning of potential non-natural farm waste and the placement of waste in relation to effects on water quality, the potential for non-natural farm waste to be disposed of on farms is still possible where effects-based rules would not be triggered.

4.5. Summary

Any plan provision within the Canterbury region that contains effects-based rules, can be difficult for a lay person to interpret and understand whether their activities will contravene any permitted conditions. Effects-based rules are where the provisions regulate the effects on the environment, (for example, whether air discharges are objectionable or offensive or plumes remain within the property boundary), rather than regulating the activities themselves.

While there is an appreciation from Council Planning Officers throughout Canterbury that some non-natural farm waste could have significant adverse effects, there are few statutory provisions that specifically address the issue within District Plans. Expectations were that the issue of non-natural farm waste was the responsibility of the Waste Management Officers within Councils and that hazardous substance provisions were included in plans.

The planning and waste management regulations within City and District Plan provisions and Waste Minimisation and Management Plans are sparse in terms of specific regulation and management of non-natural farm waste. The provisions relating to hazardous substances and management are fairly consistent
between councils, as expected under the Hazardous Substances and New Organisms Act 1996 (previously Dangerous Goods Act) regulations. Only Christchurch City Council’s City Plan and Mackenzie District Council’s District Plan specifically address offal pits. Other District Plans are silent on this matter, with only earthworks or other amenity rules potentially triggering consents. While some of the councils accept non-natural farm waste occurs, this has not been addressed with regulatory methods. In many cases, passive (non-regulatory) methods have been adopted, but not documented within District Plan provisions. This is evident as few plans have permitted activity status for non-natural farm waste, or effects derived from such waste, apart from those provisions noted within this Section of the report.

While the Regional Council rules regulate burning of potential non-natural farm waste and the placement of waste in relation to effects on water quality, the potential for non-natural farm waste to be disposed of on farms is still possible where effects-based rules would not be triggered.

It appears that the focus of councils was to assist in the collection and reuse of non-natural farm waste (through voluntary schemes) where this is found to be economic. This involves promoting voluntary schemes and assisting with the collection, transfer and disposal or reuse of waste. There were a few, only small, other tasks being performed to address the potential effects of non-natural farm waste, primarily through education and promotion of drop-off points.

No detailed evaluation of why councils have taken a passive approach to manage or regulate non-natural farm waste has been undertaken, however, conversations with officers would indicate that generally reasons include:

- Resource constraints;
- Councils trust farmers to ‘do the right thing’;
- There has not been much assistance requested from the rural sector; or ,
- That farmers had been carrying out these activities ‘since the beginning’.

Therefore activities, for example offal pits, were in effect, permitted activities despite many District Plans not addressing this issue specifically.

What can be taken from the review is that the scale and significance of impacts from non-natural farm waste management are not well researched, that the generation and management of non-natural farm waste is largely unregulated in Canterbury (often only covered by generic permitted activity rules) and that there are limited actions in Waste Minimisation and Management Plans that specifically target non-natural farm waste.

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29 The exception being actions to support AgRecovery programmes. Many rural areas are also provided with generic waste management services (collection, recycling, ...) by their territorial local authority.
5. Local Authority Advocacy Material

A review of the following Council websites was undertaken to identify examples of waste management advocacy and information materials that are targeted at non-natural waste in the rural sector. The following websites were reviewed.

- Bay of Plenty Regional Council
- Carterton District Council
- Central Hawkes Bay District Council
- Environment Southland
- Far North District Council
- Gisborne District Council
- Hawkes Bay Regional Council
- Horizons Regional Council
- Northland Regional Council
- Otago Regional Council
- Southland District Council
- Taranaki Regional Council
- Tasman District Council
- Waikato Regional Council

There is limited easily available material identified specifically aimed at addressing non-natural farm waste. However, the best examples identified were from Waikato Regional Council\(^\text{30}\) (flyer addressing silage), Northland Regional Council\(^\text{31}\) (Chapter 7 (addressing waste) of the Farm Management Issues Manual, a project to promote the voluntary uptake of best management practices) and Bay of Plenty Regional Council\(^\text{32}\) (A Guide to Regional Plans – focussed on farming activities). These documents are attached as Appendix A.4. A review of the effectiveness of the documents was out of the scope of this report. Once Environment Canterbury has decided on the best approach to address non-natural farm waste, then the usefulness of these documents to Environment Canterbury’s approach can be considered.

\(^{30}\) http://www.waikatoregion.govt.nz/Community/Your-community/For-Farmers/Farmwaste/

\(^{31}\) http://www.nrc.govt.nz/upload/8897/Chapter 7 - Chemicals and Farm waste.pdf

\(^{32}\) http://www.boprc.govt.nz/media/31767/Publication-090528-GuideToRegionalPlansFarmingActivities.pdf
6. Potential Issues of Concern to Iwi

The scope of this section did not include engaging Iwi through consultation but rather has been an appraisal and evaluation based on our practice knowledge, having worked with many of the runanga within the Canterbury region, and best practice cultural impact assessment matters. It would be advisable that a validation process of this report is undertaken by consulting with Iwi as part of the regular Environment Canterbury-Iwi forum.

Cultural values associated with non-natural farm waste will be closely linked to Iwi concerns of land (soil) contamination, groundwater and waterways, and that of wāhi tapu, wāhi taonga and māhinga kai. While conventional Maori cultures consider natural waste can potentially be absorbed within the earth, (returning natural organisms to the earth), this philosophy is tempered with the type (artificial), the concentrations and volumes of waste and where non-natural farm waste is disposed. With large-scale farming occurring within Canterbury, the potential for large-scale non-natural farm waste is significant. Additionally, if non-natural farm waste is contaminated, Iwi generally will support the management framework within most city, district and regional plans for managing hazardous substances and contaminants.

The value of wāhi tapu (sacred place) depends on what type of cultural heritage is present, or known of. This could be a location of women giving birth, warriors travelling to battle, men carving (and their materials) or where people die and burial grounds. The value of wāhi taonga, being property, goods, possessions, effects, treasure, something prized, is a more material value to Iwi. Māhinga kai values are those values of food gathering and the environments that contribute to food gathering, including water, soils and fertility.

Throughout Canterbury, runanga and Ngāi Tahu will be considered stakeholders to any regulatory methods developed.
7. Options for Non-natural Farm Waste Disposal in Canterbury

There are a variety of options for the disposal of non-natural farm waste available in Canterbury and none of these differ from what is available elsewhere in New Zealand.

This section will briefly outline:

- The disposal options that are currently available to the Canterbury rural sector
- The preferred waste hierarchy in relation to disposal options
- The advantages and disadvantages of each waste disposal options
- How behaviour change can be used to shift non-natural waste disposal practices.

7.1. Disposal Options Currently Available for Non-natural Waste Stream

Section 1 outlined the common waste disposal options available to the rural sector for non-natural waste. Figure 1 (waste flow diagram) is repeated below as Figure 3.

The quantities of waste disposed of to each method are unknown due to the lack of waste data. Table 2 provides comment on the suitability of these options for each non-natural waste stream.
### Table 3 High level options for the disposal/recycling of waste streams

<table>
<thead>
<tr>
<th>Waste Category</th>
<th>On Farm Options</th>
<th>Off Farm Options</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Burning</td>
<td>Landfill</td>
</tr>
<tr>
<td></td>
<td>Reuse</td>
<td>Clean fill</td>
</tr>
<tr>
<td></td>
<td>Burying</td>
<td>Disposal onto land (Dumping)</td>
</tr>
<tr>
<td></td>
<td>Recovery</td>
<td>Disposal onto Land (fly tipping)</td>
</tr>
<tr>
<td></td>
<td>Disposal onto land (Dumping)</td>
<td>Recycling</td>
</tr>
<tr>
<td></td>
<td>Specialist Disposal</td>
<td>Reuse</td>
</tr>
<tr>
<td>Vehicle and machinery waste</td>
<td>No</td>
<td>Scrap metal</td>
</tr>
<tr>
<td></td>
<td>Acceptable for some materials</td>
<td>Waste Exchange</td>
</tr>
<tr>
<td>Plastic packaging</td>
<td>Yes – until January 2014</td>
<td>Yes i.e. Agrecovery, Plasback</td>
</tr>
<tr>
<td></td>
<td>Acceptable for some materials</td>
<td>Waste Exchange</td>
</tr>
<tr>
<td>Animal health products</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>Yes</td>
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<tr>
<td></td>
<td>No</td>
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<tr>
<td></td>
<td>No</td>
<td>No</td>
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<tr>
<td>Non-packaging plastic</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Acceptable for some materials</td>
<td>Yes i.e. Agrecovery, Plasback</td>
</tr>
<tr>
<td></td>
<td>Acceptable for some materials</td>
<td>Waste Exchange</td>
</tr>
<tr>
<td>Hazardous waste</td>
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<td>No</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Metal, glass, rubber</td>
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<td>No</td>
</tr>
<tr>
<td></td>
<td>Acceptable for some materials</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
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</tr>
<tr>
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<tr>
<td>Cardboard and Paper</td>
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<td></td>
<td>No</td>
<td>Yes</td>
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<tr>
<td>Construction and Demolition waste</td>
<td>Acceptable for some materials</td>
<td>No</td>
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<td></td>
<td>Acceptable for some materials</td>
<td>No</td>
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<td>Acceptable for some materials</td>
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<td>Acceptable for some materials</td>
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<td></td>
<td>Acceptable for some materials</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Some C&amp;D recycling facilities available</td>
<td>Waste Exchange</td>
</tr>
<tr>
<td></td>
<td>Waste Exchange Some C&amp;D recycling facilities available</td>
<td>No</td>
</tr>
</tbody>
</table>

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33 This does not include technology for the burning of general waste, as occurs internationally, as this practice does not commonly occur in NZ.
7.2. **Preferred Waste Hierarchy**

The waste hierarchy (Figure 4) provides a framework for managing and disposing waste. It states that the preferred action is to reduce waste, then reuse materials, recycle materials etc with disposal in landfill the least preferred action.

![Figure 4 Waste Hierarchy](image)

**Figure 4 Waste Hierarchy**

---

34 Ministry for the Environment, 2009
The hierarchy is a useful tool for Environment Canterbury as it will need to decide on the preferred waste management disposal options that it wishes farmers to use, as part of the development of a non-natural farm waste strategy. The development of a preferred hierarchy will allow clear waste management and minimisation messages to be delivered to the rural community.

A clear non-natural farm waste hierarchy will allow education messages to be clear and farmers to understand what is acceptable. For example, whether all on-farm non-natural waste disposal is inappropriate or just some types, and whether on-farm burning of some materials is better than the use of off-farm landfills. The use of burning will reduce the volume of material but potentially result in emissions of contaminants to air (refer MfE assessment of the burning of waste in 1997\textsuperscript{35}).

As the preferred non-natural farm waste hierarchy has not been established, the general principles of the waste hierarchy have been used in this report.

7.3. **Barriers to Responsible Waste Management and Minimisation**

Table 4 outlines the advantages and disadvantages of the available waste disposal options. Barriers to farmers taking responsible disposal practices are mooted and possible options for shifting behaviour listed.

The table is high level and relatively theoretical due to the lack of knowledge of current attitudes and behaviours in non-natural waste disposal practices in the region. Barriers can often be complex and interrelated and this table looks at these at a broad level. Further work should be undertaken before any action plan developed. This is explored in Section 8.

Table 4 Advantages and Disadvantages of Disposal Options

<table>
<thead>
<tr>
<th>Option</th>
<th>Advantages</th>
<th>Disadvantages</th>
<th>Possible Barriers to appropriate disposal</th>
<th>Things that may shift behaviour</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Only appropriate for certain waste streams</td>
<td>Lack of information</td>
<td>Guidance on what materials can be burnt (inform on potential impacts)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Risk of losing control of fire</td>
<td>Lack of a effective regulatory regime</td>
<td>Regulation (permitted activity rule for appropriate materials, default to discretionary or prohibited) specific to burning of waste materials</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Full combustion of material unlikely to occur – will result in release of particulate matter</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Need to consider air quality regulations</td>
<td></td>
<td></td>
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<tr>
<td>On Farm options</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Burning</td>
<td>Removes material cheaply</td>
<td>Easy</td>
<td></td>
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<td></td>
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<td></td>
<td></td>
<td>Only appropriate for certain waste streams</td>
<td>Lack of information</td>
<td>Guidance on what materials can be burnt (inform on potential impacts)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Risk of losing control of fire</td>
<td>Lack of a effective regulatory regime</td>
<td>Regulation (permitted activity rule for appropriate materials, default to discretionary or prohibited) specific to burning of waste materials</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Full combustion of material unlikely to occur – will result in release of particulate matter</td>
<td></td>
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<td></td>
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<td>Need to consider air quality regulations</td>
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<tr>
<td></td>
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<tr>
<td>Reuse</td>
<td>Removes the need to purchase new resources</td>
<td>Need somewhere to store materials till reuse opportunity arises (usually not a problem on farms)</td>
<td>Lack of information</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Extends the life of a material</td>
<td>Many waste types cannot be reused</td>
<td>Required effort involved</td>
<td></td>
</tr>
<tr>
<td></td>
<td>No effort needed to dispose of waste</td>
<td>Can require some effort (it is often easier just to buy a new item then adapt and reuse an existing one)</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Burying</td>
<td>‘Out of sight, out of mind’ for the farmer</td>
<td>Only appropriate for certain waste streams</td>
<td>Lack of information</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Easy</td>
<td>Can create ‘legacy issues’</td>
<td>Lack effective regulatory regime</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hard for Council to regulate</td>
<td></td>
<td></td>
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<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recovery</td>
<td>Allows the energy content of a materials to be used</td>
<td>May still have left over materials (ash) to dispose of</td>
<td>Low energy recovery for users</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Displaces a raw material (i.e fuel) that a farmer may have to purchase</td>
<td>Energy recovery may be low from combustion</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Need to store materials until needed</td>
<td></td>
<td></td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Disposal onto land</td>
<td>Easy and cheap for the farmer</td>
<td>Often illegal</td>
<td>Lack of information</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Can be very expensive to clean up</td>
<td>Lack of negative incentives</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Can result in environmental contamination</td>
<td>Lack of a effective regulatory regime</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>Landfill/cleanfill</td>
<td>Only viable option for asbestos</td>
<td>Increasing financial costs to the farmer (from travel and landfill fees)</td>
<td>Cost and effort to transport waste</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Modern ‘class A’ landfills are a relatively low risk option for disposal</td>
<td>Travel distance</td>
<td></td>
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<tr>
<td>Off Farm Options</td>
<td></td>
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<tr>
<td>Disposal onto land</td>
<td>Can be easy and cheap for the farmer</td>
<td>Often illegal</td>
<td>Lack of negative incentives</td>
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<tr>
<td></td>
<td></td>
<td>Can be very expensive to clean up</td>
<td>Lack of a effective regulatory regime</td>
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<tr>
<td></td>
<td></td>
<td>Can result in environmental contamination</td>
<td></td>
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<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recycling</td>
<td>Provides secondary materials (reducing demand for raw materials)</td>
<td>Viability depends on market forces</td>
<td>Lack of positive incentives (financial)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Reduced financial and environmental costs compared with sending to landfill</td>
<td>Farmer often must store materials until recycling service visits and coordinate pick ups</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Some product stewardship schemes exist</td>
<td>Lack of depots to place materials for recycling</td>
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<tr>
<td></td>
<td></td>
<td>May still need to pay to recycle</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Lack of knowledge about options</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Many suppliers will not take used product/packaging back from the farmer</td>
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</tr>
<tr>
<td>Option</td>
<td>Advantages</td>
<td>Disadvantages</td>
<td>Possible Barriers to appropriate disposal</td>
<td>Things that may shift behaviour</td>
</tr>
<tr>
<td>-------------------</td>
<td>----------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------</td>
<td>------------------------------------------</td>
<td>-------------------------------------------------------------</td>
</tr>
<tr>
<td>Reuse</td>
<td>- Removes the need to purchase new resources</td>
<td>- Need somewhere to store materials till reuse opportunity arises</td>
<td>- Lack of positive incentives (financial)</td>
<td>- Ensure schemes suit users</td>
</tr>
<tr>
<td></td>
<td>- Extends the life of a material</td>
<td>- Many waste types cannot be reused</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Provides a cheap options for users of material</td>
<td>- Need a forum/market to link suppliers and users of materials</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>- Lack of knowledge of options</td>
<td></td>
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<tr>
<td>Specialist</td>
<td><strong>Disposal</strong></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>- Ensures destruction of hazardous items</td>
<td>- Need to store and transport items to appropriate facility (with associated cost)</td>
<td>- Cost and effort to transport waste</td>
<td>- Consider council funded collection in combination with</td>
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<td></td>
<td></td>
<td></td>
<td>- Cost of service</td>
<td>Product Stewardship (AgRecovery)</td>
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7.4. Summary of Barriers

Based on Table 4, barriers to the use of appropriate waste management disposal options can be grouped under three main headings:

- Lack of information
- Lack of non-natural farm waste recovery facilities
- Relatively high costs (time and money) for off farm recovery and disposal.

These barriers and their potential interconnectedness should be explored further before any action is taken to address them. The lack of knowledge on current practices means that the degree to which each is a barrier is not understood.

7.5. Use of Behaviour Change Methods

The barriers to appropriate waste disposal can be varied, but without more information on current waste practices and drivers it is not possible to describe in detail what may shift behaviours, nor where they need shifting to or from. In general terms, a change in behaviour requires a combination of three aspects:36

- Supply measures:
  - Infrastructure provision
- Demand measures:
  - Regulation, policy, pricing, enforcement and education
- Voluntary measures:
  - Requiring trust, good communication and identification of common goals.

As noted previously in this report, there is a lack of data about current practises and quantity of materials requiring management. Improved information will assist in identifying where more effort may be needed to shift any undesirable behaviour. Using the three strand model outlined above, effort can be spread across supply, demand and voluntary behaviour change initiatives to achieve an effective and lasting change in behaviour.

A waste strategy may have initiatives to address barriers and change behaviour. However, the sourcing and provision of waste data must be dealt with first as without data any initial actions may be misguided.

---

8. Conclusions

This study has found:

- A lack of data is hampering the ability to assess non-natural farm waste quantities, disposal practices, and environmental impacts;
- There are no specific central or local government work programmes aimed specifically at farm waste;
- There are some industry-led schemes but they focus on a particular waste stream and not waste in general;
- Any plan provision within the Canterbury region that contains effects-based rules, can be difficult for a lay person to interpret and understand whether their activities will contravene any permitted conditions; and
- The generation and management of non-natural farm waste is largely unregulated in Canterbury (often covered by generic permitted activity rules) and that there are limited actions in Waste Minimisation and Management Plans that specifically target non-natural farm waste.

A more complete data set will allow the environmental impacts of non-natural waste and current waste flows to be understood. Once a better understanding of non-natural farm waste is understood, then discussion can be had on the most effective way to address any undesirable impacts or behaviours, including the use of statutory, non-statutory, voluntary and other measures. For the purpose of this study, it is assumed that a non-natural farm waste strategy will be the preferred option for Environment Canterbury following any data improvement projects, with specific actions informed by the data.

8.1. Recommendations

8.1.1. Recommendation One: Form a Good Data Set

In the absence of robust waste data and knowledge of current waste practices, it is difficult to identify priorities or make recommendations on the most appropriate waste stream or farming group to work with to ensure the appropriate disposal of waste.

A data set could be gained in several ways but it is recommended that Environment Canterbury carries out one or more pilot studies focussed on a selection of farms to develop an understanding of where waste is generated. The pilot studies should also be designed to identify any correlation between farm activities, products purchased and waste generation. The environmental harm caused by existing waste disposal practices should also be considered. This would help inform any larger scale study or investigation.

The pilot study should also be designed to provide enough information to help implement the other recommendations below. Pilot studies could be undertaken by Environment Canterbury on its own, by working with one or more industry groups and/or by working with territorial local authorities in the Canterbury region. There may be potential to seek Waste Minimisation Fund support for this type of study.
To help implement this recommendation it is recommended that Environment Canterbury:

**Work with Industry Groupings**

Farms of similar type are likely to have similar waste types and disposal practices. Therefore working with, or through, the industry groups will allow Environment Canterbury to investigate waste quantity and composition, and at later stages tackle specific waste streams efficiently (i.e. pilot studies to be carried out, or allow advocacy material to be designed, tested and distributed through one channel). Industry groupings could include: Horticulture NZ; Sustainable Wine Growers NZ; Growsafe; Deer NZ; Dairy NZ; Sheep and Beef; Beekeepers Associations.

**Work with the District and City Councils**

As well as research into waste data, it is recommended that the scale, character and significance of environmental effects from non-natural farm waste disposal be considered. Research should be a combination of identifying existing studies (such as the farm plastics LCA referenced in this study) and potentially targeted investigations. Examples could include investigating the contents of a sample of farm dumps or considering the emissions from uncontrolled burning. This can be undertaken in co-operation with territorial local authorities. The District Council Liaison Officers at Environment Canterbury and the Regional/District Council forum could be used to embark on this process.

Recommendation One should allow enough information to be gathered for the issue of non-natural farm waste disposal to be clarified in terms of current practices, attitudes, environmental harm and therefore what steps can effectively be taken to address any undesirable practices. This information can form the basis of a non-natural farm waste strategy.

**8.1.2. Recommendation Two: Develop a Waste Strategy**

An effective waste strategy is likely to address a mix of three components:

- Policy and drivers for improved waste management;
- Infrastructure to enable improved waste management; and
- Behaviour change initiatives to support improved waste management.

and is underpinned by reliable data enabling informed decisions to take place and robust assessment of the effectiveness of the strategy.

These are interrelated and the implementation methods below will help ensure an effective non-natural farm waste strategy for the Canterbury region is developed.

To inform the development of a waste strategy, Environment Canterbury should:

**Research Good Practices Internationally**

This report has conducted a review of practices in other New Zealand local authorities outside of Canterbury. It has shown that their non-natural farm waste management practices are similar across the country. Therefore, an international review could be carried out to identify any other non-natural farm
waste management practices that may be useful in the region, and that Environment Canterbury (and the district councils), could use, or learn from, as a waste strategy is prepared.

**Identify Drivers for Change**

Linked to any community engagement method is the identification of drivers for change. There are many ways to create behaviour change but generally, information, trust (between parties) and common goals are required. Current good practice on farms appears to have been driven by:

- Peer pressure
- Retailer, consumer demands (certification schemes) and increasing competitive pressures
- Growing public concern about the environmental and human health impacts of waste, and increasing pressures from local communities and visitors to the countryside
- Regulation
- Cost
- Availability of alternatives in on-farm disposal/stockpiling/burning
- Increased knowledge of environmental/social effects of on-farm disposal/stockpiling/burning.

However, as part of any investigative study, further work will be required to understand what drivers are important to the farmers and if these differ between groupings (i.e. dairy farmers vs. deer farmers or Northern Canterbury vs. Southern Canterbury).

**Consult with Iwi**

Throughout Canterbury, runanga and Ngai Tahu will be considered stakeholders to any regulatory (and potentially non-regulatory) methods developed.

**Prioritise Waste Streams to Address**

Once more knowledge about waste streams and waste flows within the region is gained, a risk assessment can be carried out in order to help determine which waste streams should be addressed first. Waste streams could be assessed against factors such as:

- Environmental harm (i.e. some waste could be a small quantity of the waste stream yet cause a disproportionate amount of harm if managed inappropriately)
- Current waste practices (i.e. if it is found that most treated timber is burnt on farms, an initial focus could be to reduce the practice through improved communication or proving alternatives)
- Availability of alternatives to landfill (i.e. if an alternative to landfill already exists, such as Plasback or Agrecovey, but it is found that a large amount of plastics are still disposed of, then initial efforts could focus on ensuing all plastics are recycled through the existing schemes).

Actions arising from this process will be varied and involve a range of stakeholders (local authorities, farming industry groups, Iwi and/or community groups). We would expect a range of actions, many of which will be informed by the benchmarking and prioritisation process. Examples are likely to include:

- Ongoing collection of data
- Investigation into the coordination of District Plan mechanisms across the region (could feed into national level guidance via Quality Planning)
- Investigation into potential non-regulatory methods (District Plan, Regional Plan and Waste Minimisation and Management Plans) to achieve improvements in non-natural farm waste management
- Consideration of approaches to ‘plugging’ infrastructure gaps – through local authority investment, encouraging private sector investment, leveraging Waste Minimisation Funding.
- Form and implement stakeholder engagement plans. The remote nature of some rural areas and lack of visibility of waste disposal practices can make it difficult to engage with farmers and monitor disposal practices. Stakeholder engagement groups and plans should be set up to ensure effective community engagement. These could be developed in conjunction with other local authorities and industry groups. Effective community engagement strategies should be used and often involve a mix of supply (e.g. infrastructure provision), demand (e.g. education and regulation) and voluntary behaviour change methods.
9. Acknowledgements

The following people have provided information that has been used in the study and the time they have provided has been gratefully accepted.

<table>
<thead>
<tr>
<th>Name</th>
<th>Organization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dana Peterson, Natasha Lewis</td>
<td>Ministry for the Environment</td>
</tr>
<tr>
<td>Phil Parkes</td>
<td>Ministry of Agriculture and Forestry</td>
</tr>
<tr>
<td>Graeme Norton</td>
<td>3R Group</td>
</tr>
<tr>
<td>Matt Hoggard</td>
<td>Kaikoura District Council</td>
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<td>Sally Cracknell</td>
<td>Hurunui District Council</td>
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<tr>
<td>Tammy McMahon, Kitty Waghorn</td>
<td>Waimakariri District Council</td>
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<tr>
<td>Rosie Flynn, Gavin Sole</td>
<td>Selwyn District Council</td>
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<tr>
<td>Cheryl Coombes</td>
<td>Ashburton District Council</td>
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<tr>
<td>Jonathan Craig, Ruth Clarke</td>
<td>Timaru District Council</td>
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<td>Kevin Tiffen, Margaret Mather</td>
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<tr>
<td>Rachael Todd, Maurice McGunnigle</td>
<td>Waitaki District Council</td>
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<tr>
<td>Carl McKay</td>
<td>McKenzie District Council</td>
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<tr>
<td>Ivan Thompson, Kent Wilson, Zefanja Potgieter</td>
<td>Christchurch City Council</td>
</tr>
</tbody>
</table>
Appendices

A.1 Examples of schemes funded by the Waste Minimisation Fund

A.2 Council Rule Summary

A.3 EPA – Banned Pesticides on Farms Flyer

A.4 Examples of Advocacy Material from Councils

A.4.1 Waikato Regional Council\(^ {37}\)

A.4.2 Northland Regional Council\(^ {38}\) (Chapter 7 (addressing waste) of the Farm Management Issues Manual a project to promote the voluntary uptake of best management practices)

A.4.3 Bay Of Plenty Regional Council\(^ {39}\) (A Guide to Regional Plans – focussed on farming activities).


A.1 Examples of Schemes Funded by the Waste Minimisation Fund (WMF)

The following list is of funded schemes that may be of interest to Environment Canterbury and should be investigated further once more is known about current waste disposal practices in the region. No comment or further analysis has been conducted at this stage and it is recommended that, when further work is undertaken, the Ministry for the Environment is contacted for an update on any new schemes.

Relevant WMF Schemes funded in 2009

<table>
<thead>
<tr>
<th>Scheme</th>
<th>Applicant</th>
<th>Region</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amnesty to Facilitate Final PCB Disposal</td>
<td>Transpacific Technical Services (NZ) Limited</td>
<td>NZ Nation Wide</td>
<td>PCBs in old electrical equipment and light fittings are an internationally identified hazardous waste. Funding from the waste minimisation fund will help raise awareness of this waste issue, create an amnesty on these items and provide collection points for their disposal. It will help New Zealand achieve the elimination of this hazardous waste from our environment and compliance with one of New Zealand's environmental goals as a party to the Stockholm Convention.</td>
</tr>
<tr>
<td>Antifreeze recycling service</td>
<td>Beta Antifreeze Limited</td>
<td>Otago</td>
<td>Automotive coolant and contaminated glycol will be collected and recycled at a facility that is to be developed in Dunedin. The service will not only recycle used coolant but dispose of the recovered glycol by selling it back into the market place.</td>
</tr>
<tr>
<td>E-waste recovery from a nationwide network of collection points. Catering for household consumers, schools and small businesses.</td>
<td>RCN and Associates Limited</td>
<td>NZ Nationwide</td>
<td>RCN, in partnership with the Community Recycling Network will work with landfill operators, recycling centres and town councils to collect e-waste from household consumers and small businesses. The e-waste will be collected and recycled by the RCN partner plant in Auckland (CRT monitors and TVs), and when established, facilities in Wellington and Christchurch. Waste that cannot be recycled in this manner will be sent, under Ministry of Economic Development issued permits, to an international recycling plant in Singapore. The project will provide a professional, sustainable, convenient and cost-effective solution for e-waste recycling, diverting this waste from landfill.</td>
</tr>
</tbody>
</table>
‘Hard to Recycle’ HDPE wash and recycle plant

| Applicant: | Auckland Drum Sustainability Services Limited |
| Region: | Auckland |

Making use of Auckland Drum’s existing collection infrastructure, this project will commission a new plastics recycling and washing plant to convert ‘hard to recycle’ HDPE plastic scrap (number 2 plastics) into material reusable within New Zealand. The recycled plastics recycled will include a mix of post-consumer and post-industrial plastic scrap ranging from 5 to 1000 litre plastic containers which have contained substances such as paint, oil, resins and industrial chemicals. The washed and processed material will be supplied to the New Zealand plastic packaging industry as a direct substitute for imported virgin plastic polymer in a range of existing products, in particular those with ‘Environmental Choice’ accreditation.

Relevant WMF Schemes Funded in 2010

RCN e-Cycle

| Applicant: | RCN and Associates Limited |
| Region: | Nationwide |

This project will raise awareness and promote the need to recover electronic waste including CRT TV’s for reuse and recycling. The objectives are: to promote the RCN e-Cycle electronic waste solution to the public through mass media and education channels; to expand the geographic footprint of the drop off site network to provide an additional 15 drop-off sites; to provide operations standards (based on Australian/New Zealand standards) to all drop off site operators; to improve data gathering and chain of custody systems to provide more information to project stakeholders.

Technology to recycle TVs and computer monitors preventing the lead from cathode ray tubes from entering landfill

| Applicant: | Abilities Incorporated |
| Region: | Auckland |

The purpose of this project is to introduce proven CRT Glass separation equipment into New Zealand which will safely extract toxic lead from analogue TVs and computer monitors onshore. The glass separation system uses hot band technology to separate the CRT tubes, 70% of which can be recycled locally with the remainder sent off shore.
**Up the Pipe solutions: enhancing the recovery of household wastes**

<table>
<thead>
<tr>
<th>Applicant</th>
<th>The Cawthron Institute Trust Board</th>
</tr>
</thead>
<tbody>
<tr>
<td>Region</td>
<td>Canterbury (Nelson)</td>
</tr>
</tbody>
</table>

The purpose of the project is to enhance the reuse of rural community wastes by reducing contaminants. Waste streams will be characterised and contaminant sources identified. Solutions to reduce contaminants in waste will be explored in partnership with the community.

**Waste Oil Alternative Fuels project**

<table>
<thead>
<tr>
<th>Applicant</th>
<th>Wellington Institute of Technology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Region</td>
<td>Wellington</td>
</tr>
</tbody>
</table>

This project will provide a sustainable practical economical solution to the problem of hazardous waste oil, through its safe collection & recycling, to be reused in a new blended alternative emulsified low emission vehicle fuel.
Appendix A.2 – Council Rules Summary

District Plans and Regional Plans

1.1 District Plans
The Relevant Rule column contains (P), (c), (D), (DR) (N), as letters (within the second column) to illustrate the rule status, in terms of being Permitted, Controlled, Discretionary, Discretionary Restricted and Non Complying.

1.1.1 Kaikoura District Council

Kaikoura District Plan contains Sections 5-17 covering District-Wide Issues, Objectives, Policies and Rules, and Sections 18-24, covering a range of zones.

Sections
5. Tangata Whenua Values
6. Recreation and Open Space
7. Development and Tourism
8. Natural Hazards
9. Hazardous Substances
10. Utilities
11. Landscape and Amenity
12. Transport
13. Subdivision
14. Financial Contributions
15. Historic Heritage, Tree Protection, Archaeological Sites
16. Outdoor Advertising
17. Relocated & Temporary Buildings and Temporary Activities

Zones
19. Settlement Zones
20. Business Zones
21. Marine Facilities Zone
22. Rural Zone
23. Kaikoura Peninsula Tourism Zone
24. Ocean Ridge Comprehensive Living Zone
Section 9 (Hazardous Substances) is the most relevant section in respect to non-natural farm waste. Reviews of the rules have not found any prescriptive provisions relating directly to non-natural farm waste. There are prescriptive provisions relating to fuels, lubricants (contaminants) and the associated storage volumes and facilities.

### Kaikoura District Council – District Plan

<table>
<thead>
<tr>
<th>Activity</th>
<th>Relevant Rule No.</th>
<th>Status, or how the rule addressed the farm waste</th>
<th>Assessment/Effectiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hazardous Substances</td>
<td>9.4.1 (P)</td>
<td>Permits Schedule 1: Classification of storage (per site) of hazardous substances for explosives, gases, flammable liquids, flammable solids, oxidising substances, corrosives, agri-chemicals, other (timber preservatives, chloride solvents)</td>
<td>The rules specify how volumes of hazardous substances are restricted.</td>
</tr>
<tr>
<td>Rural Zone</td>
<td>22.8</td>
<td>Performance standards include:</td>
<td>Refer Appendix G of the District Plan for that protocol (attached at the end of this document). Note that these provisions are not dissimilar between each Council and have not all been re-produced for every Council planning provisions.</td>
</tr>
</tbody>
</table>
1.1.2  **Hurunui District Plan**  
The Hurunui District Plan contains Section A – District-wide rules, which includes A1-A10, and Section B – Environments of special concern, as listed:

<table>
<thead>
<tr>
<th>Section A</th>
<th>Section B</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1 – Environmental amenity</td>
<td>B1 – Urban areas</td>
</tr>
<tr>
<td>A2 – Landscape</td>
<td>B2 – Coastal environment</td>
</tr>
<tr>
<td>A3 – SubdivisionA4 – Esplanade reserves and strips</td>
<td>B3 – Hurunui Lakes area</td>
</tr>
<tr>
<td>A5 – Transportation</td>
<td>B4 – Hanmer Basin</td>
</tr>
<tr>
<td>A6 – Utilities</td>
<td>B5 – Mount Lyford</td>
</tr>
<tr>
<td>A7 – Natural environment</td>
<td>B6 – Buxton Valley</td>
</tr>
<tr>
<td>A8 – Heritage</td>
<td></td>
</tr>
<tr>
<td>A9 – Natural hazards</td>
<td></td>
</tr>
<tr>
<td>A10 – Hazardous substances and waste management</td>
<td></td>
</tr>
</tbody>
</table>

Section A10 is the only relevant section in respect to non-natural farm waste. A review of the rules has only found generic rules. For example, A1.2.10 (screening of non-residential activities), that does not detail non-natural farm waste specifically. The ‘screening of non-residential activities’ is not defined in the definition of the Plan, and relies on council officers’ interpretation of activities that need to be screened. Some waste materials are covered, such as a demolished building covered under A1.2.12 (demolished buildings), which states ‘all material from demolished or partly demolished buildings shall be removed from a site within 2 months of the demolition being completed’. No other provisions (Sections) specifically cover non-natural farm waste.
### Hurunui District Plan

<table>
<thead>
<tr>
<th>Activity</th>
<th>Relevant Rule No.</th>
<th>Status, or how the rule addressed the farm waste</th>
<th>Assessment/Effectiveness</th>
</tr>
</thead>
</table>
| Hazardous substances and waste  | Section A10 (P)   | **A10.1 Permitted activities**
A Schedule of Hazardous Substances managed under this rule is contained in Appendix A10.1

**A10.1.1**

Unless otherwise specified in this Section, the use, transportation, storage, manufacture or disposal of any hazardous substance listed in the Schedule under Appendix A10.1 that complies with the conditions within Section A10.2 is permitted, provided it also complies with all other district-wide rules and rules for Environments of Special Concern in Section B.

**A10.1.2**

Unless otherwise specified in this section, the recovery, reuse, recycling, treatment and disposal of waste products and material that complies with the conditions within Section A10.2 is permitted, provided it also complies with all other district-wide rules and the rules for Environments of Special Concern in Section B.

**A10.1.3**

The use, transportation or storage of any hazardous substance listed in the schedule under the Appendix A10.1 for any temporary military training activity, is permitted, provided that it also complies with all other district-wide rules and rules for...
### Hurunui District Plan

<table>
<thead>
<tr>
<th>Activity</th>
<th>Relevant Rule No.</th>
<th>Status, or how the rule addressed the farm waste</th>
<th>Assessment/Effectiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Environments of Special Concern in Section B.</td>
<td></td>
</tr>
<tr>
<td><strong>A10.2 Conditions for permitted activities</strong></td>
<td></td>
<td>Note: Refer to Appendix A10.1 – Schedule of Hazardous Substances</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>A10.2.1 Threshold limits</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>The maximum amount of any hazardous substance listed in the Schedule under Appendix A10.1 on a site shall meet the following threshold limits:</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(a) On any residential site or residentially zoned site or on any part of any site within 75 metres of any residential site or residentially zoned site, the maximum amount shall be as listed under the level I threshold;</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>(b) On any other site, the maximum amount shall be as listed under the level II threshold.</td>
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<td></td>
<td></td>
<td><strong>A10.2.2 Design standards</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>All sites, or parts of sites, where any hazardous substances below the level I and level II threshold quantities in Appendix A10.1 are used, stored (excluding landfills), manufactured, produced, mixed or repackaged must comply with the following standards (these standards do not apply to hazardous substances where they are</td>
<td></td>
</tr>
</tbody>
</table>
## Hurunui District Plan

<table>
<thead>
<tr>
<th>Activity</th>
<th>Relevant Rule No.</th>
<th>Status, or how the rule addressed the farm waste</th>
<th>Assessment/Effectiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>(a) All areas in which hazardous substance/s are used, stored or handled must be roofed and sealed with impervious materials.</td>
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<td></td>
<td></td>
<td>(b) Protection measures shall be provided in case of substance spills, such as bunding with impervious materials which have sufficient capture area to hold a spill or release.</td>
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<td></td>
<td></td>
<td>(c) There must be washing facilities for vehicles, equipment, surfaces and containers which have contact with hazardous substance/s. These washing facilities must be sealed, bunded, and roofed, with a drainage system installed to ensure that no hazardous materials enter the stormwater system or the environment.</td>
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<td></td>
<td>Note: Refer to Policies 15.3 and 15.4 A10.2.3</td>
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<tr>
<td></td>
<td></td>
<td>No hazardous substance may be discharged into the stormwater system.</td>
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<tr>
<td></td>
<td></td>
<td>Note: Refer to Policies 4.1 and 4.2</td>
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<tr>
<td></td>
<td><strong>A10.2.4</strong></td>
<td>Any activity which involves the emission of radiofrequency radiation shall comply with NZS 6609:1990.</td>
<td></td>
</tr>
<tr>
<td>Activity</td>
<td>Relevant Rule No.</td>
<td>Status, or how the rule addressed the farm waste</td>
<td>Assessment/Effectiveness</td>
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<td>Note: Refer to Policy 15.5</td>
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<tr>
<td></td>
<td><strong>A10.2.5</strong></td>
<td>Any activity which involves the emission of radiation, other than radiofrequency radiation shall meet the requirements of any relevant New Zealand standard or legislation.</td>
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<tr>
<td></td>
<td></td>
<td>Note: Refer to Policy 15.5</td>
<td></td>
</tr>
<tr>
<td>Activity</td>
<td>Relevant Rule No.</td>
<td>Status, or how the rule addressed the farm waste</td>
<td>Assessment/Effectiveness</td>
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</tr>
<tr>
<td></td>
<td>A10.3 (D)</td>
<td><strong>Discretionary activities (unrestricted)</strong></td>
<td>Where hazardous substances/waste products do not meet permitted standards, they are discretionary.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(a) The use, storage, manufacture or disposal of any hazardous substance that does not comply with one or more of the conditions within Section A10.2, except as specified as a non-complying activity.</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>(b) The recovery, reuse, recycling, treatment and disposal of waste products and material that do not comply with one or more of the conditions within Section A10.2.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(c) Individual movements of hazardous substances to or from sites, in quantities above the Level I thresholds, excluding the movement of fuel, oil and petroleum products.</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>(d) Landfills. Note: Refer to Section D for the definition of a landfill. Refer to Policy 13.2</td>
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<tr>
<td></td>
<td></td>
<td>(e) Transfer stations outside industrial zones.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>A10.4 (N)</td>
<td><strong>Non-complying activities</strong></td>
<td>Specified activities involving hazardous substances are non-complying</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(a) The use, transportation, storage, manufacture or disposal of radioactive substance above the threshold limit specified in Appendix A10.1.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(b) Any activity which involves the emission of radiation, other than radiofrequency, that does not meet the requirements of any relevant New Zealand standard.</td>
<td></td>
</tr>
</tbody>
</table>
In assessing applications for resource consent, Council will consider the relevant criteria in Section C1.2, in addition to any other relevant matters.

### 1.1.3 Christchurch City Council

The Christchurch City Plan is divided into the following sections, which cover both general and zone specific rules:

2. Living Zones
3. Business Zones
4. Rural Zones
5. Conservation Zones
6. Open Space Zones
7. Cultural Zones
8. Special Purpose Zones

9. General City Rules
10. Heritage and Amenities
11. Health and Safety
12. Designations
13. Transport
14. Subdivision

Parts 4 (Rural Zones) and 11 (Health and Safety) have provisions relating to non-natural farm waste. Part 4 provides rules for offal pits, and Part 11 contains a range of provisions to manage the storage, manufacturing, use, and disposal of hazardous substances.
<table>
<thead>
<tr>
<th>Activity</th>
<th>Relevant Rule No.</th>
<th>Status, or how the rule addressed the farm waste</th>
<th>Assessment/Effectiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Offal pits</td>
<td>Part 4 Rural Zones Community Standards 2.4.8 and 3.3.13 (P)</td>
<td>Community Standard: (a) Any offal pit shall be setback a minimum of 20m from any site boundary. (b) Any offal pit shall be located a minimum of 200m up gradient or 50m down gradient of any public or private water supply well, and shall be located a minimum of 50m from any stream, drain, river, lake or stock water race. (c) The bottom of any offal pit shall be a minimum of 1 metre above the normal maximum groundwater level. (d) Any offal pit shall only be used for the disposal of offal and carcass wastes. (e) Any offal pit shall be covered in such a manner to ensure public safety and exclude vermin. (f) Any offal pit shall have a depth greater than 1m; (g) When use of any offal pit is terminated, it shall be covered with soil. The soil shall have a minimum depth of 1m. The finished level shall be the same as the surrounding ground level.</td>
<td>This standard sets out the permitted standards for offal pits primarily in relation to where offal pits are located.</td>
</tr>
<tr>
<td>Hazardous Substances</td>
<td>3.3.2 – 3.3.3 (P)</td>
<td>Permitted activities (a) Any individual activity which involves the use, manufacturing, storage or disposal of hazardous substances specified in Schedule 1 (Classification of hazardous substances), which complies with: • all the development standards under Clause 3.3.3 and; • all the community standards under Clause 3.3.4 and; • all the critical standards under Clause 3.3.5 or;</td>
<td>These provisions set out the permitted standards for managing hazardous substances.</td>
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<tr>
<td>• is otherwise exempted by Clause 3.3.6 shall be a permitted activity. (also refer to Clause 3.2.1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.3.3 Development standards Updated 14 November 2005</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Any individual activity which involves the manufacturing, use, storage and/or disposal of hazardous substances, which does not comply with any one or more of the following shall be a discretionary activity, with the exercise of the Council's discretion limited to the matter(s) subject to that standard.

(a) Any individual activity which involves the manufacturing use, storage, or disposal of hazardous substances specified in Schedule 1 (Classification of Hazardous Substances), shall not exceed the quantities specified in Column A. This standard does not apply to Radioactive materials as defined in Clause 3.3.4 (c). (also refer to Clause 3.3.6)

(b) All areas or parts of sites where hazardous substances (including waste) are manufactured, stored, used, loaded or unloaded (except for the loading and unloading of gas bottles) shall be:
   (i) in the case of liquids (excluding LPG), paved so that any spillage will not escape into, or otherwise affect, topsoil or subsoil;
   (ii) protected against the effects of weather through site containment, roofing or any other method to prevent uncontrolled discharge or spillage from the site as a result of adverse weather conditions;
   (iii) sealed, or otherwise contained so that substances cannot escape or spill in an uncontrolled manner;
   (iv) in the case of aboveground storage or use of liquids (excluding LPG), imperviously sealed, bunded or otherwise contained so that a spillage shall be confined totally within the site on which it occurs.
(c) To achieve (b) above, the following specifications are required:
(i) the volume of any containment or bund shall be 100% of the maximum volume of the hazardous substances to be stored, used, loaded or unloaded when the site is roofed; or

(ii) the volume of any containment or bund shall be 120% of the maximum volume of the hazardous substances to be stored, used, loaded or unloaded when the site is unroofed;

(iii) the containment or bund should be designed in such a way as to ensure containment of any hazardous substances that spill due to the collapse of any container (e.g. tank), and the containment from the direct leakage from any container;

(iv) the containment or bund shall be sealed with impervious materials that are resistant to breakdown from the particular hazardous substances which they are designed to contain;

(v) the containment or bund and its sealment shall be maintained as and when necessary.

(d) Collection of hazardous substances for disposal purposes, or for subsequent use, shall be in containers that seal and contain the hazardous substances collected.

(e) All hazardous substance sites shall be adequately signposted according to the Code of practice for "Warning signs for premises storing hazardous substances 1988" of the New Zealand Chemical Industry Council.

<table>
<thead>
<tr>
<th>Hazardous Substances</th>
<th>3.3.4 (D)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>3.3.4 Community standards</strong></td>
<td></td>
</tr>
<tr>
<td>Updated 14 November 2005</td>
<td></td>
</tr>
<tr>
<td>(a) Any activity which involves the manufacturing of any hazardous substance on any site in the zones included in Groups 2 and 4 (Schedule 2) shall be a discretionary activity.</td>
<td></td>
</tr>
<tr>
<td>(b) Any individual activity, other than a health facility, which involves the manufacturing, use, storage or disposal of infectious substances, (being preparations (including wastes arising from such preparation processes) which contain viable micro-organisms or their toxins which are known or suspected to</td>
<td></td>
</tr>
</tbody>
</table>

This rule sets out specific discretionary activities related to hazardous substances.
<table>
<thead>
<tr>
<th>Hazardous Substances</th>
<th>3.3.5 Critical standards</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>3.3.5 (NC)</strong></td>
<td><strong>Updated 12 September 2011</strong></td>
</tr>
<tr>
<td>(a) Any individual activity which involves the manufacturing, use, storage or disposal of hazardous substances specified in Schedule 1 (Classification of hazardous substances) which exceeds the quantities specified in Column B (where specified) of Schedule 2 for any site in the relevant zone shall be a non-complying activity. (also refer to Clause 3.3.6)</td>
<td></td>
</tr>
<tr>
<td>(b) Any activity which involves the manufacturing of any hazardous substance shall be a non-complying activity on any site in those zones included in Groups 1 and 3 (Schedule 2).</td>
<td></td>
</tr>
<tr>
<td>(c) Any individual activity, other than a health facility, which involves the manufacturing, use, storage or disposal of infectious substances as defined in 3.3.4(b) above as part of or associated with any industrial or commercial activity (including associated laboratory and research facilities) shall be a non-complying activity on any site in those zones included in Groups 1 and 3 (Schedule 2).</td>
<td></td>
</tr>
<tr>
<td>(d) Any individual activity which involves the manufacturing, use, storage or disposal of radioactive material, as defined in 3.3.4 (c) above, exceeding the Type A package limit shall be a non-complying activity on any site in those zones included in Groups 1 and 3 (Schedule 2).</td>
<td></td>
</tr>
</tbody>
</table>

This provision sets out specific thresholds which, when exceeded, make activities non-complying.
1.1.4 Christchurch City Council (Banks Peninsula Plan) Rules
The Banks Peninsula District Plan (under the administration of Christchurch City Council) contains rules within two parts of the Plan. Part V covers zone rules, and Part VI covers general provisions.

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>17. Lakes</td>
<td>32. Financial Contributions</td>
</tr>
<tr>
<td>18. Recreational reserves</td>
<td>33. Noise</td>
</tr>
<tr>
<td>19. Rural</td>
<td>34. Signs</td>
</tr>
<tr>
<td>20. Rural – residential</td>
<td>35. Access, parking and loading</td>
</tr>
<tr>
<td>21. Small settlement</td>
<td>36. Utilities</td>
</tr>
<tr>
<td>22. Papakaiaanga</td>
<td>37. Waste management and hazardous substances</td>
</tr>
<tr>
<td>23. Akaroa hill slopes</td>
<td>38. Natural hazards</td>
</tr>
<tr>
<td>25. Residential conservation</td>
<td>40. Monitoring and review procedures</td>
</tr>
<tr>
<td>26. Town centre</td>
<td>41. Canterbury Earthquake Recovery</td>
</tr>
<tr>
<td>27. Lyttleton Port</td>
<td></td>
</tr>
<tr>
<td>28. Boat harbour</td>
<td></td>
</tr>
<tr>
<td>29. Industrial</td>
<td></td>
</tr>
</tbody>
</table>

Only Chapter 37 has been found to contain rules relating to non-natural farm waste. The provisions in this chapter relate to controlling hazardous substances and waste management, in respect to the volumes and facilities to store specific contaminants. The full assessment of provisions is assessed below.
### Christchurch City Council (Banks Peninsula Plan) Rules

<table>
<thead>
<tr>
<th>Activity</th>
<th>Relevant Rule No.</th>
<th>Status, or how the rule addressed the farm waste</th>
<th>Assessment/Effectiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Managing waste and hazardous substances</td>
<td>37(1) (P)</td>
<td>Permitted Activities: The following are permitted activities where they meet the standards specified:</td>
<td>This provision sets out the permitted standards for managing hazardous substances.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>a) The use, storage, manufacture or disposal of any hazardous substance listed in the schedule in Appendix XV where the standards set out in Rule 5.1 (below) are met. The maximum quantities for permitted activities are set out in Column A of that schedule.</td>
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<tr>
<td></td>
<td></td>
<td>b) The transportation of any hazardous substance.</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>c) The use, storage, manufacture or disposal of hazardous substances listed in the schedule in Appendix XV in association with temporary military training activities where the assessment criteria set out in Rule 7.1 (below) are met.</td>
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<tr>
<td></td>
<td></td>
<td>This provision sets out the permitted activities where control is reserved.</td>
<td></td>
</tr>
<tr>
<td>Managing waste and hazardous substances</td>
<td>37(1) (C)</td>
<td>2. Controlled Activities: The following are controlled activities where they meet the standards set out in Rule 5.1 (second and third bullet points):</td>
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<tr>
<td></td>
<td></td>
<td>a) On sites containing existing service stations, the storage and retail sale of petrol (up to 100,000 litres storage in underground tanks) and diesel (up to 50,000 litres in underground tanks), provided that the ‘Code of Practice for the Design, Installation and Operation of Underground Petroleum Storage Systems’ (Department of Labour, 1992) is adhered to.</td>
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<tr>
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<td></td>
<td>b) The storage and sale of LPG (up to 6 tonnes, single vehicle storage) provided that the ‘Australian Standard 1596:1989 ‘LP Gas Storage and Handling’ is complied with.</td>
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<tr>
<td></td>
<td></td>
<td>Where quantities of these substances exceed the quantities (above) on any site containing an existing service station, the activity is a restricted discretionary activity and shall be assessed in accordance with the matters set out in the section ‘Assessment Criteria’ (below).</td>
<td></td>
</tr>
<tr>
<td>Managing waste and hazardous substances</td>
<td>37(1) (DR)</td>
<td>3. Restricted Discretionary Activities: The following are restricted discretionary activities where they meet the standards set out in Rule 5 (below):</td>
<td>This rule addresses specific activities in relation to storage, manufacture or disposal of any hazardous substance</td>
</tr>
<tr>
<td>Activity</td>
<td>Relevant Rule No.</td>
<td>Status, or how the rule addressed the farm waste</td>
<td>Assessment/Effectiveness</td>
</tr>
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<tr>
<td>substances</td>
<td>a)</td>
<td>The use, storage, manufacture or disposal of any hazardous substance listed in the schedule in Appendix XV. The maximum quantities for discretionary activities are set out in Column B of that schedule. 3.1 Exceptions For the purposes of Rule 3, the storage of hazardous substances does not apply to the transit and/or temporary storage (maximum 72 hours) of any cargo at Lyttelton Port. Any application for a resource consent for the use, storage or manufacture of hazardous substances in the Lyttelton Port Zone shall be processed nonnotified and there is no requirement to obtain written approval of parties.</td>
<td>where discretion is restricted.</td>
</tr>
<tr>
<td>Managing waste and hazardous substances</td>
<td>37(1) 4-5 (D)</td>
<td>4. Discretionary Activities The following are discretionary activities where they meet the standards set out in Rule 5 (below): a) The establishment of any transfer station for the storage and management of waste. 5. Conditions for Permitted Activities and Standards for Controlled, Restricted Discretionary and Discretionary Activities 5.1 Containment Those parts of any site where any discrete quantity of a hazardous substance (which is a permitted, controlled, restricted discretionary or discretionary activity in Rules 1, 2, 3 and 4) is kept for any purpose shall be designed constructed and managed so that: • there is no contamination of any land and/or water by release or spillage of the hazardous substance; and • there is no discharge of the hazardous substance into any stormwater drain or sewerage system contrary to the network operators rules unless permitted by the operator; and • any stormwater originating from or collected on the site does not</td>
<td>These section detail conditions for hazardous substance management which, if met, will be discretionary activities.</td>
</tr>
</tbody>
</table>
Christchurch City Council (Banks Peninsula Plan) Rules

<table>
<thead>
<tr>
<th>Activity</th>
<th>Relevant Rule No.</th>
<th>Status, or how the rule addressed the farm waste</th>
<th>Assessment/Effectiveness</th>
</tr>
</thead>
</table>
| Managing waste and hazardous substances              | 37(1) (NC)        | 6. Non-Complying Activities  
6.1 Any activity, which is not a permitted, controlled, restricted discretionary or discretionary activity is a non-complying activity. The following are also non-complying activities:  
6.2 Any activity which involves the operation of transmitting equipment owned or operated by any network utility, in any zone, which causes exposures to radiofrequency radiation in places normally accessible to the public to exceed the limits for the general public prescribed in NZ6609 Part 1 (or any subsequent amendments). Initial assessment of likely exposure levels shall be by calculation, and shall take into account existing transmitters. Should preliminary calculations indicate that exposures in places normally accessible to the public may exceed 25% of the permitted limit then measurements of actual exposures should be undertaken once the facility is operational. These measurements should be in accordance with the procedures described in NZS Part 2 (and any subsequent amendments).  
6.3 Any activity which would result in exposures to power frequency electric and magnetic fields produced by electrical utility equipment in areas normally accessible to the public exceeding the current guidelines specified for the general public by the International Commission on non-Ionising Radiation Protection. | This rule manages any activity that does not meet the standards above, or is specified in this section is a non-complying activity.                                                                                                                                       |

1.1.5 Waimakariri District Council

The Waimakariri District Plan covers District-wide rules in Chapters 21-36, as listed:

21. General Rules
22. Water
29. Notable Plants
30. Utilities and Traffic Management
23. Land and Water Margins
24. Outstanding Landscapes and Natural Features
25. Indigenous Vegetation, Fauna and Habitats
26. Coastal Environment
27. Natural Hazards
28. Heritage
29. Health, Safety and Wellbeing
30. Subdivision
31. Esplanades: Locations and Circumstances
32. Financial Contributions
33. Designations
34. Resource Consents

Only Chapters 23, 31, and 36 have been found to contain rules relating to non-natural farm waste. These were regarding locating landfills close to the margins of waterways (Rule 23.4.2), hazardous or liquid waste close to dwellings (Rules 31.13 & 31.16), and information required for subdivision consents where hazardous substances have been disposed (Rule 36.2). While these provisions do not specifically address the disposal of non-natural farm waste, they deal with hazardous waste from farms and general non-natural farm waste disposed of to on or off-site landfills. The hazardous substance provisions set limits and storage provisions.

### Waimakariri

<table>
<thead>
<tr>
<th>Activity</th>
<th>Relevant Rule No.</th>
<th>Status, or how the rule addressed the farm waste</th>
<th>Assessment/Effectiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Landfills (excluding offal pits) and solid waste transfer stations</td>
<td>23.4.2(D)</td>
<td>Discretionary activity where within the land and water margin</td>
<td>This rule limits the ability to establish landfills and transfer stations near water bodies</td>
</tr>
<tr>
<td>Liquid waste treatment or storage</td>
<td>31.16 (P)</td>
<td>Permitted activity if more than 150m from a dwellinghouse, and 300m of the Mapleham Rural and Residential Zones.</td>
<td>This rule establishes separation distances between liquid waste and dwellings.</td>
</tr>
<tr>
<td>Hazardous Substances</td>
<td>31.13 (P)</td>
<td>Permitted if</td>
<td>This rule sets out the provision for the management of hazardous substances</td>
</tr>
<tr>
<td>Activity</td>
<td>Relevant Rule No.</td>
<td>Status, or how the rule addressed the farm waste</td>
<td>Assessment/Effectiveness</td>
</tr>
<tr>
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</tr>
<tr>
<td>Waste</td>
<td>31.13.1.1</td>
<td>Within any site in the Mapleham Rural 4B Zone, or within any site in any Residential Zone, or within any site within 75m of any Residential Zone, the maximum amounts of listed hazardous substances set out in column 1 of Table 31.3 shall not be exceeded.</td>
<td>and management thereof, including those permitted activities.</td>
</tr>
<tr>
<td></td>
<td>31.13.1.2</td>
<td>Within any site in the Rural Zone or Pegasus Rural Zone, or any Business Zone, the maximum amounts of the listed hazardous substances set out in column 2 of Table 31.3 shall not be exceeded.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>31.13.1.3</td>
<td>All sites, or parts of sites, where any hazardous substance below the maximum quantities set out in Table 31.3 are permanently used or stored shall: a. have all use, handling, and storage areas sealed from the ground with impervious materials; and b. provide protection measures to contain a spill or release of hazardous substance within a bunded or other secure area.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>31.13.1.4</td>
<td>No hazardous substance shall be stored, used or disposed of in a manner in which it can be deposited or carried into any stormwater system, or water body.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>31.13.1.5</td>
<td>The manager or owner of any site or facility used for the use, storage, transportation, reuse, manufacture or disposal of hazardous substances listed in Table 31.3 shall hold on the site, or on the facility, a copy of a contingency plan setting out emergency procedures to be followed in the event of an escape or spillage of hazardous substances.</td>
<td></td>
</tr>
<tr>
<td>31.14 (C)</td>
<td>Controlled if:</td>
<td>31.14.1 Within any Residential Zone or Mapleham Rural 4B Zone the construction and use of any facility for the storage of petrol, diesel or LPG that does not comply with Rule 31.13, is a controlled activity except in the following circumstances: a. the construction and use of any facility for the storage of petrol, diesel or LPG is a</td>
<td>This rule sets out situations in which hazardous substance management is controlled.</td>
</tr>
</tbody>
</table>

This table provides a summary of relevant rules and how they address farm waste in Waimakariri.
<table>
<thead>
<tr>
<th>Activity</th>
<th>Relevant Rule No.</th>
<th>Status, or how the rule addressed the farm waste</th>
<th>Assessment/Effectiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td>discretionary activity (restricted) under Rule 31.15.1 or Rule 31.15.2. Standards and Terms</td>
<td></td>
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<tr>
<td>The activity shall comply with the following standards and terms:</td>
<td></td>
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</tr>
<tr>
<td>i. the facility has the capacity to contain on the site the following maximum levels of fuel:</td>
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<tr>
<td>— 100,000 litres of petrol, or</td>
<td></td>
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<tr>
<td>— 100,000 litres of diesel, or</td>
<td></td>
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<td></td>
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<tr>
<td>— 6 tonnes of LPG;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ii. all sites, or parts of sites, where any hazardous substance listed in Table 31.3 is permanently used or stored (regardless of the quantity) shall:</td>
<td></td>
<td></td>
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<tr>
<td>— have all use, handling, and storage areas sealed from the ground with impervious materials, and</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>— provide protection measures to contain a spill or release of hazardous substance within a bunded or other secure area; and</td>
<td></td>
<td></td>
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<tr>
<td>iii. conditions for Rules 31.13.1.4 and 31.13.1.5.</td>
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<tr>
<td>In considering any application for a resource consent under Rule 31.14.1 the Council shall, in granting consent, and in deciding whether to impose conditions, exercise its control over the following matters:</td>
<td></td>
<td></td>
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<tr>
<td>i. siting and design of storage and service areas;</td>
<td></td>
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<tr>
<td>ii. construction and design of connections to stormwater facilities or water bodies;</td>
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<tr>
<td>iii. contingency plans in the event of an escape or spillage of any hazardous substance; and</td>
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<td>iv. compliance with:</td>
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</tbody>
</table>
### Waimakariri

<table>
<thead>
<tr>
<th>Activity</th>
<th>Relevant Rule No.</th>
<th>Status, or how the rule addressed the farm waste</th>
<th>Assessment/Effectiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>— Supplement No 1 Management of Existing Underground Petroleum Storage Systems (June 1995), — Environmental Guideline for Above-ground Bulk Tank Containment Systems, and — Australian/New Zealand Standard 1596:1997 LP Gas Storage and Handling and Supplement 1 (1994) Siting of LP Gas Automotive Outlets. 31.14.2 An application for any resource consent under Rule 31.14.1 shall be considered without the need to obtain the written approval of affected persons and shall be non-notified in terms of section 93(1)(b) of the Resource Management Act 1991.</td>
<td>This rule sets out standards and effects, which if not met, make activities Restricted Discretionary, and the issues to which the discretion is restricted.</td>
</tr>
<tr>
<td>31.15 (DR)</td>
<td>Restricted Discretionary if: 31.15.1 Any activity that does not comply with one or more of Rules 31.13.1.1 to 31.13.1.5 is a discretionary activity (restricted), except where exempted under Rule 31.13.2. or provided for as a controlled activity under Rule 31.14.1. 31.15.2 The construction and use of any facility for the storage of petrol, diesel or LPG which does not comply with one or more of the standards or terms under Rule 31.13.1 (for Rural and Business Zones) or Rule 31.14.1 (for Residential or Mapleham Rural 4B Zones) is a discretionary activity (restricted). In considering any application for a resource consent under Rules 31.15.1 or 31.15.2, the Council shall, in deciding whether to grant or refuse consent, and in deciding whether to impose conditions, restrict the exercise of its discretion to the following matters: i. conditions for permitted activities (Rule 31.13.1); ii. the effect on the health, safety and wellbeing of the residents of residential areas and sites; iii. the effects on natural ecosystems and life-supporting capacity of land and water;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Activity</td>
<td>Relevant Rule No.</td>
<td>Status, or how the rule addressed the farm waste</td>
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<td>iv. proposals to avoid, remedy or mitigate adverse effects arising from the escape or spillage of hazardous substances; v. the level of risks imposed by the nature and volume of the hazardous substance; vi. effects on the environmental qualities and characteristics of the zone, and adjoining zones set out in Objective 14.1.1 and Policies 15.1.1.1, 16.1.1.1, 16.1.1.2 and 17.1.1.2; vii. effects on the efficient and effective functioning of any road, and the safety of road users; viii. provision of esplanades; and ix. compliance with: — Code of Practice for the Design, Installation and Operation of Underground Petroleum Storage Systems (1992), — Supplement No 1 Management of Existing Underground Petroleum Storage Systems (June 1995), — Environmental Guideline for Above-ground Bulk Tank Containment Systems, and — Australian/New Zealand Standard 1596:1997 LP Gas Storage and Handling and Supplement 1 (1994) Siting of LP Gas Automotive Outlets.</td>
<td></td>
</tr>
</tbody>
</table>

### 1.1.6 Selwyn District Council

The Selwyn District Plan Rules are divided into two sections – a Township volume and a Rural volume. These volumes are organised as follows:

- **Township Volume**
  - 2. Living Zone Earthworks

- **Rural Volume**
  - 14. Business Zone Earthworks
  - 1. Earthworks
3. Living Zone Heritage        15. Business Zone Heritage        2. Tree Planting
11. Living Zone Landscape Alpine Villages 23. Business Zone Landscape Alpine 10. Subdivision
12. Living Zone Subdivision   Villages                               24. Living Zone Subdivision

It has been assumed that farm activities (and therefore non-natural farm waste) are addressed in the Rural Volume, which is where our assessment has been restricted to. Within this volume, Chapters 1, 7, 8, and 9 contain rules relating to non-natural farm waste. Generally, these rules address permitted offal pits in the Port Hills (Rule 1.4.2.3), non-complying disposal of hazardous substances, activities relating the generation, storage and disposal of solid waste (Rule 8.1), and the scale of waste activities (Rule 9.4.1).

<table>
<thead>
<tr>
<th>Activity</th>
<th>Relevant Rule No.</th>
<th>Status, or how the rule addressed the farm waste</th>
<th>Assessment/Effectiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Digging offal pits in the Port Hills</td>
<td>1.4.2.3 (P)</td>
<td>Permitted</td>
<td>Part C (Rural Rules – Waste) contains a note advising 3. Regional rules apply to separation distances between offal pits and water bores. Therefore, Environment Canterbury should be contacted. Point 6. Also specifies Disposal of solid waste does not include the deposition of</td>
</tr>
<tr>
<td>Activity</td>
<td>Relevant Rule No.</td>
<td>Status, or how the rule addressed the farm waste</td>
<td>Assessment/Effectiveness</td>
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</tr>
<tr>
<td>Disposal of hazardous substances</td>
<td>7.4.1 (NC)</td>
<td>Use of land or facilities to dispose of solid waste is a Non-Complying activity</td>
<td>clean fill on to a site as part of preparing building sites or other construction work, landscaping, filling holes, or recontouring land, or the spreading of deep litter bedding (straw/sawdust) from intensive livestock production on land.</td>
</tr>
<tr>
<td>Generation, storage and disposal of solid waste</td>
<td>8.1 (P)</td>
<td>Permitted if:</td>
<td>This rule sets out permitted standards for storage and disposal of solid waste.</td>
</tr>
</tbody>
</table>
|                                             |                   | 8.1.1 Any activity which involves the generation, storage or disposal of solid waste shall be a permitted activity if all of the following conditions are met:  
8.1.1.1 The activity generates not more than 3m3 of solid waste per week, averaged over any calendar year;  
8.1.1.2 Any storage, sorting or redistribution of solid waste on-site:  
(a) Involves only solid waste generated as part of any activity occurring on the site;  
(b) Is stored in a closed waterproof container or is covered with a material that prevents nuisance effects from litter, odour, flies, vermin, dogs or birds; and  
(c) Is only stored on-site until it is able to be collected or removed for treatment or disposal elsewhere;  
8.1.1.3 Any disposal of solid waste on-site:  
(a) Occurs only on sites where there is no public collection service available at the property boundary for the form of solid waste being disposed of;  
(b) Involves only solid waste generated as part of any activities occurring on the site;  
(c) Has a maximum volume of not more than 3m3 per week, averaged |
<table>
<thead>
<tr>
<th>Selwyn</th>
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</thead>
<tbody>
<tr>
<td>Activity</td>
<td>Relevant Rule No.</td>
<td>Status, or how the rule addressed the farm waste</td>
<td>Assessment/Effectiveness</td>
<td></td>
</tr>
<tr>
<td>Generation, storage and disposal of solid waste</td>
<td>8.1 (DR)</td>
<td>Restricted Discretionary if:</td>
<td>This rule sets out that activities that do not comply with permitted standards are Restricted Discretionary.</td>
<td></td>
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<tr>
<td></td>
<td>8.1.2</td>
<td>Any activity which does not comply with Rule 8.1.1.1 shall be a restricted discretionary activity.</td>
<td></td>
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<tr>
<td></td>
<td>8.1.3</td>
<td>Any resource consent application made under Rule 8.1.2 shall be non-notified and shall not require the written approval of affected parties.</td>
<td></td>
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<tr>
<td></td>
<td>8.1.4</td>
<td>Under Rule 8.1.2 the Council shall restrict its discretion to consideration of:</td>
<td></td>
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<tr>
<td></td>
<td>8.1.4.1</td>
<td>The approval of a management plan which identifies practical ways to reduce the amount of solid waste needed to be disposed of;</td>
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<tr>
<td></td>
<td>8.1.4.2</td>
<td>The method used to dispose of solid waste;</td>
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<td></td>
<td>8.1.4.3</td>
<td>Any positive effects which may offset any adverse effects;</td>
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<td></td>
<td>8.1.4.4</td>
<td>Any monitoring or review conditions.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Generation, storage and disposal of</td>
<td>8.1 (D)</td>
<td>Discretionary if:</td>
<td>This rule sets out specific situations where waste related activities are Discretionary, which specially addresses solid waste or</td>
<td></td>
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<tr>
<td></td>
<td>8.1.5</td>
<td>Any use of land or establishing of facilities for the storage, sorting or</td>
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<tr>
<td>Activity</td>
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</tr>
<tr>
<td>solid waste</td>
<td>8.1.6</td>
<td>Redistribution of solid waste which does not comply with Rule 8.1.1.2 shall be a discretionary activity. 8.1.6 Any use of land or establishing of facilities for the disposal of solid waste which does not comply with Rule 8.1.1.3 shall be a discretionary activity if any one of the following standards and terms are met: 8.1.6.1 The solid waste being disposed of is clean fill only; or 8.1.6.2 The solid waste being disposed of is monofill from an industrial or business activity, and does not include any hazardous substance(s). 8.1.6.3 The solid waste being disposed of is offal or animal carcasses in a pit located between 10 metres and 45 metres from the boundary of the site</td>
<td>the use of land for solid waste.</td>
<td></td>
</tr>
<tr>
<td>Generation, storage and disposal of solid waste</td>
<td>8.1 (NC)</td>
<td>Non-complying if: 8.1.7 Any other landfill, or any other use of land or facilities to dispose of solid waste, which does not comply with Rule 8.1.6 shall be a non-complying activity.</td>
<td>Non-complying if an activity does not meet a specified discretionary rule.</td>
<td></td>
</tr>
<tr>
<td>Scale of non-rural activities (including waste)</td>
<td>9.4.1 (P)</td>
<td>Waste areas permitted if: 9.4.1.1 The maximum area of any site covered by building(s), loading, storage and waste areas used for any other activity on the site does not exceed 100m2 and no more than two full-time equivalent persons are employed in undertaking any other activity on the site; or</td>
<td>This rule sets out permitted standards for waste management activities in the rural area.</td>
<td></td>
</tr>
</tbody>
</table>
1.1.7 **Ashburton District Council**

The proposed Ashburton District Plan is divided into the following sections, which cover both general and zone specific rules:

- 2. Takata Whenua Values
- 3. Rural Zones
- 4. Residential Zones
- 5. Business Zones
- 6. Open Space Zones
- 7. Aquatic Park Zones
- 8. Scheduled Activities
- 9. Subdivision
- 10. Transport
- 11. Noise
- 12. Heritage Values and Protected Trees
- 13. Signs
- 14. Utilities, Energy and Designations
- 15. Relocated Buildings and Temporary Activities
- 16. Hazardous Substances

Only Chapter 16 was found to have rules relating to non-natural farm waste. Chapter 16 contains provisions relating to general hazardous substances, and sets out rules for managing hazardous substances based on site standards.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Relevant Rule No.</th>
<th>Status, or how the rule addressed the farm waste</th>
<th>Assessment/Effectiveness</th>
</tr>
</thead>
</table>
| Management of Hazardous Substances – including waste | 16.7 (P)          | Permitted if:  
- The following activities shall be Permitted Activities, provided that they comply with all of the Site Standards specified below:  
  a) the storage of hazardous substances which are not identified in Appendix 16-1, Table 16-1;  
  b) the storage of hazardous substances identified in Appendix 16-1, Table 16-1, in quantities not exceeding those specified in Column A of Table 16-2 for the relevant zone;                                                                                                                                  | This Rule sets out the standards which need to be met for an activity to be permitted. |

**SINCLAIR KNIGHT MERZ**
<table>
<thead>
<tr>
<th>Activity</th>
<th>Relevant Rule No.</th>
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<th>Assessment/Effectiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management of Hazardous Substances – including waste</td>
<td>16.7 (DR)</td>
<td>Restricted Discretionary if:</td>
<td>If the permitted standards are not met, hazardous substances activities become Restricted Discretionary.</td>
</tr>
</tbody>
</table>
|                                              |                   | The following activities shall be Restricted Discretionary Activities with the exercise of the Council’s discretion being restricted to the matter(s) specified in the standard which is not complied with:  
|                                              |                   | a) any activity specified as a permitted activity which does not comply with anyone or more of the Site Standards specified below.                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                              |
| Management of Hazardous Substances – including waste | 16.7 (D)          | Discretionary if:                                                                                                                                                                                                                                                                                                                                                                                                                                               | This rule specifies activities that are Discretionary.                                                                                                                                                                                                                                                   |
|                                              |                   | The following activities shall be Discretionary Activities:  
|                                              |                   | a) the storage of hazardous substances identified in Appendix 16-1, Table 16-1, in quantities exceeding those specified in Column A, but not exceeding those specified in Column B (where specified), of Table 16-2 for the relevant zone;  
|                                              |                   | Note: Where Column B of Table 16-2 is denoted by a dash (-), the storage of hazardous substances identified in Schedule 1, in any quantities exceeding those specified in Column A of Table 16-1 shall be a Discretionary Activity.  
|                                              |                   | b) The manufacture of any hazardous substance, as either a product or by-product.                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                              |
| Management of Hazardous Substances – including waste | 16.7 (D)          | Non complying if:                                                                                                                                                                                                                                                                                                                                                                                                                                               | Where discretionary standards are not met, or where an activity involves disposing of hazardous substances to land, these activities are non-complying.                                                                                                                                                  |
|                                              |                   | The following activities shall be Non-Complying Activities:  
|                                              |                   | a) The storage of hazardous substances identified in Appendix 16-1, Table 16-1 in quantities exceeding those specified in Column B of Table 16-2 for the relevant zone.  
|                                              |                   | b) The use of any land or facilities to dispose of any hazardous substance.  
|                                              |                   | Note: this clause does not apply to the disposal of any hazardous substance by
### Ashburton

<table>
<thead>
<tr>
<th>Activity</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>use of it in accordance with the manufacturer’s instructions</td>
<td></td>
</tr>
</tbody>
</table>

#### 1.1.8 Timaru District Council

The Timaru District Plan is divided into the following sections, which cover both general and zone specific rules:

1. Rural Zones
2. Residential Zones
3. Commercial Zones
4. Industrial Zones
5. Recreation Zones
6. General Rules

Only Chapter 6 was found to have rules relating to non-natural farm waste. These are general hazardous substances rules, and set out rules for managing the use and/or storage of hazardous substances based on site standards which are assessed below.

### Timaru

<table>
<thead>
<tr>
<th>Activity</th>
<th>Relevant Rule No.</th>
<th>Status, or how the rule addressed the farm waste</th>
<th>Assessment/Effectiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storage of hazardous substances</td>
<td>6.9.2.1 (P)</td>
<td>PERMITTED ACTIVITIES</td>
<td>This rule sets out standards for use and/or storage of hazardous substances that need to be met for activities to be permitted.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The following are permitted activities subject to complying with all the Performance Standards for the Zone and the General Rules: (1) The use and/or storage of hazardous substances identified in</td>
<td></td>
</tr>
</tbody>
</table>

**SINCLAIR KNIGHT MERZ**
<table>
<thead>
<tr>
<th>Activity</th>
<th>Relevant Rule No.</th>
<th>Status, or how the rule addressed the farm waste</th>
<th>Assessment/Effectiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td>(including waste)</td>
<td></td>
<td>Schedule 1, in quantities not exceeding those specified in Column A of Table 1 for the relevant zone. (2) The use and/or storage of hazardous substances in the Industrial H Zone in quantities not exceeding those specified in Column A of Table 2. (3) The use of explosives (Class 1(a) and (b) in Schedule 1).</td>
<td></td>
</tr>
<tr>
<td>Storage of hazardous substances (including waste)</td>
<td>6.9.2.2 (C)</td>
<td>CONTROLLED ACTIVITIES (1) The use or storage of hazardous substances in the Industrial H Zone where that storage is part of a distribution or use network e.g. petrol or diesel, Council shall restrict its discretion to the environmental effects associated with the: - alternative methods or technologies for containment or management - flood hazard - provision of a contingency plan in the event of spillage - quantities of hazardous substances to be used or stored - location on the site where the hazardous substances will be used or stored - nature of containment provisions and use - the supply of information and monitoring - degree of compliance with any relevant codes of practice or guidelines. (2) Provision of new or replacement storage tanks at service stations or Emergency Services Facilities in any zone, provided the replacement tanks do not exceed the existing capacity by more than 50%. (3) Pipelines for distribution of hazardous substances.</td>
<td>This section sets out specific situations where hazardous substance activities are controlled.</td>
</tr>
<tr>
<td>Storage of hazardous substances</td>
<td>6.9.2.3 (D)</td>
<td>6.9.2.3 DISCRETIONARY ACTIVITIES The following are discretionary activities subject to complying with</td>
<td>This section specifies standards for the use and/or storage of hazardous</td>
</tr>
</tbody>
</table>

Timaru
<table>
<thead>
<tr>
<th>Activity</th>
<th>Relevant Rule No.</th>
<th>Status, or how the rule addressed the farm waste</th>
<th>Assessment/Effectiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Substances (including waste)</td>
<td>the General Rules. &lt;br&gt; (1) The use and/or storage of hazardous substances identified in Schedule 1, in quantities exceeding those specified in Column A but not exceeding those specified in Column B (where specified) of Table 1 for the relevant zone. &lt;br&gt; (2) Where Column B of Table 1 is denoted by a dash (-) the use and/or storage of hazardous substances identified in Schedule 1, in any quantities exceeding those specified in Column A of Table 1 shall be a discretionary activity. &lt;br&gt; (3) The manufacture of any hazardous substance. &lt;br&gt; (4) The use and/or storage of hazardous substances in the Industrial H Zone in quantities exceeding Column A in Table 2 when the use or storage is not intended to be part of a distribution or use network e.g. long term storage of any hazardous wastes. &lt;br&gt; (5) Any activity specified as a permitted, controlled or discretionary activity which does not comply with any one or more of the Performance Standards in 6.9.3 Council's discretion will be restricted to the matter(s) specified in the standard which is not complied with. Applications with the potential to adversely affect natural areas will be publicly notified.</td>
<td>substances that, if exceeded, make activities discretionary.</td>
<td></td>
</tr>
<tr>
<td>Storage of hazardous substances (including waste)</td>
<td>6.9.2.3</td>
<td>NON-COMPLYING ACTIVITIES &lt;br&gt;The following activity, and all other activities in all zones using or storing hazardous substances are non-complying activities unless they are provided for by a General Rule. &lt;br&gt;(1) The use and/or storage of hazardous substances identified in Schedule 1 in quantities exceeding those specified in Column B of Table 1 for</td>
<td>This rule specifies standards for the use and/or storage of hazardous substances that, if exceeded, make activities non-complying.</td>
</tr>
</tbody>
</table>
### Mackenzie District Plan

The Mackenzie District Plan includes the following sections, which cover both general and zone specific rules:

- 4. Takata Whenua
- 5. Business
- 6. Residential Zone
- 7. Rural Zone
- 8. Rural-Residential Zone Manuka Terrace
- 9. Special Purposes Zone
- 10. Hazardous Substances
- 11. Heritage Protection
- 12. Signs and Outdoor Lighting
- 13. Subdivision
- 14. Temporary Activities and Environmental Noise
- 15. Transportation
- 16. Utilities
- 17. Natural Hazards

Chapters 7 (Rural) and 10 (Hazardous Substances) have provisions relating to non-natural farm waste. Chapter 7 addresses offal pits and rubbish collection/recycling activities. Chapter 10 contains a range of provisions to manage the storage and use of hazardous substances.

Assessment requirements under 16.6.a (Outdoor Recreational Activities) contains matters relevant to waste including (iv) litter and waste. It is assumed that for recreational activities (which could be undertaken in rural zones) requiring consent, litter and waste matters are considered as part of that consent.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Relevant Rule No.</th>
<th>Status, or how the rule addressed the farm waste</th>
<th>Assessment/Effectiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Offal pits</td>
<td>15.1 (P)</td>
<td>Permitted where more than 200m from a public road</td>
<td>This rule sets out separation distances between offal pits and roads.</td>
</tr>
<tr>
<td>Rubbish collection or recycling</td>
<td>15.1.1.b (D)</td>
<td>Discretionary, as is considered a noxious and unpleasant activity.</td>
<td>This rule identifies rubbish collecting and recycling, bottle or scrap storage as noxious or unpleasant activities as a</td>
</tr>
</tbody>
</table>

SINCLAIR KNIGHT MERZ
<table>
<thead>
<tr>
<th>Activity</th>
<th>Relevant Rule No.</th>
<th>Status, or how the rule addressed the farm waste</th>
<th>Assessment/Effectiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use and/or storage of hazardous substances</td>
<td>1-5 (P)</td>
<td>Permitted Activities</td>
<td>discretionary activity.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The following activities shall be Permitted Activities, provided that they comply with all of the Standards specified below in 5: 1.a The use and/or storage of hazardous substances which are not identified in Schedule 1; attached to these rules; 1.b The use and/or storage of hazardous substances identified in Schedule 1 to these rules, in quantities not exceeding those specified in Column A of Table 1 for the relevant zone with the following exception: Notwithstanding this rule and Table 1, the use and/or storage of up to 100,000 litres of petrol, 50,000 litres of diesel and 6 tonnes of LPG by service stations within Business Zones shall be a Permitted Activity. 1.c The use of explosives (Classes 1(a) and (b) in Schedule 1), 1.d The use and/or storage of hazardous substances associated with temporary military training activities.</td>
<td>This Rule sets out that use and storage of hazardous substances are permitted if specified standards are met.</td>
</tr>
<tr>
<td>Use and/or storage of hazardous substances</td>
<td>1-5 (D)</td>
<td>Discretionary Activities</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.a The following activities shall be Discretionary Activities:  1 The use and/or storage of hazardous substances identified in Schedule 1, to these rules, in quantities exceeding those specified in Column A but not exceeding those specified in Column B (where specified) of Table 1 for the relevant zone;  ii The manufacturing of any hazardous substance.  iii The use and/or storage of petrol, diesel or LPG by service stations within Business zones greater than the volumes specified in Rule 1b above. Note: Where Column B of Table 1 is denoted by a dash (-), the use and/or storage of hazardous substances identified in Schedule 1, in any quantities exceeding those specified in Column A of Table 1 shall be a Discretionary Activity. 2.b The following activities shall be Discretionary Activities with the exercise of the</td>
<td>This rule sets out that hazardous substance management is discretionary if specified hazardous substance standards are not met.</td>
</tr>
</tbody>
</table>
### Mackenzie

<table>
<thead>
<tr>
<th>Activity</th>
<th>Relevant Rule No.</th>
<th>Status, or how the rule addressed the farm waste</th>
<th>Assessment/Effectiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Council's discretion being restricted to the matter(s) specified in the standard which is not complied with: i Any activity specified as a Permitted Activity which does not comply with any</td>
<td></td>
</tr>
<tr>
<td>Use and/or storage of hazardous substances</td>
<td>1-5 (NC)</td>
<td>Non-Complying Activities The following activities shall be Non-Complying Activities: 3.a The use and/or storage of hazardous substances identified in Schedule 1 to these rules in quantities exceeding those specified in Column B of Table 1 for the relevant zone.</td>
<td>This rule sets out that hazardous substance management is non-complying if specified standards are not met.</td>
</tr>
</tbody>
</table>

### 1.1.10 Waimate District Council

The Waimate District Plan includes the following sections, which cover both general and zone specific rules:

- 4. Rural
- 5. Residential
- 6. Business
- 7. Signs
- 8. Heritage
- 9. Transport
- 10. Subdivision
- 11. Utilities
- 12. Hazardous Substances
- 13. Takata Whenua

Only Chapter 12 was found to have rules relating to non-natural farm waste. These are general hazardous substances rules, and set out rules for managing the use, storage, and disposal of hazardous substances based on site standards which are assessed below.
<table>
<thead>
<tr>
<th>Activity</th>
<th>Relevant Rule No.</th>
<th>Status, or how the rule addressed the farm waste</th>
<th>Assessment/Effectiveness</th>
</tr>
</thead>
</table>
| Use, storage or disposal of Hazardous Substances | 1(P) | Permitted Activities  
- The following activities shall be Permitted Activities, provided that they comply with all of the Site Standards specified below.  
  i) The use, storage or disposal of hazardous substances which are not listed in Schedule 1, or are listed in Schedule 1 but their quantities are below those specified in Table 1 for Permitted Activities in the relevant zone.  
  ii) The storage and/or use of hazardous substances associated with temporary military training activities. | This Rule sets out that use and storage of hazardous substances are permitted if specified standards are met. |
| Use, storage or disposal of Hazardous Substances | 1(C) | Controlled Activities  
- Notwithstanding Rule 1a, 1c and 1d in all Zones:  
  i) The storage and retail sale of petrol up to 100,000l in underground tanks and diesel up to 50,000l in underground tanks shall be a Controlled Activity provided that the “Code of Practice for the Design, Installation and Operation of Underground Petroleum Storage Systems” (Department of Labour, First Edition 1992) and the “Supplement No 1 Management of Existing Underground Petroleum Storage Systems, June 1995” be complied with.  
  ii) The storage and retail sale of LPG up to 6.0 tonnes shall be Controlled Activity. | This Rule sets out specific situations where hazardous substances management is a controlled activity. |
| Use, storage or disposal of Hazardous Substances | 1 (D) | Discretionary Activities  
- The following activities shall be Discretionary Activities in respect of the matter specified:  
  i) The use, storage, or disposal of hazardous substances where: | This rule sets out that hazardous substance management is discretionary if specified standards are not met. |
<table>
<thead>
<tr>
<th>Activity</th>
<th>Relevant Rule No.</th>
<th>Status, or how the rule addressed the farm waste</th>
<th>Assessment/Effectiveness</th>
</tr>
</thead>
</table>
| Substances                |                   | a. the quantities exceed those specified in Table 1 for permitted activities in the relevant zone, but are below those specified for non-complying activities; or  
b. the activity does not comply with any one or more of the Site Standards listed for permitted activities.  
c. the activity does not comply with the requirement for controlled activities.  
i. The manufacturing of hazardous substances.  
ii The use, storage or disposal of hazardous substances where the quantities exceed those specified in Table 1 for discretionary activities in the relevant zone, or;  
ii The storage and disposal of explosives (Category 1a in Schedule 1) in the Residential Zone.  
|                           |                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | This rule sets out that hazardous substance management is non-complying if specified standards are not met. |

### 1.1.11 Waitaiki District Council

The Waitaiki District Plan includes the following sections, which cover both general and zone specific rules:

- 2. Residential
- 3. Rural Residential
- 4. Rural
- 5. Township
- 6. Macraes Mining
- 7. Business Zone
- 8. Oamaru Airport
- 11. Heritage
- 12. Transport
- 13. Signs
- 14. Subdivision Development Contributions
- 15. Utilities
- 16. Hazardous Substances
- 19. Lake Aviemore
Only Chapter 16 was found to have rules relating to farm waste. These are general hazardous substances rules, and set out rules for managing the use and/or storage of hazardous substances based on site standards.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Relevant Rule No.</th>
<th>Status, or how the rule addressed the farm waste</th>
<th>Assessment/Effectiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use and/or storage of Hazardous Substances</td>
<td>16.1 (P)</td>
<td>PERMITTED ACTIVITIES&lt;br&gt;The following activities shall be Permitted Activities, provided that they comply with all of the Site Development Standards specified below.&lt;br&gt;1 The use and/or storage of hazardous substances which are not identified in Schedule&lt;br&gt;2 The use and/or storage of hazardous substances identified in quantities not exceeding those specified in Column A of Table 1 for the relevant zone.&lt;br&gt;3 The use of explosives (Class 1a and 1b in Schedule 1) in all Zones.&lt;br&gt;4 The use and/or storage of hazardous substances for the purpose of temporary military activities, provided the following codes of practice are complied with: Ammunition and Explosive Regulations Volume One Hazardous Substances and New Organisms Act 1996 NZP2 - Safety in Training&lt;br&gt;5 The storage and use of hazardous substances for the purpose of treating water for consumption in all zones (refer to Hazardous Substances and New Organisms Act 1996 and/or the approved industry Code of Practice).&lt;br&gt;6 The retail sale of petrol (up to 100,000 litres in underground tanks) and diesel (up</td>
<td>This Rule sets out that use and storage of hazardous substances are permitted if specified standards are met.</td>
</tr>
</tbody>
</table>
**Waitaki**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Relevant Rule No.</th>
<th>Status, or how the rule addressed the farm waste</th>
<th>Assessment/Effectiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>to 50,000 litres storage in underground tanks, and the retail sale of LPG (up to 6 tonnes, single vessel storage) provided the following Codes of Practice are complied with:</td>
<td>This rule sets out that hazardous substance management is discretionary if specified standards are not met.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>· Design, Installation and Operation of Underground Petroleum System (Department of Labour (1992))</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>· Code of Practice for Design, Installation and Operation of Underground Petroleum Storage System (Department of Labour (1992))</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>· Supplement No 1 Management of Existing Underground Petroleum Storage Systems (Department of Labour (1995))</td>
<td></td>
</tr>
<tr>
<td>Use and/or storage of Hazardous Substances</td>
<td>16.1 (D)</td>
<td>16.1.2 DISCRETIONARY ACTIVITIES The following activities shall be Discretionary Activities in respect of the matter specified: 1 The use and/or storage of hazardous substances identified in Schedule 1, in quantities exceeding those specified in Column A but not exceeding those specified in Column B of Table 1 for the relevant zone. 2 The manufacturing of hazardous substances. Note: Where Column B of Table 1 is denoted by a dash (-), the use and/or storage of hazardous substances identified in Schedule 1, in any quantities exceeding those specified in Column A of Table shall be a Discretionary Activity. Hazardous Substances Rules 306 Waitaki District Plan 3 The following shall be Discretionary Activities with the exercise of the Council’s discretion being restricted to the matter(s) specified in the standard which is not complied with:</td>
<td></td>
</tr>
</tbody>
</table>
### Relevant Rule No.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Relevant Rule No.</th>
<th>Status, or how the rule addressed the farm waste</th>
<th>Assessment/Effectiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>16.1.3 (NC)</td>
<td>Any activity specified as a permitted activity which does not comply with any one or more of the Site Standards specified below.</td>
<td></td>
</tr>
<tr>
<td>Use and/or storage of Hazardous Substances</td>
<td>16.1 (NC)</td>
<td>16.1.3 NON-COMPLYING ACTIVITIES The following activities shall be Non-Complying Activities: 1. The use and/or storage of hazardous substances identified in Schedule 1 in quantities exceeding those specified in Column B of Table 1 for the relevant zone.</td>
<td>This rule sets out that hazardous substance management is non-complying if specified standards are not met.</td>
</tr>
</tbody>
</table>

### 1.2 Regional Council Objectives, Policies and Rules

The Natural Resources Regional Plan provides rules for activities based on policies in the pCRPS. It is divided into a number of sections that cover Iwi natural resource management, air quality, water quality and quantity, lake and river beds, wetlands and soil conservation. Among these issues, Chapters 3 (Air Quality) and 4 (Water Quality) are most relevant for non-natural farm waste.

Environment Canterbury has just released a draft of its proposed Land and Water Plan (pLWP) for public comment, separate from the RMA consultation process. The LWP will come into place late 2013 and will provide the key context for delivery of the Canterbury Water Management Strategy. At this stage, it is unclear what actual effect this will have on the policies or rules relating to non-natural farm waste management.

The air quality objectives, policies and rules relevant to non-natural farm waste are included in Appendix 2. These provisions are important to non-natural farm waste as they apply to the burning of waste - particularly polyethylene wrap and offal, and air discharges from waste management processes.
### Natural Resources Regional Plan – Chapter 3 Air Quality

<table>
<thead>
<tr>
<th>Activity</th>
<th>Relevant Rule No.</th>
<th>Status, or how the rule addressed the farm waste</th>
<th>Assessment/Effectiveness</th>
</tr>
</thead>
</table>
| Discharges from burning solid fuel (could be solid waste) | AQL1 (P)          | Except where permitted by Rules AQL2 or AQL3, prohibited by Rules AQL5, AQL6, AQL7, AQL9, AQL10, AQL11, or which requires resource consent under Rule AQL4, the discharge from the contaminants into air from the burning of solid fuel in any enclosed burner or open fire installed before 1 January 2004, is permitted activity.  
Conditions:  
1. The discharge into air from any device installed after 1 January 2003 shall occur via an emission stack so that:  
   (a) the minimum height of an emission stack within 3 metres distance from the highest point of the roof shall be 600 millimetres above that point; and  
   (b) the minimum height of an emission stack further than 3 metres from the highest point of the roof shall be 1 000 millimetres above the point of roof penetration; and  
   (c) the ridge line of the roof of any other building, land or other substantial structure shall not lie in or above a circular area described by a horizontal radius of 3 metres about the top of the emission stack.  
2. Insofar as is reasonably practicable and consistent with the exclusion of rain and snow, the discharge shall be directed vertically into air and shall not be impeded by any obstruction above the stack which decreases the vertical efflux velocity, below that which would occur in the absence of such obstruction.  
3. The discharge shall not be dangerous or noxious beyond the boundary of the property where the discharge originates.  
4. The dispersal or deposition of particles shall not cause an objectionable or offensive effect beyond the boundary of the property where the discharge originates.  
5. The discharge of odour beyond the boundary of the property from which it originates shall not cause an offensive or objectionable effect | This rule sets out the conditions by which waste could be burned as a permitted activity. |
<table>
<thead>
<tr>
<th>Activity</th>
<th>Relevant Rule No.</th>
<th>Status, or how the rule addressed the farm waste</th>
<th>Assessment/Effectiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discharges from burning solid fuel (could be solid waste)</td>
<td>AQL1A (P)</td>
<td>Notwithstanding Rule AQL2, and except where prohibited by Rules AQL5 and AQL6, the discharge of contaminants into air from the burning of solid fuel in any small scale solid fuel burning device installed on or after 1 January 2004, which is located on a site that is: (a) less that 2 hectares; or (b) within an urban area; or (c) within a clean air zone is a permitted activity. 1. The discharge into air from any device installed after 1 January 2003 shall occur via an emission stack so that: (a) the minimum height of an emission stack within 3 metres distance from the highest point of the roof shall be 600 millimetres above that point; and (b) the minimum height of an emission stack further than 3 metres from the highest point of the roof shall be 1 000 millimetres above the point of roof penetration; and (c) the ridge line of the roof of any other building, land or other substantial structure shall not lie in or above a circular area described by a horizontal radius of 3 metres about the top of the emission stack. 2. Insofar as is reasonably practicable and consistent with the exclusion of rain and snow, the discharge shall be directed vertically into air and shall not be impeded by any obstruction above the stack which decreases the vertical efflux velocity, below that which would occur in the absence of such obstruction.</td>
<td>This rule sets out the conditions by which waste could be burned in a clear air zone as a permitted activity.</td>
</tr>
</tbody>
</table>
### Natural Resources Regional Plan – Chapter 3 Air Quality

<table>
<thead>
<tr>
<th>Activity</th>
<th>Relevant Rule No.</th>
<th>Status, or how the rule addressed the farm waste</th>
<th>Assessment/Effectiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td>3. The discharge shall not be dangerous or noxious beyond the boundary of the property where the discharge originates. 4. The dispersal or deposition of particles shall not cause an objectionable or offensive effect beyond the boundary of the property where the discharge originates. 5. The discharge of odour beyond the boundary of the property from which it originates shall not cause an offensive or objectionable effect on the environment. 6. The fuel-burning equipment and emission stack shall be maintained. 7. Enclosed burners shall be operated in accordance with their operating instructions.</td>
<td>AQL2 (P)</td>
<td>Except where prohibited by Rules AQL5, AQL6 or AQL9, or permitted by Rules AQL1A, AQL2A and AQL8, the discharge of contaminants into air from the burning of solid fuel in any enclosed burner which, at the date of installation has been authorised or otherwise approved by Environment Canterbury as meeting the following standards is a permitted activity: (a) The enclosed burner meets any regulations specific to enclosed burners specified in any relevant national environmental standard; and (b) Emission of no more 77 milligrams of total suspended particulate emissions per</td>
<td>This rule sets out the conditions by which waste could be burned in specific enclosed burners as a permitted activity.</td>
</tr>
</tbody>
</table>
Natural Resources Regional Plan – Chapter 3 Air Quality

<table>
<thead>
<tr>
<th>Activity</th>
<th>Relevant Rule No.</th>
<th>Status, or how the rule addressed the farm waste</th>
<th>Assessment/Effectiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td>(e) The percentage measure of thermal efficiency; and (f) The range of heat output tested (e.g. low, medium and high burn rates); and (g) A space to allow the installer to place the date of installation of the device. 2. Devices shall be capable of being operated on a high, medium and low burn rate. 3. The discharge into air from any device installed after 1 January 2003 shall occur via an emission stack so that: (a) the minimum height of an emission stack further than 3 metres from the highest point of the roof shall be 600 millimetres above Canterbury Natural Resources Regional Plan Page 3 - 98 Chapter 3 – Air Quality October 2009/June 2011 megajoule of space heat output, calculated by: (i) determining the total suspended particulate emission for each test run, when tested in accordance with AS/NZS4012:1999 and AS/NZS4013:1999 or the functional equivalent for appliances excluded from these standards. Where the nominated test fuel is wood then the test shall be carried out using softwood in accordance with the requirements of AS/NZS4012:1999; and (ii) determining thermal efficiency for space heating for each test run as described in AS/NZ4012:1999; and (iii) calculating the emissions per megajoule of heat output as the total suspended particulate emission rate (g/kg) described in (i) divided by the calorific value of oven-dry wood (20.1 MJ/kg), and dividing that value by the space heating efficiency as described in (11) for that test run, and then by averaging the emissions per megajoule results for all of the last runs; and (c) Thermal efficiency, for space heating only as described in AS/NZ4012:1999 of 50% or greater. Conditions: 1. The device shall contain the following information on a label permanently attached to the device and placed in a position which is clearly visible after installation of the device:</td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>
### Natural Resources Regional Plan – Chapter 3 Air Quality

<table>
<thead>
<tr>
<th>Activity</th>
<th>Relevant Rule No.</th>
<th>Status, or how the rule addressed the farm waste</th>
<th>Assessment/Effectiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(a) The authorisation or approval number assigned by Environment Canterbury; and (b) The statement “Performance may vary from test vary from test values depending on actual operating conditions”; and (c) The approved fuel for us in the device; and (d) The measured particulate emission rate in grams per kilogram (g/kg) and the measured emission rate per heat output (mg/MJ); and (e) The percentage measure of thermal efficiency; and (f) The range of heat output tested (e.g. low, medium and high burn rates); and (g) A space to allow the installer to place the date of installation of the device.</td>
<td>2. Devices shall be capable of being operated on a high, medium and low burn rate. 3. The discharge into air from any device installed after 1 January 2003 shall occur via an emission stack so that: (a) the minimum height of an emission stack further than 3 metres from the highest point of the roof shall be 600 millimetres above that point; and (b) the minimum height of an emission stack further than 3 metres from the highest point on the roof shall be 1 000 millimetres above the point of roof penetration; and (c) the ridge line of the roof of any other building, land or other substantial structure shall not lie in or above a circular area described by a horizontal radius of 3 metres about the top of the emission stack. 4. Insofar as is reasonably practicable and consistent with the exclusion of rain and snow, the discharge shall be directed vertically into air and shall not be impeded by any obstruction above the stack which decreases the vertical efflux velocity, below that which would occur in the absence of such obstruction. 5. The discharge shall not be dangerous or noxious beyond the boundary of the property where the discharge originates. 6. The dispersal or deposition of particles shall not cause an objectionable or</td>
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|                          |                  | offensive effect beyond the boundary of the property where the discharge originates.  
7. The discharge of odour beyond the boundary of the property from which it originates shall not cause an offensive or objectionable effect on the environment.  
8. The sulphur content of the fuel to be burned shall not exceed 0.5% by weight.  
9. Contaminants discharged may only be derived from combustion of fuel authorised or approved for use in the device by Environment Canterbury.  
10. The fuel-burning equipment and emission stack shall be maintained. |
|                          |                  | This Rule sets out specific materials (including potential farm waste products) that may not be burned in any large scale fuel burning device.                                                                                                                                  |                           |
| Materials that are prohibited from being burned. | AQL12 (Pr) | Discharge of contaminants into air from the burning, in any large scale fuel burning device, of any of the following materials, is a prohibited activity for which no resource consent shall be granted:  
(a) all rubber, including but not limited to, rubber tyres; or  
(b) metals and materials containing metals, including but not limited to, cables; or  
(c) materials containing asbestos; or  
(d) medical waste, pathological wastes, quarantine waste and animal waste, including but not limited to, dried animal faeces; or  
(e) synthetic material, including but not limited to, motor vehicle parts, foams, fibreglass, batteries, chemicals, paint and other surface coating materials, tar, or any type of plastic; or  
(f) sludge from industrial processes. |                           |
| Burning of vegetation     | AQL28 (P) | Subject to Rule AQL35, the discharge of contaminants into air from burning standing crop residue or vegetative stubble is a permitted activity.  
1. The dispersal or deposition of particles shall not cause an objectionable or offensive effect beyond the boundary of the property where the discharge originates.  
2. Only small quantities of petroleum products, up to 10 litres per hectare may be |                           |

This Rule sets out the conditions by which vegetation may be burned as a permitted activity.
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<tbody>
<tr>
<td>Burning of vegetation, paper, cardboard and untreated wood</td>
<td>AQL29 (P)</td>
<td>Subject to Rule AQL35, AQL36 and AQL37, the discharge of contaminants into air from outdoor burning of vegetation, paper, cardboard and untreated wood, and a minor and incidental amount of material specifically excluded from Rule AQL36 (a), (d), (e), (i) and (l) within that rule, but excluding standing crop residue or vegetative stubble provided for in Rule AQL28, is permitted activity. Conditions: 1. The discharge shall not occur within 100 metres upwind, or 50 metres in any other direction, from any sensitive activity that is not located on the property where burning occurs. 2. The discharge shall not occur within a residential area. For the purpose of this condition, when outdoor burning is occurring as part of a rural production land activities, a residential area does not include a property that: (a) before being rezoned to residential or living is used for rural production activities; and (b) the original area of land used for rural production activities at the time of rezoning continues to be used for rural production activities; and (c) the effects of the outdoor burning are of the same or similar character, intensity and scale to the rural management burning practices which occurred prior to rezoning. 3. Burning shall only occur of vegetation, paper, cardboard and untreated wood sourced from no more than 2 adjoining properties where that vegetation, paper, cardboard and untreated wood has been derived or used, and burning shall be undertaken on one of those properties. 4. The dispersal or deposition of particles shall not cause an objectionable or offensive effect beyond the boundary of the property where</td>
<td>This Rule sets out the conditions by which vegetation paper, cardboard and untreated wood may be burned as a permitted activity.</td>
</tr>
</tbody>
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<tbody>
<tr>
<td>Burning of polyethylene agricultural wrap from 1 January 2011</td>
<td>AQL30A (DR)</td>
<td>Subject to Rule AQL35, AQL36 and AQL37, the discharge of contaminants into air from outdoor burning of polyethylene agricultural wrap from 1 January 2011 but before 1 January 2014, is a restricted discretionary activity. Conditions: 1. The discharge shall not occur within 100 metres upwind, or 50 metres in any other direction, from any state highway or sensitive activity that is not located on the property where burning occurs. 2. The discharge shall not occur within a residential area or any Clean Air Zone 1. 3. Only polyethylene agricultural wrap used for agricultural purposes shall be burned. No other plastics, including those containing halogens or phosphorus, shall be burned. 4. Burning shall only occur of agricultural wrap sourced from no more than 2 adjoining properties where the agricultural wrap has been used, and burning shall be undertaken on one of those properties. 5. The dispersal of deposition of particles shall not cause an objectionable or offensive effect beyond the boundary of the property where the discharge originates. 6. Only small quantities of petroleum products, up to 10 litres per fire, may be used as accelerants. 7. Polyethylene agricultural wrap shall only be burned on top of a blazing fire fuelled by vegetation, paper, cardboard and/or untreated wood. Discretion restricted to: Environment Canterbury will restrict its discretion to the following matters: 1. Available alternatives to burning the agricultural wrap, including the ability to recycle the agricultural wrap. 2. Any measures necessary to avoid, remedy or mitigate localised adverse effects.</td>
<td>This rule establishes the burning of polyethylene wrap as a discretionary activity and restricts discretion in this regard to the matters listed in Rule AQL30A.</td>
</tr>
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</table>
### Activity

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<tr>
<td>3. Carrying out of measurements, samples, analyses, surveys, investigations, or inspection, including:</td>
<td>This Rule sets out the conditions by which carcasses and offal may be burned as a permitted activity.</td>
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<tr>
<td>(a) monitoring contaminant concentrations;</td>
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<td>(b) monitoring the opacity of the discharge;</td>
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<td>(c) recording the quantity of fuel used;</td>
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<td>(d) monitoring the emission rate of contaminants;</td>
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<td>(e) analysing the cumulative effects of the discharge, in combination with discharges from other sources.</td>
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<tr>
<td>4. Provisions of information to the consent authority at specified times.</td>
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<tr>
<td>5. Compliance with monitoring, sampling and analysis conditions at the consent holder’s expense.</td>
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<tr>
<td>6. Duration of consent.</td>
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<tr>
<td>7. Review of consent and the timing and purpose of the review.</td>
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### Burning of carcasses and offal

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<tbody>
<tr>
<td>Subject to Rules AQL35, AQL36 and AQL37, the discharge of contaminants into air from outdoor burning of animal carcasses and offal is a permitted activity.</td>
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<tr>
<td>1. The discharge shall not occur within 100 metres upwind, or 50 metres in any other direction, from any sensitive activity that is not located on the property where burning occurs.</td>
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<tr>
<td>2. The discharge shall not occur within a residential area or any Clean Air Zone 1.</td>
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<tr>
<td>3. Burning shall only be undertaken when required for quarantine or disease control purposes, or where the highest recorded groundwater level at the property is less than 3 metres below the ground surface.</td>
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<tr>
<td>4. The discharge shall not result from the cremation of human remains at a crematorium approved under the Crematorium Regulations 1973.</td>
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<tr>
<td>5. The dispersal of deposition of particles shall not cause an objectionable or offensive effect beyond the boundary of the property where the discharge originates.</td>
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<tr>
<td>6. Only small quantities of petroleum products, up to 10 litres per fire, may be</td>
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### Natural Resources Regional Plan – Chapter 3 Air Quality

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<tbody>
<tr>
<td>Other outdoor burning</td>
<td>AQL34 (D)</td>
<td>Subject to Rules AQL35, AQL36 and AQL37, the discharge of contaminants into air from outdoor burning which: (a) is not classified as a permitted activity by Rules AQL28 to AQL33; or (b) does not comply with the conditions of Rules AQL28 to AQL33; is discretionary activity.</td>
<td>This Rule sets out the other outdoor burning not permitted by Rules 28-33 is discretionary.</td>
</tr>
<tr>
<td>Burning of specified wastes</td>
<td>AQL36 (Pr)</td>
<td>Except as provided for in Rule AQL33A, the discharge of contaminants into air from outdoor burning any of the following materials is a prohibited activity for which no resource consent shall be granted: (a) any fuel having a sulphur content of greater than 1% by weight, other than a minor and incidental amount and not as the principal waste; or (b) wood treated with Copper-Chrome-Arsenic (CCA) or other chemicals; or (c) chip board, including particle board and laminated boards; or (d) wood is painted, stained or oiled, other than a minor and incidental amount, but specifically excluding leas based painted wood, and not as the principal waster; or (e) all plastic not described in Rule AQL30 or Rule AQL30A, including but not limited to, halogen or phosphorous containing plastics, other than a minor and incidental amount and not as the principal waste; or (f) metals and material containing metals, including but not limited to, cables; or (g) materials containing asbestos; or (h) all rubber, including but not limited to, rubber tyres; or (i) synthetic material, including but not limited to, foams, fibreglass and chemicals, other than a minor and incidental amount and not as the principal waste; or (j) tar or bitumen; or (k) used or waste oil, or (l) medical waste, pathological wastes, quarantine waste or animal waste, but excluding animal carcasses or offal as provided for in Rule AQL32, other than a minor and incidental amount and not as the principal waste; or (m) motor vehicle parts; or</td>
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</table>

This Rule sets out waste materials which may not be burned.
<table>
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<tbody>
<tr>
<td>Burning materials on a landfill site, waste transfer station or waste recovery area.</td>
<td>AQL37 (Pr)</td>
<td>Discharge of contaminants into air from outdoor burning any materials within a landfill excluding gas emissions, waste transfer station or waste recovery area is a prohibited activity for which no resource consent shall be granted.</td>
<td>This Rule establishes that waste may not be burned on a landfill site, waste transfer station or waste recovery area.</td>
</tr>
<tr>
<td>Air discharges from intensive farming activities (could include waste)</td>
<td>AQL58 (P)</td>
<td>Discharge of contaminants into the air from intensive farming that was established at a permanent site on or before 1 June 2002, and where a resource consent was not required for the discharge of contaminants into air from that activity on or before 1 June 2002, is a permitted activity. 1. There shall be no increase in the scale, intensity, frequency or duration of the effects of the discharge of contaminants into air from the activity. 2. The discharge of odour beyond the boundary of the site shall not be noxious, dangerous, offensive or objectionable to such an extent that it has an adverse effect on the environment, to be determined in accordance with Appendix AQL5. 3. The dispersal and deposition of particles shall not cause a noxious, dangerous, objectionable or offensive effect beyond the boundary of the property where the discharge originates.</td>
<td>This Rule sets out the conditions by intensive farming (established prior to June 2002) may discharge to air as a permitted activity.</td>
</tr>
<tr>
<td>Air discharges from intensive farming activities (could include waste)</td>
<td>AQL58A (DR)</td>
<td>The discharge of contaminants to air from intensive farming subject to Rule AQL58 but which does not comply with one or more of the conditions in that rule is a restricted discretionary activity. Environment Canterbury has restricted its discretion to the following matters: 1. The quantity, quality and type of discharge and any effects arising from that discharge. 2. The methods to minimise the discharge and avoid, remedy or mitigate any adverse effects of the discharge including the adequacy of</td>
<td>This Rule sets out the discretion that Council will have in regard to air discharges that do not meet the conditions of AQL58</td>
</tr>
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</table>
| Air discharges from intensive poultry farming | AQL59 (P)         | Except as provided for in Rule AQL58 and AQL58A, the discharge of contaminants into air from intensive poultry farming where less than 2000 poultry are held at any one time, is a permitted activity.  
1. The discharge of odour beyond the boundary of the site shall not be noxious, dangerous, offensive or objectionable to such an extent that it has an adverse effect on the environment.  
2. The dispersal and deposition of particles shall not cause a noxious, dangerous, objectionable or offensive effect beyond the boundary of the property where the discharge originates. | This Rule sets out the conditions by which intensive poultry farming may discharge to air as a permitted activity. |
| Air discharges from intensive broiler and breeder poultry | AQL60 (G)         | Except as provided for in Rule AQL58, AQL58A and AQL59, the discharge of contaminants into air from intensive poultry farming where not more than 30 000 broiler and breeder poultry are held at any one time is a controlled activity. Environment Canterbury has restricted its discretion to the following matters:  
1. The quantity, quality and type of discharge and any effects arising from that | This Rule sets out the conditions by which intensive poultry farming may discharge to air as a controlled activity, and the condition that will apply. |
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| farming                         |                   | discharge.  
2. The methods to minimise the discharge and avoid, remedy or mitigate any adverse effects of the discharge including the adequacy of the control measures for the collection, containment, management and treatment of the discharge, as well as the type and adequacy of control equipment and preparation of management plans.  
3. The relevant zone(s) and associated provisions in the Operative District Plan.  
4. Available measurements, samples, analyses, surveys, investigations, or inspection.  
5. Provision of information to the consent authority at specified times.  
6. Compliance with monitoring, sampling and analysis conditions at the consent holder’s expense.  
7. Duration of consent.  
8. Review of conditions of consent and the timing and purpose of the review. |                                                                                                                        |
| Air discharges from intensive poultry farming | AQL60A (DR)       | Except as provided for in Rules AQL58, AQL58A, AQL59 and AQL60, the discharge of contaminants into air from intensive poultry farming is a restricted discretionary activity.  
Conditions:  
Any discharge of contaminants into air shall not be located within 200 metres of any sensitive activity located on a different property.  
Discretion restricted to:  
Environment Canterbury has restricted its discretion to the following matters:  
1. The quantity, quality and type of discharge and any effects arising from that discharge.  
2. The methods to minimise the discharge and avoid, remedy or mitigate any adverse effects of the discharge including the adequacy of the control measures for the collection, containment, management and treatment of the discharge, as well as the type and adequacy of control equipment and preparation of management plans. | This Rule establishes air discharges from intensive poultry farming that are not covered by Rules 58-60 as restricted discretionary activities. |

SINCLAIR KNIGHT MERZ
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<tr>
<td>Air discharges from intensive pig farming</td>
<td>AQL61 (DR)</td>
<td>Except as provided for in Rules AQL58 and AQL58A, the discharge of contaminants into air from intensive pig farming is a restricted discretionary activity. Environment Canterbury has restricted its discretion to the following matters: 1. The quantity, quality and type of discharge and any effects arising from that discharge. 2. The methods to minimise the discharge and avoid, remedy or mitigate any adverse effects of the discharge including the adequacy of the control measures for the collection, containment, management and treatment of the discharge, as well as the type and adequacy of control equipment and preparation of management plans. 3. The location of the discharge. 4. The efficient use and development of the physical resources of the existing intensive farm. 5. The relevant zone(s) and associated provisions in the Operative District Plan. 6. Available measurements, samples, analyses, surveys, investigations, or inspection. 7. Provision of information to the consent authority at specified times. 8. Compliance with monitoring, sampling and analysis conditions at the consent holder’s expense. 9. Duration of consent.</td>
<td>This rule restricts the discretion of Council regarding air discharges of intensive pig farming.</td>
</tr>
</tbody>
</table>

3. The relevant zone(s) and associated provisions in the Operative District Plan.
4. Available measurements, samples, analyses, surveys, investigations, or inspection.
5. Provision of information to the consent authority at specified times.
6. Compliance with monitoring, sampling and analysis conditions at the consent holder’s expense.
7. Duration of consent.
8. Review of conditions of consent and the timing and purpose of the review.
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<tr>
<td>10. Review of conditions of consent and the timing and purpose of the review.</td>
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<td></td>
<td>This Rule deems air discharges from intensive farming that are not covered by Rules 58-61 discretionary activities.</td>
</tr>
<tr>
<td>Air discharges from other intensive farming</td>
<td>AQL62 (D)</td>
<td>The discharge of contaminants into air from any intensive farming that is not identified as a permitted, controlled or restricted discretionary activity in Rules AQL58 to AQL61 is a discretionary activity, provided that nothing in this rule applies to any discharge to air that is a prohibited activity under the NRRP.</td>
<td>This Rule sets out the conditions by which the discharge of contaminants from waste management processes established before June 2002 may be a permitted activity.</td>
</tr>
<tr>
<td>Discharge of contaminants from waste management processes established before June 2002</td>
<td>AQL63 (P)</td>
<td>Discharge of contaminants into air from the storage, transfer, treatment or disposal of liquid or solid waste, excluding combustion of waste, that was established on or before 1 June 2002, and where a resource consent was not required for the discharge of contaminants into air from that activity on or before 1 June 2002, is a permitted activity. 1. The discharge shall not involve the treatment or discharge of hazardous substances. 2. There shall be no increase in the scale, intensity, frequency or duration of the effects of the discharge of contaminants into air from the activity. 3. The discharge of odour beyond the boundary of the site shall not be noxious, dangerous, offensive or objectionable to such an extent that is has an adverse effect on the environment. 4. The dispersal or deposition of particles shall not cause a noxious, dangerous, objectionable or offensive effect beyond the boundary of the property where the discharge originates.</td>
<td>This Rule sets out the conditions by which the discharge of contaminants from waste management processes established before June 2002 may be a permitted activity.</td>
</tr>
<tr>
<td>Offal pits</td>
<td>AQL67 (P)</td>
<td>Except as permitted by Rule AQL63, the discharge of contaminants into air from disposal and decay of animals or animal parts or biodegradable wastes in offal pits is a permitted activity. 1. Offal not completely covered with impermeable material or soil shall not be located within 150 metres of any sensitive activity located on a different property.</td>
<td>This Rule sets out the conditions by which specified offal pits may be a permitted activity.</td>
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</tbody>
</table>
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<tr>
<td>2. Offal that is completely covered with impermeable material or soil shall not be located within 50 metres of any sensitive activity located on a different property.</td>
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<tr>
<td>3. The discharge of odour beyond the boundary of the site shall not be noxious, dangerous, offensive or objectionable to such an extent that it has an adverse effect on the environment.</td>
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<tr>
<td>4. No sewerage effluent shall be deposited in the offal pit.</td>
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<tr>
<td>5. The accurate location, on a 1:50,000 or large scale map of the property, of any offal pit shall be provided to Environment Canterbury within 7 days of request.</td>
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</thead>
<tbody>
<tr>
<td>Air discharges related to not-permitted waste management process</td>
<td>AQL69 (D)</td>
<td>The discharge of contaminants into air from any waste management process that: (a) does not comply in all respects with the conditions specified in Rules AQL63 to AQL67 as applicable for a permitted activity; is a discretionary activity, provided that nothing in this rule applies to any discharge to air that is prohibited activity under the NRRP.</td>
<td>This Rule establishes air discharges from waste management processes that are not permitted under Rules 63-67 as discretionary activities.</td>
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<tbody>
<tr>
<td>Air discharges from waste</td>
<td>Objective AQL1</td>
<td>Objective AQL1 Objective for localised air quality Localised contaminant discharges into air do not, either on their own or in combination with other discharges, result in significant adverse effects on the environment, including: (a) the loss of air as a taonga to Tāngata Whenua; and (b) adverse effects on human health and safety; and (c) offensive or objectionable odours; and</td>
<td>This Objective seeks to ensure that localised air discharges do not have significant adverse effects on the environment.</td>
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<tbody>
<tr>
<td>Combustion of specified materials</td>
<td>Policy AQL1</td>
<td>Policy AQL1 Prohibit combustion of specified materials Prohibit the discharge of contaminants into air resulting from the combustion of materials using combustion methods which result in significant adverse effects on the environment, including: (a) on any small scale fuel burning device any: (i) fuel having a sulphur content of 1% or greater; or (ii) wood having a moisture content of more than 25% dry weight; or (b) wood treated with preservatives or impregnated with chemicals, including but not limited to, wood treated with Copper-Chrome-Arsenic (CCA), but excluding wood treated only by antisapstaining chemicals combusted in a large scale fuel burning device and other treated wood combusted in a purpose built high temperature large scale fuel burning device; or (c) chip board, including but not limited to, particle board and laminated boards, but excluding chip board combusted in a purpose-built high temperature large scale fuel burning device; or (d) wood which is painted, stained or oiled, but excluding wood treated only by</td>
<td>This policy is to prohibit burning of materials that will have significant adverse effects.</td>
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<td>antisapstaining chemicals combusted in a large scale fuel burning device or wood combusted in a purpose-built high temperature large scale fuel burning device; or (e) metals and materials containing metals, including but not limited to, cables; or (f) materials containing asbestos; or (g) all rubber, including but not limited to, rubber tyres; or (h) medical waste, pathological wastes, quarantine waste and animal waste, including but not limited to, dried animal faeces, but excluding: (i) outdoor burning of animal carcasses and offal; or (ii) the burning of medical waste, pathological wastes, quarantine waste, and animal carcasses and offal in a purpose-built high temperature incinerator; or (i) synthetic material, including but not limited to, motor vehicle parts, foams, fibreglass, batteries, chemicals, paint and other surface coating materials, excluding combustion in a purpose-built high temperature incinerator; or (j) tar or bitumen; or (k) any type of plastic, but excluding outdoor burning of polyethylene agricultural wrap up until 1 January 2014; or (l) used and waste oil, excluding refined oil, and excluding used and waste oil which contains only trace level of contaminates that will not cause adverse environmental, health or nuisance effects when discharged and is combusted in a purpose built large scale fuel burning device; or (m) peat; or (n) sludge from industrial processes excluding combustion in a purpose-built high temperature incinerator; or (o) materials within a landfill site, waste transfer station or waste recovery area, but excluding landfill gas emissions.</td>
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</table>

| Particulate and odour | Policy AQL2 | Policy AQL2 Control particulate and odour emissions from fuel burning devices (a) Any discharge of particulate matter or odour from any fuel burning device shall |
|-----------------------|-------------|------------------------------------------------------------------|-------------------------|
|                       |             | This Policy seeks to control emissions from fuel burning devices. | |
### Natural Resources Regional Plan – Chapter 3 Air Quality

<table>
<thead>
<tr>
<th>Activity</th>
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</tr>
</thead>
</table>
| from burning              |                                  | not be dangerous or noxious, or cause an offensive or objectionable effect beyond the boundary of any site from where the discharge originates.  
(b) Avoid, remedy or mitigate the discharge of excessive particulate matter and odour associated with start-up and refuelling by limiting such discharges from:  
(i) small scale fuel burning devices to a period of 15 minutes following start-up and a period of five minutes following refuelling; and  
(ii) large scale fuel burning devices burning solid fuel to a period of 30 minutes following cold start up and a period not exceeding four minutes for any subsequent hour of operation; and  
(iii) large scale fuel burning devices burning liquid fuel to a period of two minutes each hour of operation. |                                                                          |
| Outdoor burning           | AQL4                             | Policy AQL4 Restrictions on outdoor burning outside residential and living zoned Areas Restrict the discharge to air of contaminants associated with outdoor burning, except:  
(a) from outdoor burning that occurs in accordance with the recommended burning guidelines contained in Appendix AQL1; and  
(b) where the discharges are from the burning of the following materials:  
(i) vegetative material on the premises from which the material is derived and up to two neighbouring properties; or  
(ii) untreated wood, cardboard and paper; or  
(iii) outdoor burning of used polyethylene agricultural wrap up until 1 January 2014; or  
(iv) animal carcasses burned in accordance with quarantine or disease control requirements or where the groundwater table restricts disposal to land; and notwithstanding the above,  
(c) where such discharges:  
(i) are from burning materials and fuels for fire fighting training and fire fighting research purposes; or  
(ii) are well removed from sensitive activities including residential areas of the | This Policy is to restrict outdoor burning except in specified situations.   |
### Activity Relevant Objective or Policy No. How the objective or policy addressed the farm waste Assessment/Effectiveness

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<thead>
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<tbody>
<tr>
<td>Odorous discharges</td>
<td>Policy AQL5</td>
<td>Policy AQL5 Odour nuisance (a) The discharge to air of odour from new activities shall not be offensive or objectionable to the extent that it has or is likely to cause an adverse effect on the environment beyond the boundary of the site where the discharge originates. (b) Where appropriate existing activities that discharge contaminants into air shall adopt the best practicable option to avoid remedy or mitigate offensive or objectionable effects of odour beyond the boundary of any site from which they originate. (c) Avoid encroachment of sensitive activities on existing activities discharging odorous contaminants into air, unless adverse effects of the odour can be avoided or mitigated by the encroaching activity. For the purposes of this policy: new activities are those activities which are established after 1 June 2002 or not lawfully established on or before 1 June</td>
<td>This Policy is to avoid, remedy or mitigate any odorous discharges.</td>
</tr>
</tbody>
</table>
### Natural Resources Regional Plan – Chapter 3 Air Quality

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</thead>
<tbody>
<tr>
<td>Other air discharges</td>
<td>Policy AQL8</td>
<td>Policy AQL8 Control all other discharges to air (a) Control discharges of contaminants to air not specifically provided for in Policies AQL1 to AQL7 by: (i) allowing as permitted activities discharges of contaminants into air from industrial or trade premises or industrial or trade processes that have no more than minor adverse effects on the environment; and (ii) recognising and providing for emissions from internal combustion equipment while avoiding, remedying or mitigating ground level concentrations of contaminants, including cumulative effects; and (iii) avoiding, remedying or mitigating adverse effects of localised ground level concentrations of contaminants, including cumulative effects, on: (1) human health; and (2) the health and functioning of ecosystems, plants and animals; and (3) values of significance to Tāngata Whenua; and (4) cultural and amenity values; and (iv) where (c) above cannot be met by either: (1) regionally significant infrastructure, or (2) appropriately located industrial or trade premises or industrial and trade processes, that was established on or before 1 June 2002, require the discharger to adopt the best practicable option to avoid, remedy or mitigate the adverse effects on the environment of the discharge beyond the boundary of any site from which the discharge originates; and (v) applying the precautionary approach to the discharge of hazardous air pollutants identified in Schedules AQL1 and AQL2 where this is a potential significant adverse effect on the environment which is not predictable because of uncertainty or absence of information.</td>
<td>This Policy is control the effects of discharges not covered by other policies.</td>
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## Natural Resources Regional Plan – Chapter 3 Air Quality

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<tbody>
<tr>
<td>Hazardous air discharges</td>
<td>Policy AQL10</td>
<td>Precautionary approach to hazardous air pollutants When considering applications for resource consents and in adopting any standards, apply the precautionary approach in assessing any adverse effects on the environment from the discharge of hazardous air pollutants, including those identified in Schedules AQL1, and AQL2 where there is a potential significant adverse effect on the environment which is not predictable because of uncertainty or absence of information.</td>
<td>This Policy is to take a precautionary approach to air pollutants that may be hazardous.</td>
</tr>
<tr>
<td>Large scale fuel burning devices</td>
<td>Policy AQL12</td>
<td>Set emission standards for large scale fuel burning devices Require the adoption of the best practicable option to prevent or minimise the adverse effects on the environment from the discharge to air of primary air pollutants identified in Schedule AQL1, from the combustion of fuel in large scale fuel burning devices located outside the Christchurch Clean Air Zones 1 and 2.</td>
<td>This Policy seeks to control emissions for large scale fuel burning devices</td>
</tr>
</tbody>
</table>

The water quality objectives, policies, and rules relevant to non-natural farm waste are included in Appendix A.2. These provisions are important to non-natural farm waste as they apply to discharges that might affect the quality of surface or ground water. This chapter also covers the impact that offal pits and hazardous substances may have on water bodies.

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<tbody>
<tr>
<td>Discharge of a contaminant</td>
<td>WQL1 (P)</td>
<td>The discharge of water or a contaminant: (a) into a river, lake or artificial watercourse;</td>
<td>This Rule sets out the conditions by contaminants may be discharged to</td>
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### Natural Resources Regional Plan – Chapter 4 Water Quality

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<td>to land where it may reach water</td>
<td>or (b) onto land which may result in a contaminant or water entering a river, lake or artificial watercourse, that is not classified by Rules WQL2, WQL4, WQL5, WQL7, WQL8, WQL15, WQL16, WQL17, WQL18, WQL19, WQL21, WQL41, WQL44 or WQL47; is - 1. a permitted activity if the discharge complies with all of the conditions of this Rule. 2. Where the activity does not comply with any one or more of the conditions of this rule, the activity is classified by Rule WQL48. 1. The rate of flow in the river or artificial watercourse at the point and time of discharge to surface water shall be at least five times the rate of the discharge. 2. The rate of discharge to any lake shall not exceed five litres per second. 3. The concentration of: (a) total suspended solids in the discharge shall not exceed 25 grams per cubic metre; (b) dissolved organic carbon in the discharge shall not exceed 2.0 grams per cubic metre. 4. The discharge shall not contain any hazardous substances, hazardous waste or added radioactive isotopes. 5. The discharge shall not result in: (a) an increase in the flow in the river or artificial watercourse at the point of discharge by more than one percent of a flood event with an Annual Exceedance Probability of 20 percent (one in five year event); or (b) an increase in flooding of a dwelling or land; or</td>
<td>water as a permitted activity.</td>
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<tr>
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<tr>
<td>(c) an increase in erosion of the bed or banks of the receiving water body.</td>
<td>WQL3 (P) (D)</td>
<td>The discharge of a contaminant onto or into land in circumstances where the contaminant may enter groundwater, that is not classified by Rules WQL2, WQL4, WQL6, WQL8, WQL9, WQL10, WQL11, WQL12, WQL13, WQL14, WQL17, WQL18, WQL22, WQL23, WQL25, WQL28, WQL37, WQL42, WQL44, WQL45 or WQL47; is -</td>
<td>This Rule sets out the conditions by contaminants may be discharged to groundwater as a permitted activity, or if conditions are not met – as a discretionary activity.</td>
</tr>
</tbody>
</table>

6. The discharge shall not, outside of the Mixing Zone:
(a) change the colour of the receiving water by more than five Munsell units;
(b) decrease the clarity of the receiving water by more than 20 percent;
(c) change the pH of the receiving water by more than 0.5 pH unit;
(d) change the temperature of the receiving water of a river or artificial watercourse by more than two degrees Celsius;
(e) change the temperature of the receiving water in a lake by more than one degree Celsius;
(f) produce conspicuous oil or grease films, scums, foams, floatable or suspended materials;
(g) produce any objectionable odour;
(h) cause any significant adverse effects on aquatic life;
(i) render fresh water unsuitable for consumption by farm animals; or
(j) cause the concentration of Escherichia coli to exceed 550 E. coli per 100 millilitres.

7. The discharge shall not reduce the quality of the receiving water within:
(a) 500 metres upstream on a river or artificial watercourse; or
(b) 500 metres on a lake;
from an intake for a community drinking water supply listed in Schedule WQL2.

8. A discharge of water that commences for the first time after 3 July 2004 shall not be of surface water that has been transferred from another surface water catchment.
### Natural Resources Regional Plan – Chapter 4 Water Quality

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<tbody>
<tr>
<td></td>
<td>WQL6 (P) (D) (NC)</td>
<td>The discharge of stormwater onto or into land where contaminants may enter groundwater; is -</td>
<td>This Rule sets out the conditions by stormwater contaminants may be discharged to groundwater as a permitted</td>
</tr>
</tbody>
</table>

1. a permitted activity if the discharge complies with all of the conditions of this Rule;
2. a discretionary activity if the activity does not comply with any one or more of the conditions of this Rule.

Conditions:
1. The volume of the discharge shall not exceed ten cubic metres per day and the application rate shall not exceed ten millimetres per day.
2. The discharge shall not be directly into groundwater.
3. The discharge shall not result in any overflow or runoff into any river, lake, artificial watercourse, wetland or onto neighbouring property.
4. The discharge shall not, in groundwater, produce any objectionable odour, or render fresh water unsuitable or unpalatable for consumption by farm animals or humans.
5. The discharge shall not contain any hazardous substance, hazardous waste or added radioactive isotope.
6. The discharge shall not result in ponding on the ground surface for more than two hours.
7. The discharge shall not be onto or from a property that has been registered by Environment Canterbury on its Listed Land Use Register as a site that is; ‘not investigated’, ‘below guideline values for’, ‘managed for’, ‘partially investigated’, ‘significant adverse environmental effects’ or ‘contaminated for’.
8. The discharge shall not be within 200 metres of a community drinking water supply well listed in Schedule WQL2.
## Natural Resources Regional Plan – Chapter 4 Water Quality

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<td>constitutes ‘waste’</td>
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<tr>
<td>1. a permitted activity if the discharge:</td>
<td>(a) was lawfully established at 4 July 2004; or (b) is solely from a roof and complies with Conditions 1 and 2; or (c) is from any other source, including a road, and complies with Conditions 1 and 3;</td>
<td>2. a discretionary activity if the discharge is: (a) solely from a roof and does not comply with Conditions 1 or 2; or (b) from any other source, including a road, and does not comply with any one or more of Conditions 1, 3(b), 3(c) or 3(d); unless another person, who has applied for, or been granted, a discharge permit under Rule WQL8 provides written authority for the activity to be carried out under their permit. 3. a non-complying activity if the discharge does not comply with Condition 3(a); unless another person, who has applied for, or been granted, a discharge permit under Rule WQL8, provides written authority for the activity to be carried out under their permit.</td>
<td>activity, or if conditions are not met – as a discretionary or non-complying activity.</td>
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<tr>
<td>Discharge from any source</td>
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<tr>
<td>1.</td>
<td>The discharge shall not cause stormwater from up to and including a 24 hour duration 2% exceedance probability rainfall event to enter any other property beyond the boundary of the property or area in which the discharge occurs, unless written authorisation from the affected landowner is obtained; (b) The discharge shall not result in the ponding of stormwater on the ground for more than 48 hours; (c) The discharge shall not cause erosion of soil; (d) The discharge system shall be located at least one metre above the highest groundwater level that can be reasonably inferred for the site at or about the time the system is constructed; and (e) The discharge shall not be onto or from a property that has been registered by the Environment Canterbury on its Listed Land</td>
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**SINCLAIR KNIGHT MERZ**
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</thead>
<tbody>
<tr>
<td>Use Register as a site that is; ‘not investigated’, ‘below guideline values for’, ‘managed for’, ‘partially investigated’, ‘significant adverse environmental effects’ or ‘contaminated for’. Discharge solely from a roof</td>
<td>2. (a) The discharge system shall be sealed to prevent any other contaminants entering the system. Discharge from any source other than a roof 3. (a) The discharge shall not be within a Community Drinking Water Supply Protection Zone for a well listed in Schedule WQL2 if: (i) the discharge was not lawfully established before the date this rule became operative; and (ii) the discharge is from that part of a road, including a State Highway, that has four lanes for motor vehicles. (b) The discharge shall not be from a property where: (i) an activity or industry specified in Schedule WQL9 is occurring; or (ii) the quantity of hazardous substances stored or handled exceeds the thresholds in Schedule WQL9; and the hazardous substances may become entrained in stormwater. (c) A discharge that is: (i) solely from a sealed road; or (ii) from a combination of sources; and is located in an area where the depth to unconfined or semi-confined groundwater is less than six metres as indicated in Map Volume - Part 2 Indicative Maps, shall either be via a fully vegetated soil treatment system with the following characteristics: (1) a minimum depth of 200 millimetres of soil, and (2) an infiltration rate between 20 and 50 millimetres per hour, and (3) at least 5 per cent clay content in the soil, and</td>
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<tr>
<td>(4) be designed to capture and infiltrate all contributing stormwater for rainfall events up to and including a 24 hour duration ten per cent annual exceedance probability; or via an alternative stormwater treatment system that is certified in writing by a suitably qualified and competent person as providing at least equivalent stormwater treatment. A copy of that certification, design plans for the system and appropriate technical documentation that demonstrates the technical basis for the certification shall be provided to the Environment Canterbury at least 20 working days prior to installation.</td>
<td>WQL8 (C) (DR) (D) (NC)</td>
<td>The discharge of stormwater: (i) onto or into land; and/or (ii) into a river, lake or artificial watercourse; in accordance with a stormwater management plan; is – 1. a controlled activity if the discharge complies with all of the conditions of this Rule; 2. a restricted discretionary activity if the discharge does not comply with any one or more of Conditions 1, 3 or 6 of this Rule; 3. a discretionary activity if the discharge does not comply with Condition 4; 4. a non-complying activity if the discharge does not comply with Condition 2 or 5 of this Rule. Conditions:</td>
<td>This Rule sets out the conditions by stormwater contaminants may be discharged as a controlled, restricted discretionary, discretionary or non-complying activity.</td>
</tr>
<tr>
<td>(d) Unless the discharge from a combination of sources was lawfully established before the date this rule became operative, or the discharge is into a stormwater collection system for an authorised stormwater discharge, the discharge shall not be from an area of disturbed land of greater than: (i) 1000 square metres within Zone BP in Map Volume - Part 1 Planning Maps, or (ii) two hectares in any other location.</td>
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**Discharge of stormwater if this constitutes ‘waste’**
### Activity | Relevant Rule No. | Status, or how the rule addressed the farm waste | Assessment/Effectiveness
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1. | A stormwater management plan, shall be prepared in accordance with Section 4.7.3.2 of this Chapter, for the area from which stormwater is collected and conveyed to the point(s) of discharge, and shall form part of the discharge permit application. | | |
2. | Where the discharge is to a river or a lake in areas other than those identified in Condition 5, the discharge shall, outside of the Mixing Zone, meet the water quality standards for the receiving water in Schedule WQL1. | | |
3. | A discharge to a river, lake or an artificial watercourse water shall: | | |
   (a) not exceed a concentration of total suspended solids of: | | |
   (i) 50 grams per cubic metre where the discharge is to any Spring-fed river, Banks Peninsula river, or to a lake; or | | |
   (ii) 100 grams per cubic metre where the discharge is to any other river, or to an artificial watercourse; and | | |
   (b) not increase the flow in the receiving water body by more than five percent of a flood event for that water body with an Annual Exceedance Probability of 20 percent. | | |
4. | There shall be no discharge into or onto land in the areas identified as Christchurch Groundwater Protection Zones 1, 1A, 1B, 1C, 1D or 2 on Map Volume - Part 1 Planning Maps. | | |
5. | There shall be no discharge within any of the following areas: | | |
   (a) within 500 metres upstream on a river, artificial watercourse, or within 500 metres on a lake, from an intake for a community drinking water supply listed in Schedule WQL2; or | | |
   (b) in a Community Drinking Water Supply Protection Zone for a well specified in Schedule WQL2. | | |
6. | An application for a discharge permit for a discharge that existed at 1 November 2010 must be complete and accepted by Environment Canterbury within five years of the date the rule becomes operative. | | |
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<tbody>
<tr>
<td>Discharge of agrichemical waste</td>
<td>WQL17 (P) (D) (NC)</td>
<td>The discharge of an agrichemical or agrichemical equipment or container washwater: (i) into surface water; or</td>
<td>This Rule sets out the conditions by which agrichemical waste may be a permitted activity. Of, if these cannot be met, a</td>
</tr>
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<td>(ii) onto land where it may enter water or into groundwater within the Christchurch Groundwater Protection Zones; is – 1. a permitted activity if the discharge is: (a) onto land and complies with Conditions 1, 2, 3, 4, 5, 6 and 7 of this Rule; (b) into surface water and complies with Conditions 1, 2, 3, 4, 5, 6, 8, 9 and 10 of this Rule; 2. a discretionary activity if the discharge does not comply with any one or more of the conditions of this Rule, excluding Conditions 8(c) or 8(d); 3. a non-complying activity if the discharge does not comply with Conditions 8(c) or 8(d) of this Rule.</td>
<td>discretionary or non-complying activity.</td>
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<td>contain a volume of at least 110 per cent of the largest spray tank to be filled; or (ii) the mixing or dilution is for a hand-held application technique or method. 5. If the water used for mixing or dilution is being abstracted from surface water or groundwater, a backflow prevention system shall be in place to prevent the agrichemical from flowing back into the source water. Discharge from an Aircraft 6. Where the discharge is from an aircraft: (a) the discharge shall be carried out by a person who holds a GROWSAFE® Pilots’ Agrichemical Rating Certificate; (b) the flight paths shall be recorded by an on-board differential global positioning system and this record shall be maintained for at least 12 months following the discharge and made available to Environment Canterbury upon request; (c) the discharge in the bed of an Alpine-upland river or Hill-fed-upland river in Map Volume Part 1 - Planning Maps shall not occur between the first day of September and the last day of November in any year. Discharge onto land 7. Where the discharge is onto land: (a) there shall be no discharge into surface water as a result of direct application or spray drift; and (b) the discharge shall not be within either: (i) a Community Drinking Water Supply Protection Zone specified in Schedule WQL2; (ii) be at least 10 metres distant from any other lawfully established well used for potable supply; unless written permission is provided by holder of the authority to take water from the well. 8. Where the discharge is into surface water: (a) the discharge shall be carried out by a person who holds a current GROWSAFE® Registered Chemical Applicator’s Certificate issued by the New Zealand Agrichemical Education Trust.</td>
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<td>(b) the area over which the discharge occurs shall not exceed: (i) in any period of 24 hours; (1) 5000 square metres in a river or artificial watercourse, or (2) 5000 square metres or 25 percent of the surface area of a lake, whichever is the smaller area; or (ii) in any period of seven consecutive days, 10000 square metres in a river, artificial watercourse or lake. Where Rule Applies: This rule applies everywhere in the Canterbury region excluding: (a) the Coastal marine area; and (b) where the discharge is to surface water or onto land and is controlled by the: (i) Opihi River Regional Plan; or (ii) Waimakariri River Regional Plan. Information to be provided An application for a resource consent under this rule must meet the information requirements set out in Section 1.3.4 and Section 4.7. (c) the discharge shall not occur: (i) into a river or artificial watercourse within 1000 metres upstream or 100 metres downstream, or in a lake within 1000 metres of a surface water intake for a Community Drinking Water Supply listed in Schedule WQL2; or (ii) into a river or artificial watercourse within 250 metres upstream or 100 metres downstream, or in a lake within 250 metres, of a surface water intake for any other lawfully established water supply; unless written permission is provided by the holder of the authority to take water. (d) the discharge shall not occur to the following water bodies: (i) within areas of protected waters of the Ahuriri River Water Conservation Order; (ii) within bodies of water defined in the Rakaia River Water Conservation Order;</td>
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<td>(iii) to water classified as NATURAL in the Map Volume Part 1 – Planning Maps; or (iv) a significant spawning reach for salmon listed in Schedule WQN14. 9. The person responsible for the discharge shall notify, at least five working days, but not more than 2 months, before the discharge event: (a) all persons who hold authority to take water from a surface water intake within the area of the proposed discharge; (b) the RMA Compliance and Enforcement Manager at Environment Canterbury; (c) the owners of land in or adjacent to the bed of a river or lake within the area over which the discharge is proposed. 10. A notice required by Condition 9 shall include: (a) the approximate date on which the discharge is expected to commence, and the expected duration of the discharge; and (b) the name and nature of the substance to be discharged; (c) a description of the area over which the substance will be discharged, including: (i) the boundaries of the area of discharge; (ii) exclusion zones around water supply sources and water bodies. (d) the name, address and contact phone number of the person responsible for the discharge of the substance.</td>
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<tr>
<td>Offal pits in production land</td>
<td>WQ122 (P) (DR) (NC)</td>
<td>The discharge into production land of: (a) dead animals or animal parts; or (b) refuse; where a contaminant may enter water; is - 1. a permitted activity if the discharge complies with Conditions 1 to 12 of this Rule; 2. a restricted discretionary activity if the discharge does not comply with any one of the Conditions 1 to 12 of this Rule. This Rule sets out the conditions by which offal pits in production land may be a permitted activity. Or, if these cannot be met, a restricted discretionary or non-complying activity.</td>
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<th>Activity</th>
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<td>or more of the conditions of this Rule, excluding Condition 8(d); 3. a non-complying activity if the discharge does not comply with Condition 8(d) of this Rule.</td>
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<td>Conditions</td>
<td>1. The discharge shall be into a pit of a volume less than 50 cubic metres. 2. Surface runoff shall not enter the pit. 3. Animals shall be prevented from gaining access to the contents of the pit. 4. No liquid petroleum products, industrial solvents, or agrichemicals shall be discharged into a pit. 5. Agrichemical containers must be triple rinsed before being discharged into land in a pit. 6. When any pit is filled to within half a metre of the original land surface, or is no longer used, the contents shall be covered with soil to a depth of at least half a metre and the surface restored to a state similar to the surrounding land. 7. There shall be no more than two pits per hectare of land within a period of two consecutive years on any property that overlies an unconfined or semi-confined aquifer. 8. The discharge shall not occur: (a) within 50 metres of the bed of a river or lake, artificial watercourse or the Coastal marine area; or (b) within 50 metres of a wetland boundary, other than a wetland constructed primarily to treat effluent; (c) on or into land: (i) that is likely to be flooded from a river or lake in an event with an Annual Exceedance Probability of 20 percent (1 in 5 year event) or more; or (ii) where water is known to pond for at least two hours in a rainfall event, on</td>
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<td>average, at least once in every five years; or</td>
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<td>(d) onto or into land:</td>
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<td>(i) within a Community Drinking Water Supply Protection Zone for a well listed in Schedule WQL2;</td>
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<td>(ii) within 100 metres in the up-gradient direction and within 20 metres in any other direction of any well not listed in Schedule WQL2 but used for human drinking water; and</td>
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<td>(e) within 50 metres, in the down-gradient direction of groundwater flow, of a property boundary and 30 metres of any other property boundary.</td>
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<td>9. In the Coastal Confined Gravel Aquifer System shown on Map Volume Part 1 - Planning Maps, there shall be at least three metres of undisturbed sediment between the base of the pit and Aquifer 1.</td>
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<td>10. Where the discharge is into land over an unconfined or semi-confined aquifer, there shall be at least three metres between the base of a pit and the highest groundwater level, which can reasonably be expected at the site based upon relevant and available groundwater data.</td>
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<td>11. The following information shall be recorded, and a copy of the records shall be made available to Environment Canterbury upon request:</td>
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<td>(a) the location of any pit recorded to within an accuracy of at least 50 metres at a scale of 1:50,000 or larger; and</td>
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<td>(b) the period the pit has been or was in use.</td>
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<td>12. Within the Christchurch Groundwater Protection Zone 1, Zones 1A, 1B, 1C or 1D or Zone 2 any discharge shall be limited to an existing discharge that was lawfully established at the time this rule becomes operative.</td>
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<td>Discretion Restricted to:</td>
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### Natural Resources Regional Plan – Chapter 4 Water Quality

| Activity                      | Relevant Rule No. | Status, or how the rule addressed the farm waste                                                                                                                                                                                                 | Assessment/Effectiveness |
|-------------------------------|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------ ---------------------------------------------------------------------------------------------------|
| Stockpiling organic matter   | WQL27 (P) (DR) (D) (NC) | Where the activity is classified as a restricted discretionary activity, Environment Canterbury has restricted its discretion to the following matters: 1. The type of contaminants being discharged. 2. The volume, rate and frequency of the discharge. 3. The design, including the capacity of the facility, construction, location, operation and maintenance of the pit. 4. Measures to prevent or minimise the entry of contaminants into land, surface water or groundwater. 5. Measures to prevent adverse effects on sources of drinking water. 6. The rehabilitation of the site. 7. The monitoring of the activity and its effects. 8. Review of the resource consent conditions. 9. Consent duration. | This Rule sets out the conditions by stockpiling organic matter may be a permitted activity. Or, if these cannot be met, a restricted discretionary, discretionary, or non-complying activity. |

**Activity**: Stockpiling organic matter  
**Relevant Rule No.**: WQL27 (P) (DR) (D) (NC)  
**Status, or how the rule addressed the farm waste**: The use of land to stockpile fermenting or decaying organic matter that is not from an industrial or trade process;  
- 1. a permitted activity if such use complies with all of the conditions of this Rule;  
- 2. a restricted discretionary activity if such use does not comply with Condition 2 of this Rule;  
- 3. a discretionary activity if such use does not comply with any one or more of Conditions 1(a) to 1(d), or 1(f) of this Rule;  
- 4. a non-complying activity if such use does not comply with Condition 1(e) of this Rule.  
**Assessment/Effectiveness**: This Rule sets out the conditions by stockpiling organic matter may be a permitted activity. Or, if these cannot be met, a restricted discretionary, discretionary, or non-complying activity.  

**Conditions**: Any stockpile of fermenting or decaying organic matter with a volume greater
### Natural Resources Regional Plan – Chapter 4 Water Quality

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<td>than five cubic metres shall not be sited: (a) within 50 metres of the Coastal marine area; or (b) within 20 metres of the bed of a river or lake, artificial watercourse, or a wetland boundary other than of a wetland constructed primarily to treat effluent; (c) on land: (i) that is likely to be flooded from a river or lake in an event with an Annual Exceedance Probability of ten percent (1 in 10 year event) or more; or (ii) where water is known to pond for more than two hours in a rainfall event, on average, at least once in every five years; or (d) within 20 metres of a bore; or (e) within a Community Drinking Water Supply Protection Zone for a well listed in Schedule WQL2; or (f) within Christchurch Groundwater Protection Zone 1, or Sub-Zones 1A, 1B, 1C or 1D as shown on the Map Volume Part 1 - Planning Maps.</td>
<td>Apart from these areas, an assessment should be made of the impact of the proposed farm waste on the surrounding environment.</td>
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<td>2. Unless the maximum moisture content of the organic matter is less than 75 per cent at all times, the land beneath a stock pile of more than five cubic metres of fermenting or decaying organic matter shall be sealed with a synthetic liner or concrete or compacted clay or other material of low permeability such that seepage into land shall not exceed a rate of one millimetre per day. This condition does not apply where: (a) a stockpile is located within the Coastal Confined Gravel Aquifer System as shown on the Map Volume Part 1 - Planning Maps, and there is at least one metre of the confining layer between the base of the stockpile and the uppermost aquifer; or (b) a stockpile is located on land over an unconfined or semi-confined aquifer, and</td>
<td>Apart from these areas, an assessment should be made of the impact of the proposed farm waste on the surrounding environment.</td>
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<tr>
<td>Deposition of material over an unconfined or semi-confined aquifer</td>
<td>WQL37</td>
<td>Except where it is authorised as a permitted activity under Rule WQL22 the use of land for the deposition of more than 50 cubic metres of material in any consecutive 12 month period where the land into which the material is deposited: (a) is excavated to a depth in excess of five metres below the natural land surface; and (b) is located over an unconfined or semi-confined aquifer, where the highest level of groundwater which can reasonably be expected to occur at the site based upon the relevant and available groundwater.</td>
<td>This Rule sets out the conditions by stockpiling organic matter may be a controlled activity. Or, if these cannot be met, a discretionary activity.</td>
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### Natural Resources Regional Plan – Chapter 4 Water Quality

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<th>Status, or how the rule addressed the farm waste data, is less than 30 metres below the natural land surface; is -</th>
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<td>1. a controlled activity if such use complies with all of the conditions of this Rule;</td>
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<td>2. a discretionary activity if such use does not comply with any one or more of conditions of this Rule.</td>
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<td><strong>Conditions:</strong></td>
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<td>1. The material shall only consist of cleanfill.</td>
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<td>2. The volume of vegetative matter in any cubic metre of material deposited shall not exceed three percent.</td>
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<td>3. The material shall not be deposited into groundwater.</td>
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<td>4. Any cured asphalt deposited shall be placed in the land at least one metre above the highest groundwater level expected at the site.</td>
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<td><strong>Matters for control:</strong> Where the activity is classified as a controlled activity, Environment Canterbury has reserved control over the following matters in imposing any conditions:</td>
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<td>1. Measures to prevent unauthorised deposition of material onto or into land.</td>
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<td>2. Implementation of the management plan.</td>
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<td>3. Records of material deposited.</td>
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<td>4. The monitoring of the activity and its effects of the activity on groundwater quality.</td>
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<td>5. Measures to avoid, remedy or mitigate any adverse effects of the deposition on: (a) the use of groundwater for drinking water for humans, including community</td>
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## Natural Resources Regional Plan – Chapter 4 Water Quality

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<td>Use of land to store a hazardous substance</td>
<td>WQL38A (P) (DR) (NC) (Pr)</td>
<td>The use of land to store or to use a specified hazardous substance in or on land; is – 1. a permitted activity if such land use complies with Conditions 1, 2, 3, 4 and 5, or Conditions 6, 7 or 9 of this Rule; 2. a restricted discretionary activity if such land use complies with Condition 8 of this Rule; 3. a non-complying activity if such land use does not comply as a permitted or restricted discretionary activity, but it is not a prohibited activity; 4. a prohibited activity if such land use is not a permitted or restricted discretionary activity and it is located within a Community Drinking Water Supply Protection Zone for a well listed in Schedule WQL2. Conditions: Existing Storage or Use 1. The storage or use can be demonstrated to the satisfaction of the consent authority as being lawfully established before 4 July 2004 and the maximum quantity stored has not increased since that date.</td>
<td>This Rule sets out the conditions by which land may be used to store hazardous substances. Or, if these cannot be met, a restricted discretionary, non-complying, or prohibited activity.</td>
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### Natural Resources Regional Plan – Chapter 4 Water Quality

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| (a) Stock reconciliation of a specified hazardous substance shall be undertaken at regular intervals.  
(b) A container located on or over the land surface shall be visually inspected for leakage at least once per month.  
3. If the stock reconciliation of a substance stored in a container located in or under land shows a discrepancy for the measurement period of more than 25 litres or 0.5 percent of product, Environment Canterbury shall be notified:  
(a) immediately, if the container is located within a Community Drinking Water Supply Protection Zone for a well listed in Schedule WQL2; or  
(b) within two working days if the discrepancy occurs over three consecutive measurements for a container located in any other area.  
4. If requested, a copy of the stock reconciliation or the most recent certification of the container shall be provided to Environment Canterbury within five working days.  
5. A container located in or under land shall not be altered except for the repair or replacement of, or part of, any pipe, tap, valve, hose or other fittings attached to the container.  
New Storage or Use – Small Quantities  
6. Where the aggregate quantity of specified hazardous substances on a site is less than or equal to Threshold 1 of Schedule WQL11, the substances shall be stored under cover on an impervious surface.  
New Storage or Use – Medium Quantities  
7. Where the aggregate quantity of specified hazardous substances on a site is more than the quantity specified in Threshold 1, but equal to or less than the quantity specified in Threshold 2 of Schedule WQL11 the storage and use; |
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<td>(a) shall comply with Conditions 2, 3 and 4 of this rule; and (b) the person in charge of the site shall (i) maintain a current inventory of all specified hazardous substances on the site, and a copy of the inventory shall be made available to Environment Canterbury or emergency services upon request; (ii) store or use the substances in a facility which is designed, constructed and managed to: (1) prevent the escape of substances or contaminated water; and (2) prevent stormwater runoff entering the facility; and (3) contain a leak or spill and allow the leaked or spilled substance to either be collected or lawfully disposed of; and (iii) have spill kits to contain or absorb the spilled substance located close to the substance storage and use areas at all times, along with instructions on how to use the spill kit; and (c) the substances shall not be stored or used outdoors; (i) within 20 metres of: (1) water in a river or a lake; (2) a lawfully established bore used for a purpose other than a community drinking water supply; (3) a wetland boundary; or (ii) on land: (1) that is likely to be flooded from a river or lake in an event with an Annual Exceedance Probability of five percent (one in twenty year event) or more; (2) where water is known to pond for at least two hours in a rainfall event, on average, at least once in every five years; (3) within a Community Drinking Water Supply Protection Zone for a well listed in Schedule WQL2; or (4) within 100 metres of an active fault that has a recurrence period of less than</td>
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<td>10,000 years, and the land is over an unconfined or semi-confined aquifer, or within 50 metres of a permanently or intermittently flowing river or a lake. (d) The erection, reconstruction, placement, alteration, or extension of an underground container shall comply with Schedule WQL5. (e) Where the container is above the ground but the associated pipe work is below the ground the pipe work shall comply with the relevant provisions of Clause (d) to (g) inclusive of Schedule WQL5. New Storage or Uses – Large Quantities</td>
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<td>8. Where the aggregate quantity of the specified hazardous substances stored or used on a site is more than Threshold 2 of Schedule WQL11, the substances shall not be stored or used outdoors: (a) within 20 metres of a lawfully established bore, the bed of a river or lake or a wetland boundary; (b) within a Community Drinking Water Supply Protection Zone for a well listed in Schedule WQL2; (c) on land that is likely to be flooded from a river or lake in an event with an Annual Exceedance Probability of 5% (one in twenty year event) or greater; (d) on land where the depth to unconfined or semi-confined groundwater is less than 30 metres; or (e) within 100 metres of an active fault that has a recurrence period of less than 10,000 years, and the land is over an unconfined or semi-confined aquifer. Portable Containers</td>
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<td>9. A portable container shall comply with the following:</td>
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<td>(a) the aggregate quantity of specified hazardous substances stored on a site in a portable container shall not exceed 2,000 litres; (b) a container shall be located in an area or structure that will contain a leak or</td>
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## Natural Resources Regional Plan – Chapter 4 Water Quality

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<td>spilling of the substance and will allow the spilled substance to be collected; (c) equipment that is suitable to absorb any leak or spill of the substance shall be located with the container at all times, along with instructions on how to use the spill kit; (d) a container shall not be located within 20 metres of: (i) water in a river or lake; (ii) a lawfully established bore; or (iii) a wetland boundary; and (e) a portable container shall not remain on a site for a continuous period of more than 90 days. Restriction of Discretion: Where the activity is classified as a restricted discretionary activity Environment Canterbury has restricted its discretion to the following matters: 1. Suitability of the land for the storage or use of the specified substance. 2. Measures to avoid: (a) the entry of the substances or associated contaminants into; groundwater, surface water, supplies of drinking water and aquatic ecosystems; and (b) any adverse effect on the current or future use of the water resource, as a result of chronic leakage or spillage of the specified substance, or a release of the substance as a result of a natural event. 3. Measures to prevent or contain spills or leaks, including site design and drainage, waste management, emergency management and leak detection. 4. Maintenance and monitoring of the storage or use system including containment measures. 5. The requirement for bonds.</td>
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<td>Discharge hazardous substances into water or groundwater</td>
<td>WQL41 (Pr)</td>
<td>The discharge of: (a) a hazardous substance into surface water or into groundwater in a confined, unconfined or semi-confined aquifer; or (b) a liquid waste into groundwater in a confined, unconfined or semi-confined aquifer; that is not classified by Rules WQL1, WQL2, WQL4, WQL5, WQL7, WQL8, WQL15, WQL16, WQL17, WQL18, WQL44 and WQL47 is a prohibited activity.</td>
<td>The discharge of a hazardous substance into water or ground water is a prohibited activity.</td>
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<td>Discharge of contaminants from a closed landfill</td>
<td>WQL44 (P) (C) (D)</td>
<td>The discharge of a contaminant into water or into land where the contaminant may enter water, from a landfill that was lawfully operated and has ceased to operate: is – 1. a permitted activity if the discharge complies with Condition 1 of this Rule; 2. a controlled activity if the discharge complies with all of Conditions 2, 3, 4, 5 and 6 of this Rule; 3. a discretionary activity if the discharge does not comply with any one or more of Conditions 3, 4, 5 and 6 of this Rule. Where Rule Applies: Matters for Control This rule applies everywhere in the Canterbury region excluding: (a) the Coastal marine area; and (b) where the discharge is to surface water or into land and is controlled by the: (i) Opihi River Regional Plan; or (ii) Waimakariri River Regional Plan. Conditions: 1. The discharge is from a landfill that ceased to operate before 31 December 1960.</td>
<td>This Rule sets out the conditions by which discharges from a closed landfill may be permitted. Or, if these cannot be met, a restricted controlled, or discretionary activity.</td>
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<td>2. The discharge is from a landfill that ceased to operate between 31 December 1960 and 1 October 1991.</td>
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<td>3. The surface of the closed landfill is:</td>
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<td>(a) capped with material to minimise the infiltration of water; and</td>
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<td>(b) contoured to facilitate surface run-off and to prevent ponding of surface water on the landfill.</td>
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<td>4. The final capping layer is planted using vegetation that will maintain ground cover as far as practicable, and the roots of the vegetation will not intrude through the capping layer.</td>
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<td>5. Surface water run-off from outside the landfill is prevented from entering the landfill.</td>
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<td>6. The site is protected from erosion or inundation by floodwaters from a river or lake.</td>
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<td>Matters for Control: Where the activity is classified as a controlled activity, Environment Canterbury has reserved control over the following matters in imposing any conditions:</td>
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<td>1. Measures to avoid, mitigate or remedy adverse effects on water quality and aquatic ecosystems.</td>
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<td>2. Restoration and ongoing management of the site.</td>
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<td>4. The requirement for financial contributions, or bonds.</td>
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<td>5. The duration of a resource consent.</td>
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<td>6. Review of resource consent conditions.</td>
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<td>WQL45 (D) (NC) (Pr)</td>
<td>The discharge of municipal solid waste or treated hazardous waste, and contaminants from these wastes, into land, that is not classified by Rules WQL3, WQL12, WQL14, WQL22, WQL28 or WQL44:</td>
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<td>is – 1. a discretionary activity if the discharge complies with all of the conditions of this</td>
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<td>This Rule sets out the conditions by which discharges from a closed landfill may be discretionary. Or, if these cannot be met, a non-complying, or prohibited activity.</td>
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<td>Rule; 2. a non-complying activity if the discharge does not comply with any one or more of Conditions 1(a) or 2 of this Rule; 3. a prohibited activity if the discharge does not comply with any one or more of Conditions 1(b), 1(c), 1(d), 1(e) or 1(f) of this Rule. Conditions: 1. There shall be no discharge into land: (a) over a semi-confined or unconfined aquifer; (b) in the Coastal Confined Gravel Aquifer System including the Christchurch Groundwater Protection Zone 3 as shown on the Map Volume Part 1 - Planning Maps; (c) in the Christchurch Groundwater Protection Zone 1, or Zone 1A, 1B, 1C or 1D or Zone 2 as shown on the Map Volume Part 1 - Planning Maps; or (d) in a Community Drinking Water Supply Protection Zone for a well listed in Schedule WQL2; (e) in the bed of a river overlying an unconfined or semi-confined aquifer; or (f) in the bed of a lake. 2. A management plan for the landfill shall be prepared and submitted with an application for a discharge permit. The plan shall address all the matters in Appendix 3 of the Landfill Guidelines (2000) published by Centre for Advanced Engineering, University of Canterbury.</td>
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<tr>
<td>Impacts on surface water quality</td>
<td>Objective WQL1</td>
<td>Water quality outcomes for rivers and lakes Objective WQL1.1 Rivers: (1) To maintain in a natural state, the water quality and the bed of rivers within land administered for conservation purposes by the Department of Conservation. (2) (a) In rivers where the outcomes in Table WQL5 are being achieved, manage the quality of the water and the bed to at least achieve the outcomes in Table WQL5; and (b) In rivers where one or more of the outcomes in Table WQL5 are not being achieved, progressively improve the existing quality of the water and the bed. Objective WQL1.2 Natural and artificial lakes: (1) To maintain in a natural state, the water quality of lakes within land administered for conservation purposes by the Department of Conservation. (2) (a) In lakes where the outcomes in Table WQL6 are being achieved, manage the water quality to at least achieve the outcomes in Table WQL6; and (b) In lakes where one or more of the outcomes in Table WQL6 are not being achieved, progressively improve the existing water quality.</td>
<td>This Objective seeks to maintain and enhance the water quality of lakes and rivers.</td>
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<tr>
<td>Point source discharges</td>
<td>Policy WQL1</td>
<td>Point source discharges that may enter surface water (1) Before allowing a point source discharge of: (a) a contaminant, excluding those contaminants specified in Policy WQL3, into surface water or onto land where a contaminant may enter surface water, ensure that: (i) good practice measures shall be carried out to minimise the volume and concentration of the contaminant. These include minimising the production of the contaminant, the reuse, recovery, and recycling of materials and the treatment of waste; and (ii) the discharge to another existing treatment and discharge system or network is not a practical alternative, and a discharge into or onto land cannot be undertaken in accordance with Policy WQL7; or</td>
<td>This Policy seeks to minimise the impact of discharges of contaminants to water.</td>
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### Natural Resources Regional Plan – Chapter 4 Water Quality

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<td>(b) water into surface water or onto land where it may enter surface water, including water from one catchment being discharged into another part of the same catchment or into another catchment, ensure that: (i) the mixing of the waters as a result of the discharge avoids significant adverse effects on Ngāi Tahu cultural values; and (ii) the discharge of water will not facilitate the movement of fish or unwanted organisms into catchments where they are not already present. (2) If the requirements of Policy WQL1(1) are satisfied and: (a) the existing receiving water quality meets the relevant standards in Schedule WQL1 and any applicable water conservation order, the discharge of a contaminant or water that may enter water in a river or lake, must meet these standards outside of the Mixing Zone; or (b) the existing receiving water quality does not meet the relevant standards in Schedule WQL1 or any applicable water conservation order, the discharge shall only be allowed if: (i) the discharge, outside of the Mixing Zone; 1. does not result in further decline in water quality; or 2. has no significant adverse effect on any purpose of management or outcome in Table WQL5 for a river or Table WQL6 for a lake; or (ii) the adverse effects on a water body with natural state water quality are no more than minor; or (iii) the discharge is from an existing local authority network and there is a substantial commitment to progressively improve the quality of the discharge so that, as soon as practicable but no later than year 2025, the discharge will not breach the water quality standards for the receiving water, or prevent achievement of the outcomes in Table WQL5 for a river or Table WQL6 for a lake. (3) The following criteria shall apply when determining the size of a Mixing Zone: (i) the measures to be applied to ensure the size of the Zone is as small as practicable;</td>
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<td>(ii) the Zone, either alone, or in combination with other Mixing Zones shall not occupy a major proportion of the receiving water body; (iii) the Zone shall not create a barrier to the migration of fish; (iv) the Zone shall not limit contact recreation in areas listed in Schedule WQL7; (v) the Zone shall not result in a significant effect on Ngā Tahu cultural values; (vi) the discharge shall not result in the production of offensive or objectionable odours in the Zone; and (vii) the discharge shall not result in the accumulation of toxic or persistent contaminants within the Zone. (4) There shall be no Mixing Zone where the discharge occurs within 500 metres, upstream in a river or artificial watercourse or 500 metres in a lake, from a community drinking water supply intake.</td>
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<td>Adverse effects on water quality resulting from the flow of a river</td>
<td>Policy WQL2</td>
<td>Effects on water quality and the river bed caused by a change to the flow of a river (1) There shall be no adverse effects on water quality from any activity leading to a change in flow in a natural state river. (2) For any other river, where the water quality or the bed of a river is likely to be affected by a change to the flow of a river as a result of a proposed activity or flow regime, any such change must not have a significant adverse effect on the water quality or the purpose of management and outcomes identified in Table WQL5. (3) When deciding an application for a replacement resource consent for an existing lawful activity that has changed the flow of a river and has had significant adverse effects on instream values or water quality, impose conditions to restore instream values and water quality, as far as practicable, to those that existed before the flow of the river was changed. (4) Any change to the quality of river water recharging groundwater should not</td>
<td>This policy seeks to control changes to river flow where this may adversely affect water quality</td>
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<td>Discharge of hazardous substances into water</td>
<td>Policy WQL3</td>
<td>Prevent the discharge of certain contaminants to surface water Avoid significant adverse effects on water quality, aquatic ecosystems and instream values of surface water, by: (1) prohibiting the point source discharge of: (a) untreated human sewage, except for unavoidable overflows or spills from an existing sewerage network, animal effluent from an effluent collection system, or solid or hazardous waste into surface water, or onto or into land where contaminants may enter surface water; or (b) treated human sewage into a river or lake from a vessel; or (c) treated human sewage into a river upstream of a community drinking water supply intake. (2) requiring that a community system used to collect, treat and discharge human sewage effluent: (a) treats the effluent using the best practicable option and the effluent is discharged onto or into land in accordance with Policy WQL7(1) and Policy WQL13; and (b) has in place effective measures to minimise the discharge of effluent to surface water or onto land where it may enter surface water, in the event of a system failure or overloading of the system beyond its design capacity. (3) only allowing a discharge of treated sewage to a river or an artificial watercourse in circumstances where: (a) it is not practicable to: (i) discharge the treated sewage effluent onto or into land because of the physical limitations of the land, or the discharge would contravene Policy WQL7; or</td>
<td>Sections 4 and 5 of this Policy seeks to avoid adverse effects of hazardous substances discharged into water bodies</td>
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<td>(ii) use individual on-site sewage effluent treatment and disposal systems to discharge onto or into land because the cumulative effects of the discharges on groundwater quality would contravene Policy WQL7; or (iii) establish sewage effluent collection systems and remove sewage effluent for disposal off-site; and (b) the discharge is in accordance with Policy WQL1 and any adverse effects on the receiving water quality, aquatic ecosystems and instream values, including Ngāi Tahu cultural values and amenity values are no more than minor. (4) prohibiting the discharge of a hazardous substance to surface water, or onto land where a hazardous substance may enter surface water, except where the discharge is necessary to control vegetation or animal pests, or it is required for the installation and maintenance of structures in the bed of a river or lake, or in an artificial watercourse, and provided that the following requirements are met: (a) there will be no significant adverse effects on other organisms, or on the use and consumption of water by humans; and (b) the hazardous substance is registered by the Environmental Risk Management Authority for use against the target organism; and (c) the substance is not persistent in the aquatic environment. (5) minimising the risk of an accidental discharge of a hazardous substance into surface water. Measures to minimise the risk include requirements that: (a) any new hazardous facility, waste storage facility, or a pipeline used to transport a hazardous substance, should not be located where there is a significant risk that the facility or pipeline could be: (i) flooded; or (ii) affected by subsidence or slippage of land; or (iii) disrupted by permanent ground deformation as a result of movement on an active fault line.</td>
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<td>Discharge of contaminant into water</td>
<td>Policy WQL4</td>
<td>Minor point source discharge to surface water Allow as a permitted activity, the discharge of a contaminant or water from a point source to surface water, or to land where it may enter surface water provided: (1) The following criteria are met: (a) the concentration of any contaminant or the volume of water in the discharge will have no more than a minor adverse effect on water quality, aquatic biota or instream values of the receiving water body; (b) the discharge will not result in the accumulation, above the natural concentration, in the aquatic ecosystem or sediment of the bed, of a persistent or toxic contaminant; (c) any change to the flow of a river will not: (i) cause a significant increase in the risk in flooding to land or a dwelling; (ii) cause a significant increase in the erosion rate of the bed or banks; (iii) increase by more than one per cent, the flow of a flood event with an Annual Exceedance Probability of 20 per cent. (2) The discharge will not result, outside the specified Mixing Zone, in any of the following adverse effects: (a) the production of conspicuous oil or grease films, scums or foams, or suspended materials; (b) any conspicuous change in the colour or significant decrease in the clarity of the water;</td>
<td>This Policy establishes situations where it would be acceptable to discharge contaminants to water</td>
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<tr>
<td>Non-point source discharges to surface water</td>
<td>Policy WQL5</td>
<td>Non-point source discharges to surface water (1) Avoid or where this is not practicable, minimise the cumulative adverse effects on surface water quality from non-point source discharges of; nutrients, organic matter, pathogenic micro-organisms, agrichemicals, vertebrate toxic agents, fertilisers or sediment. (2) Manage the use of land in the riparian zone as provided for in Policy WQL6. (3) Ensure the discharge of an agrichemical, vertebrate toxic agent or fertiliser is undertaken in a way that minimises contaminants entering surface water. (4) Reduce the volume of runoff from irrigated land into surface water by implementing measures to increase the efficient use and application of irrigation water to land. (5) Promote the exclusion of all livestock from wetlands, and the beds of rivers and lakes, particularly from: (i) spring-fed upland streams; (ii) Banks Peninsula rivers; and (iii) small and medium-sized high country lakes. (6) Where livestock may enter a wetland, or the bed of a lake or a permanently or intermittently flowing river, ensure there are no significant adverse effects from: (i) the discharge of a contaminant into: 1. a wetland; or 2. water, or onto land in the bed of a river or lake where a contaminant</td>
<td>This policy seeks to avoid, remedy or mitigate the effects of non-point source discharge.</td>
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<td>(i) the disturbance of a wetland, or the bed of a river or a lake, including damage to indigenous flora and fauna or the habitat of trout or salmon. (ii) the disturbance of a wetland, or the bed of a river or a lake, including damage to indig...</td>
<td>(7) From the date 12 months after this policy becomes operative, prohibit: (a) intensively farmed livestock from discharging contaminants to, or disturbing the bed of: a permanently or intermittently flowing reach of a river; the bed of a lake; or a wetland; or (b) cattle, farmed deer, or farmed pigs from discharging contaminants to, or disturbing the bed of, a river or lake in the following areas: (i) within one kilometre upstream in the flowing reach of a river, or within one kilometre in a lake from: 1. a freshwater bathing site listed in Schedule WQL7; 2. a community drinking water supply intake listed in Schedule WQL2; or (ii) a salmon spawning area listed in Schedule WQN14; (iii) an inanga spawning area listed in Schedule WQN17; or (iv) a permanently flowing reach of a spring-fed plains river identified in NRRP Planning Maps Part 1. Restoration of water bodies (1) Where surface water quality does not meet Objective WQL1, or the groundwater quality does not meet Objective WQL2, or it is evident from monitoring that these objectives are likely to be breached within two years Environment Canterbury will make a written request to, and assist, the community within a specified area to prepare a water care programme to reduce the adverse effects of their land use activities on the quality of water or river bed substrate and instream values. (2) Where due to the actions of the community, a water care programme has not been developed within two years of receiving a written request from Environment Canterbury, or where a water care programme has been adopted but the proposed...</td>
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<td>Remediation measures have not been implemented by the community within three years of its adoption, Environment Canterbury may introduce additional measures to require remedial action. (3) Priorities for remedying the adverse effects of non-point source discharges on quality of water or river bed substrate will be identified on the basis of the following criteria: (a) the significance of the instream values of a water body; (b) the extent and severity of the adverse effects of the non-point source discharges on a water body especially if it is likely to lead to long-term changes to the water quality, river bed substrate, or aquatic ecosystems of the water body; (c) the potential for significant non-point source discharges from present and foreseeable future land uses within a catchment or sub-catchment; (d) the extent to which amenity values, sources of community drinking water supplies and significant habitats of trout and salmon, have been or are being adversely affected by non-point source discharges; and (e) the significance of a water body to Ngāi Tahu.</td>
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Groundwater quality | Objective WQL2.1 | Water quality outcomes for groundwater (1) In the Coastal Confined Gravel Aquifer System between the Ashley River/Rakahuri and the Rakaia River, the water quality in each aquifer is maintained at least in the state recorded or reasonably deduced in the three years prior to 1 November 2010. (2) In semi-confined, unconfined, or other confined aquifers manage groundwater quality to meet the following: (a) If, during the life of the NRRP, the overall maximum nitrate-nitrogen concentration exceeds 5.6 milligrams per litre in any aquifer, any increase in nitrate-nitrogen concentration shall not exceed a rate of 1.5 milligrams per litre every ten years. This rate shall be based on the overall maximum concentration | This objective aims to maintain and enhance groundwater quality |
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<td>measured or reasonably deduced in an aquifer in the three years prior to 1 November 2010; (b) Notwithstanding (a) above, the overall maximum nitrate-nitrogen concentration in any aquifer shall not exceed 11.3 milligrams per litre; (c) The water quality shall remain within the Guideline Value for any aesthetic determinand listed in the Drinking-water Standards for New Zealand 2005, except for natural exceedances of the Guideline Value. If the water quality does not meet the Guideline Value, as a result of human activities, the water quality shall be improved so that the Guideline Value is achieved; (d) The median concentration of Escherichia coli shall be less than one colony forming unit per 100 millilitres of water; and (e) Any other inorganic or organic determinand of health significance or pesticide (excluding nitrate-nitrogen or Escherichia coli) listed in the Drinking-water Standards for New Zealand 2005 shall not be detected at a concentration greater than one half of the Maximum Acceptable Value for that determinand. (3) Where groundwater enters a river or lake, the concentration of any contaminant in the groundwater shall not result in the surface water quality being reduced below the relevant provisions of Objective WQL1, or the standards set by a water conservation order.</td>
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<td>Discharges that affect soil or groundwater quality</td>
<td>Point source discharges onto or into land which affect soil or groundwater quality (1) A point source discharge of a contaminant onto or into land is to be managed as follows: (a) before allowing a point source discharge of a contaminant onto or into land where a contaminant may enter groundwater, ensure that: (i) good practice measures are carried out to minimise the volume and concentration of the contaminant in the discharge. These include</td>
<td>This Policy seeks to avoid, remedy or mitigate the adverse effects on soil or groundwater of discharges.</td>
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<td>minimising the production of the contaminant, or the reuse, recovery, and recycling of materials and the treatment of waste; and (i) the discharge to another existing waste treatment and discharge system, or network is not a practical alternative. (b) after the application of Policy WQL7(1), a point source discharge onto or into land shall be applied in a way and at a rate that: (i) does not, except for a period of up to two hours following the application, exceed the infiltration capacity of the soil or subsoil at the site of the discharge; (ii) does not exceed the capacity of physical properties, or chemical and biological processes in the soil or subsoil, to reduce the contaminant concentration in the soil drainage water and to minimise the concentration of any contaminant entering groundwater; (iii) avoids risks to public health; and (iv) will not result in the accumulation of a contaminant in the soil which will limit the future use of land beyond the boundary of the treatment area. (c) if, after the application of Policy WQL7(1)(a) and WQL7(1)(b), a point source discharge onto or into land is likely to result in a contaminant: (i) entering groundwater, including groundwater that emerges as surface water, then: 1. adverse effects on the drinking water quality of groundwater, including the risk to public health or the palatability of the water, in a well adjacent to, or down-gradient of the discharge, or as a result of pumping from a well, are to be avoided; 2. the best practicable option is adopted to ensure that any resulting contaminant plume in groundwater is as small as practicable; 3. the discharge shall not result in the accumulation of a persistent or toxic contaminant in groundwater; 4. the effects of the discharge, either alone or combination with any other discharge, must meet Objectives WQL1 and WQL2.</td>
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<td>(ii) entering the Coastal marine area in a contaminant plume, the effects of the discharge, either alone or combination with any other discharge must meet Policy 7.1 or 7.2 of the Regional Coastal Environment Plan.</td>
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<td>(2) Avoid adverse effects on water quality from the cumulative effects of discharges into land from individual on-site or small-scale community sewage effluent or wastewater treatment and disposal systems by requiring:</td>
<td>(a) the installation of a network and treatment system for sewage effluent or wastewater, where:</td>
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<td>(i) the density of existing or proposed systems, are or are very likely to:</td>
<td>1. adversely effect the quality of water in wells used for drinking water supply or other purposes to the extent that the water is, or will be, no longer suitable as a source of potable water; or 2. be significant sources of contaminants to groundwater in an area where the quality of the groundwater does not meet Objective WQL2.1(2), or does not meet Policy 7.1 or 7.2 of the Regional Coastal Environment Plan; or</td>
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<td>(ii) there is insufficient distance between individual discharges, other discharges, wells or groundwater:</td>
<td>1. to allow for the natural decay or attenuation of pathogenic microorganisms in the contaminant plumes to the extent that the discharges do not prevent the use of groundwater as a source of potable water; or 2. to prevent the elevation of groundwater levels to an extent that drainage is impeded, limiting land uses or the infiltration of the discharge or any other discharge onto or into land; or</td>
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<td>(iii) the soil or subsurface material has inadequate infiltration capacity and this is likely to result in discharges ponding on the ground or flowing into surface water; or</td>
<td>(b) a community, which is not serviced by a network system, to meet the requirements of Policy WQL7(2)(a), within eight years of receiving a written</td>
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| Discharges that may affect groundwater quality | Policy WQL8                  | Minor point source discharges onto or into land or land uses that may affect groundwater quality  
(1) Allow the discharge of a contaminant into or onto land, including where a contaminant may enter groundwater provided:  
(a) a contaminant in the discharge, or any other contaminant emanating as a result of natural processes from that contaminant, is not persistent in soil or sediment and will not reach a concentration likely to pose a risk to human health or have a more than minor effect on the environment; and  
(b) the discharge does not result in the groundwater being rendered unsuitable or unpalatable for consumption by farm animals or humans, or having toxic or persistent chemicals present.  
(2) Allow the use of land for a facility used to store effluent or organic matter, or a stockholding area, or a new cemetery, provided these land uses are located, constructed and operated to minimise contaminants from these facilities entering groundwater. | This Policy allows for minor discharges that may affect groundwater where they are appropriately managed. |
| Hazardous substances that may enter          | Policy WQL9                  | Prevent the entry of hazardous contaminants to groundwater  
(1) Avoid the discharge of contaminants into groundwater from new solid or hazardous | This Policy seeks to prevent hazardous substances from reaching groundwater |
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<td>groundwater</td>
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<td>waste landfills by: (a) not locating new landfills, except for cleanfills, over unconfined or semiconfined aquifers; and (b) prohibiting new landfills, except for cleanfills, in the Coastal Confined Gravel Aquifer System and in Community Drinking Water Supply Protection Zones. (2) Prevent, as far as practicable, the discharge of contaminants onto or into land where they may enter groundwater, or directly into groundwater from; a hazardous facility, waste storage facility, or a pipeline used to transport contaminants, by: (a) not locating new facilities or pipelines in areas where there is a significant risk that the contaminants could enter an aquifer as a result of: (i) permanent ground deformation caused by movement on an active fault line; (ii) inundation by flood waters; or (iii) subsidence or slippage of land. (b) requiring the implementation of best practices in the design, construction and use of hazardous or waste storage facilities and associated pipelines transporting contaminants, including appropriate containment and emergency response measures, to minimise the risk of contaminants being discharged and entering an aquifer as a result of: (i) a system failure, including leakage or accidental discharge; or (ii) seismic activity that is likely to result in structural damage from ground motion or liquefaction. (3) Prohibit the discharge of the following contaminants into groundwater via a bore, excavation, storage tank or other means: (a) hazardous substances and hazardous wastes, except where the discharge occurs during the remediation of contaminated land or it is required as part of a groundwater investigation, provided the discharge does not result in any significant adverse effects on groundwater quality;</td>
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<td>Excavations that could affect groundwater quality</td>
<td>Policy WQL11</td>
<td>Avoid contamination of groundwater via bores or excavations (1) Within the Coastal Confined Gravel Aquifer System, maintain the integrity of the confining layer overlying Aquifer 1 by ensuring that: (a) the thickness of the sediment in the confining layer between Aquifer 1 and the deepest point reached by an excavation is adequate to prevent contaminants moving downwards into Aquifer 1; or (b) where the confining layer has to be breached, or where the impermeable sediment remaining in the confining layer beneath the activity is not likely to be an effective barrier to downwards movement of a contaminant, adequate measures are in place to prevent the movement of a contaminant into the aquifer. (2) In other areas, where there is an unconfined, semi-confined or confined aquifer: (a) prevent, as far as practicable, the entry of contaminants into groundwater from excavations, in particular those excavations which intercept or expose the groundwater; (b) allow the backfilling of gravel pits where excavation has ceased, with inert material so that groundwater is not exposed, and ensure there is sufficient thickness of material to form an adequate barrier to prevent the entry of contaminants into groundwater. (3) Groundwater bores and water infiltration galleries are to be constructed and maintained so that contaminants are prevented from entering a bore or gallery from the land surface, or from the backflow of water down the bore, or down the side of</td>
<td>This Policy seeks to avoid, remedy, or mitigate any adverse effects of excavations on groundwater.</td>
</tr>
</tbody>
</table>
### Natural Resources Regional Plan – Chapter 4 Water Quality

<table>
<thead>
<tr>
<th>Activity</th>
<th>Relevant Objective or Policy</th>
<th>Status, or how the Objective or Policy addressed the farm waste</th>
<th>Assessment/Effectiveness</th>
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<td></td>
<td>the bore casing or gallery, in accordance with the following: (a) when an application is made for a resource consent to take water from an existing bore or gallery, the applicant will be required to demonstrate that there are effective measures in place to prevent contaminants entering the bore or gallery; (b) any new bore or gallery authorised after 3 July 2004 shall comply with Schedule WQL4 and Policy WQN10(7); and (c) any bore or gallery used to take groundwater and located within: a Community Drinking Water Supply Protection Zone; the Christchurch Groundwater Protection Zone 1, Zones 1A, 1B, 1C and 1D, Zone 2 and Zone 3; or a site where an activity listed in Schedule WQL3 is occurring, shall have effective measures in place to prevent contaminants from entering the bore or gallery within three years of the relevant provisions of the NRRP becoming operative. (4) Abandoned or obsolete bores or galleries are to be identified and decommissioned to prevent: (a) the entry of contaminants from the land surface; (b) or the exchange of water between aquifers, or water bearing layers in an aquifer, or surface water and groundwater. The priority areas for locating and decommissioning abandoned or obsolete bores or galleries are: the Community Drinking Water Supply Protection Zones, the Christchurch Groundwater Protection Zone 1, Zones 1A, 1B, 1C and 1D, and Zone 2, or sites where an activity listed in Schedule WQL3 is occurring. (5) Petroleum wells or other deep bores that penetrate the bedrock below the confined, unconfined or semi-confined aquifers are to be cased to a sufficient depth in the bedrock to prevent any potential contaminants leaking to the overlying aquifers. Upon completion of the use of the well or the bore, it shall be decommissioned to prevent the release of natural contaminants from the bedrock into the overlying aquifers and the entry of contaminants from the land surface into the bore.</td>
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### Natural Resources Regional Plan – Chapter 4 Water Quality

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<tr>
<td>Adverse effects that could impact on community drinking water</td>
<td>Objective WQL3</td>
<td>Objective WQL3: Water quality of community drinking water sources The quality of the source water for a community drinking water supply is protected from adverse effects of activities in a protection zone for a well or within a specified distance of a surface water intake.</td>
<td>This Objective seeks to protect community water supplies from nearby activities.</td>
</tr>
<tr>
<td>Discharges that could reach community water supplies</td>
<td>Policy WQL13</td>
<td>Avoid the potential for contamination of community drinking water sources Contamination of community drinking water sources will be avoided by: (1) identifying a protection zone around each community drinking water supply well (Schedule WQL2) or a specified distance from a surface water intake for a community water supply (Policies WQL1, WQL4 and WQL5). (2) recognising and providing for the protection of the quality of the source water for the community drinking water supply when authorising an activity by a rule in a district or regional plan or by a resource consent, within a zone or distance identified in (1) above. (3) implementing measures to reverse any decline in water quality as a result of activities within a zone or distance identified in (1) above. If it is not practicable to reverse the decline, the measures shall at least prevent any further decline in the water quality.</td>
<td>This Policy seeks to avoid the adverse effects of contaminating community water supplies.</td>
</tr>
</tbody>
</table>
2. Extract from Kaikoura District Plan-

Appendix G - Waste Management Protocol
The following protocol applies where specified in the zone rules.

Odour and Public Health
1. All waste shall be stored in a covered or sealed container which is not accessible to dogs, cats or vermin.
2. No food or animal waste shall be stored outside for more than 48 hours unless refrigerated.
3. Animal repellents shall be used as necessary to deter rodents.
4. Waste storage areas shall be disinfected on a regular basis.

Minimisation
1. Recyclable materials shall be separated from non-recyclable materials prior to disposal at the Resource Recovery Centre.
2. All organic waste shall be separated from other waste prior to disposal at the Resource Recovery Centre.

Screening
1. All waste which is stored outside shall be screened from public view.
2. All waste which is stored outside shall be screened from adjacent residential properties.

Waste Management Guidelines – All Zones
The following guidelines may also assist in reducing the amount of waste generated, and may provide economic benefits in the form of cost savings:

Zero Waste
The Kaikoura District Council has adopted a Zero Waste Policy, with the main objective of reducing waste to the landfill. This policy is based on a reduce, reuse, recycle philosophy. All activities are strongly encouraged to comply with the Council’s Zero Waste Policy.

General
1. Practice waste reduction.
2. Re-use materials where possible.
3. Undertake a review of your waste stream to identify the types and quantities of wastes generated.
4. Monitor your waste stream to minimise unnecessary waste and to reduce the cost of over supply and waste disposal.
5. When purchasing, take into account the cost of disposing of additional or unnecessary packaging, as well as the type of packaging.
6. No waste or hazardous substance should be discharged or allowed to leach into any sewerage, stormwater or water systems. Consent may be required from the Canterbury Regional Council for any such discharges.
7. Waste includes unnecessary use of energy (electricity) and fossil fuels.
8. Remember that waste disposal costs your business - reduction is usually cheaper than disposal.
A.3 EPA – Banned Pesticides on Farms Flyer
You may have some old pesticides on your farm which have been banned

New regulations now mean you must store these chemicals properly

Find out if a collection of old and unwanted agrichemicals is happening in your region.

To find out more, read on

New law for storing outdated agrichemicals

New laws have been introduced to manage the storage and disposal of certain outdated agrichemicals that contain persistent organic pollutants or POPs. Some of these chemicals were used in New Zealand as pesticides in the past (such as aldrin, DDT and dieldrin). So, although they have been deregistered for over 15 years, there’s a chance you may still have some old stocks of them in your shed. If you have any chemicals containing POPs on your farm you need to ensure that they are stored correctly until they can be collected for safe disposal.

These chemicals have been deregistered because they are harmful. Their residues also last a very long time, building up in the tissue of living things and accumulating through the food chain. Because of the risk they pose to humans, animals and our environment, many countries are undertaking programmes to collect and dispose of old stocks of these pesticides.

Why has the law changed?

As a signatory to the Stockholm Convention on Persistent Organic Pollutants, New Zealand committed to a long-term international effort, along with over 150 other countries, to reducing or eliminating health and environmental risks from chemicals specified in the Convention.

New legislation implementing the Stockholm Convention, the Hazardous Substances and New Organisms (Stockholm Convention) Amendment Act 2003, means if you have any chemicals containing POPs on your farm you must store them properly, in accordance with ERMA New Zealand’s Notice in the New Zealand Gazette on 22 December 2004.

How can I store chemicals containing POPs safely?

Chemicals containing POPs held by farmers must be stored in suitable containers and kept in places which are secure and lockable as well as ventilated to the outside. Always wear protective equipment whenever you handle agrichemicals, at least gloves, a mask and safety glasses.

All chemicals containing POPs must be stored in a position where run-off or dusts cannot reach water supplies, waterways or crops so that the risk of contamination is minimised. The storage facility should be placarded clearly with the proper HAZCHEM signage, available from safety equipment supply companies. Signage must be displayed on the outside entrance door.

The HAZCHEM code for organochlorine pesticide formulations, such as POPs, is 2XE.

If chemicals containing POPs are not stored securely they could be harmful to you, your animals, your family and the environment. This is a risk you can’t afford.

What do I do in a spill or fire?

Any spillage of chemicals containing POPs must be contained. Spilled solid substances must be swept into sealable containers and may need to be moistened first to prevent dusting. Carefully collect the remainder then move it to a safe place to await collection.

In the case of leaking and spilled liquids, these must be collected in sealable containers as far as possible. The remaining liquid must be absorbed in sand or inert absorbent and moved to a safe place to await collection. Do NOT wash away into the environment or sewer.

What chemicals does the Stockholm Convention cover?

There are 12 organochlorine (chlorine-containing) chemicals listed as POPs under the convention, they are:

- Nine pesticides: aldrin, chlordane, DDT, dieldrin, endrin, heptachlor, mirex, hexachlorobenzene, and toxaphene.
- PCBs (polychlorinated biphenyls);
- Dioxins and furans (polychlorinated dibenzo-p-dioxins or PCDDs, and polychlorinated dibenzofurans or PCDFs).

Which ones could I have?

Some of the more common agrichemicals which contain POPs are:

- Atlas
- Dieldras
- Cleanso and Cleanso Ditox
- Young’s Sheep Dip
- Elliots Dips
- Cooper’s Louse Powder
- Nexa Sheep Dip
- Tartan Dieldrin Sheep Dip

How do I find out if a collection of old and unwanted agrichemicals is happening in my region?
The appropriate firefighting agent for organochlorine pesticide formulations (such as POPs) is water fog (a fine mist). The substance should be contained and prevented from entering drains or water courses. Evacuation of all areas likely to be at risk should be considered.

Always wear full breathing apparatus and skin protection when dealing with a major fire or spill, whether liquid or solid. If the spill or fire is significant call emergency services first for assistance and then contain the emergency.

How do I dispose of chemicals containing POPs?

The disposal of chemicals containing POPs requires specialist hazardous waste handling arrangements. The Ministry for the Environment is currently running a national agrichemical collection in partnership with regional councils to remove old and unwanted agrichemicals and chemicals containing POPs from each region.

The collection and disposal service is aimed at removing chemicals containing POPs and other agricultural chemicals from each region in a way that is inexpensive and easy. This collection will take several years to achieve nationally. Chemicals must be stored correctly until there is a collection in your region. To find out how you can help reduce the amount of dangerous chemicals in your area please contact your regional council.

Tips for Suitable Storage

- Where possible, chemicals containing POPs should be left in the existing packaging unless they are leaking. If they are leaking you can place the containers into a 20 litre paint pail or, if you have a large amount, a 200 litre open top drum (make sure you keep the chemicals separate from other acids or oils).
- Where possible you should always try and retain the original packaging, even if damaged or disintegrating, as this shows exactly what the product is.
- Labels should provide as much information as possible, even if it’s just written on the container in pen.

For further labelling and storage requirements, see the HSNO regulations or Code of Practice NZS 8409: 2004 Management of Agrichemicals.

More information

A brochure containing more information on the safe storage and collection of POPs and what to do in a spill or fire is available by contacting ERMA New Zealand on 04 916 2426 or email publications@ermanz.govt.nz. A copy can also be found online at www.ermanz.govt.nz/resources.

For more information on the safe use and storage of agrichemicals see the following websites:

ERMA New Zealand
www.ermanz.govt.nz

Ministry for the Environment
www.mfe.govt.nz

NZS8409:2004 Management of Agrichemicals
www.standards.co.nz

Infosheet on NZS8409:2004 Management of Agrichemicals

The New Zealand Agrichemical Education Trust
www.growsafe.co.nz

Published 2005
A.4 Examples of Advocacy Material from Councils
A4.1 Waikato Regional Council

http://www.waikatoregion.govt.nz/Community/Your-community/For-Farmers/Farmwaste/
Environmental hotspots

Managing our waste

General information
Hotspots like silage pits and stock yards or poorly designed tracks and races can pollute ground and surface water.

Silage problems often start with poorly wilted pasture, which will create large volumes of leachate. Problems also occur when storm water run-off enters the stack. This increases leaching through the stack, takes valuable quality out of the feed and has a negative impact on production, profit and waterways. To avoid these problems, make sure silage is well wilted before it goes into the stack. If you are creating a stack, keep it away from areas where overland storm water flow can enter the stack and flush out nutrients.

Stock yards and holding paddocks can contribute large volumes of faecal bacteria to streams, depending on placement and drainage flows. To avoid this yards should be located away from the flow of storm water and diversions constructed. Alternatively, channel water flow to paddock.

Badly designed or maintained tracks, races and stock crossing points can create large amounts of soil and effluent run-off, increasing phosphate, sediment and faecal bacteria in waterways. This decreases the water’s visual clarity and is a risk to human and stock health. Water that ponds on, or scars races is also a problem but can be avoided through good design. In particular, it is important to work with the contour of the land and create stable cut-offs to grass. This decreases the impact on waterways and in the long term reduces the cost of track maintenance.

Poorly stored fertiliser can also unwittingly create hotspots. Before use ensure fertiliser is stored in dry, covered areas, preferably with a lined floor to minimise risk and wastage.

Offal pits and old sheep dips are other potential hotspots if leachate reaches groundwater. Soil contamination can create problems for many years. Ensure offal pits are properly positioned and leachate cannot reach groundwater.

Sheep dips and the surrounding area may be contaminated with arsenic or organochlorines (DDT and dieldrin). Arsenic does not break down over time and organochlorines breakdown very slowly. Both classes of chemicals are highly poisonous to humans and livestock. Fence off these sites.

Rubbish dumps on farm should be at least 10m from waterways and above the water table. Do not put dead animals, offal or hazardous substances (e.g. empty agrichemical containers or oil containers) in your rubbish dump.

Land cultivated from grass and left fallow over the winter will present further hotspots as the nitrogen released from the breakdown of pasture leaches into groundwater. Consider growing a cover crop to take up the nitrogen and protect the soil.
**Recommended actions and best management practices**

- Plan silage pits well away from waterways.
- Ensure silage pits are free from stormwater.
- Wilt silage well before placing it in the stack.
- Maintain tracks and races.
- Create stable cut-offs to paddocks from tracks and races.
- Keep stock out of waterways.
- Culvert waterway crossings (a consent may be required if the catchment is greater than 100ha).
- Do not leave cultivated land fallow over the winter.
- Store and keep fertiliser dry until used.
- Recycle waste and agrichemical containers (see www.agrecovery.co.nz for Agrecovery stations and pick up times in your area).
- Talk to EW about the disposal of agrichemicals and animal remedies.
- Talk to your silage contractor about disposal of silage wrap.
- Safe storage of diesel and waste fuel oil.
- Fence out stock and young children from old sheepdip sites.
- Position farm rubbish dumps at least 10m from waterways and above the watertable.

**Contact**

Environment Waikato  0800 800 401  
07 859 0999
A4.2 Northland Regional Council\textsuperscript{41} (Chapter 7 (addressing waste) of the Farm Management Issues Manual a project to promote the voluntary uptake of best management practices)

\textsuperscript{41} http://www.nrc.govt.nz/upload/8897/Chapter 7 - Chemicals and Non-natural farm waste.pdf
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7.0 CHEMICALS AND FARM WASTE

Farming operations may generate waste and entail the use of toxic substances such as pesticides and farm dairy detergents. These materials must be managed carefully to avoid environmental and health effects.

Wherever possible, the use of toxic substances and the generation of waste should be avoided or minimised. Opportunities to return or recycle materials should also be taken up where these exist.

Particular attention must be paid to the safe storage of hazardous substances and if they are surplus to requirement, to their proper disposal.
7.1 AGRICHEMICAL USE

To be effective, agrichemical pesticides must be toxic to the pest that they are designed to control. However, this toxicity may also pose a risk to people and the wider environment.

As a result, sensible caution must be exercised when using, storing and disposing of pesticides and all other agrichemicals.

Under the Health and Safety in Employment Act, employers must ensure that employees are trained in the safe use of substances they are handling and have the correct protective equipment and appropriate facilities. It is strongly recommended that all agrichemical users attend a GROWSAFE® training course. For further information, phone the NZ Agrichemical Education Trust (04) 472 9997 or check their website www.growsafe.co.nz.

Agrichemical use should be avoided or minimised where possible. Agrichemicals should be used only in response to a specific identified need and only after consideration of alternative methods available.

The agrichemical should be selected that poses least risk to humans, livestock and the environment, yet deals effectively with the identified need. Consider:

• specificity of target species
• manner of application (granules/dust/spray) and volatility
• persistence in the environment
• withholding period and market requirements
• how much agrichemical you need for the job
• whether an approved handler is required
• how you can safely store the agrichemical
• how you are going to dispose of any waste agrichemical.

The use of agrichemicals must be controlled to meet food safety, hazardous substances, quality assurance or Regional Council requirements.

Agrichemical use is a concern amongst overseas markets. Food Safety Authority regulations backed by the dairy industry require that no agrichemicals (apart from animal remedies) be stored or mixed in the farm dairy. Milk containing unacceptable levels of any pesticide cannot be sold or supplied to the public or a dairy company or fed to stock.

Regional Councils may have rules about pesticide application, mixing or storage. These rules are designed to protect air, surface water and groundwater.

Under the Hazardous Substances and New Organisms Act (1996), or HSNO, hazardous substances including agrichemicals are assigned controls that apply regardless of any regional rules. Chemicals have been progressively transferred into the HSNO system and classified. Three types of controls now apply:

• the requirement for an approved handler for some chemicals or uses. Not all farm employees will need to be approved handlers, if they are working under the guidance of an approved handler. Contractors need to be approved handlers. A person can become an approved handler either by completing a training course or by demonstrating prior experience

• the requirement for tracking of the more hazardous pesticides. Tracking keeps a record of a substance from the point of import or manufacture in New Zealand, through to sale, use and/or disposal. Records must be kept of who is the approved handler, the name of the pesticide used and amount held, when and where it is used and disposal records

• the requirement to keep records of use for some pesticides (i.e. a spray diary). This is largely to manage spray drift hazards. There are two separate lists of chemicals requiring spray diaries – chemicals that must be recorded due to risk of public exposure, and those that must be recorded due to risk of environmental exposure.

Whether chemicals are subject to these restrictions depends on how hazardous they are. Approved handlers are required for many agrichemicals, especially where they are being applied near water or being widely dispersed by aerial or ground spraying methods. Examples of common farm chemicals that must now be applied by an approved handler include 2,4-D, MCPA, Escort, Tropotox and Tordon Gold where these are applied aerially or by mechanised ground spraying. Products sold in small household packs are exempt. The pesticides commonly used on dairy farms do not currently require tracking. However, other substances are being assessed for their hazard level including bloat products, drenches and footbaths. Updated information will be available on the ERMA website.
A full list of pesticides requiring an approved handler, tracking controls or a spray diary can be found at the ERMA website listed below. The website lists all substances that have been transferred to the HSNO system. Only chemicals that are approved substances under this system can be sold or used on farms.

For further information:
- refer to the herbicide label or Materials Safety Data Sheet
- contact the manufacturer or supplier
- contact the Environmental Risk Management Authority (ERMA) on 0800 376 234 or go the website www.ermanz.govt.nz

7.1.1  Environmental protection
Environmental concerns with pesticides relate to contamination of groundwater, surface water or soil.

7.1.1.1  Groundwater
Contamination of groundwater is a serious consideration because it is difficult to reverse. Therefore prevention is critical. The following practices can reduce the possibility of contamination:
- select products carefully. Avoid highly soluble products that are not absorbed by the soil and are relatively stable, as they have a high risk of contaminating groundwater
- avoid over-applying chemicals or saturating the soil, especially on free-draining soils above shallow, unconfined aquifers or near wells or bore heads
- do not store, mix or clean out agrichemicals near bores and contain all spills
- prevent back-siphoning when filling or cleaning spray equipment
- dispose of waste agrichemicals and containers correctly (refer to 7.2.2 Chemical containers, hazardous substances and waste oil).

7.1.1.2  Surface waterways
Runoff of agrichemicals can pose risks to aquatic life, human and stock health where the water is used for drinking and irrigated crops. Again prevention is critical and the practices listed above for groundwater protection also apply to surface water contamination.

In addition, leave a buffer zone with no spray next to the waterway. Riparian vegetation, or hedges and shelterbelts between the sprayed area and surface water also reduce the risk of contamination.

When spraying within the riparian zone, spot spray target species. Always mix or fill spray containers outside the immediate area and remove empty containers from the field at the end of each day to avoid them getting into waterways.

Special care is needed when herbicides are used to control aquatic weeds (refer to 7.1.8.1 Aquatic weeds).

7.1.1.3  Surplus spray and wash water
Surplus spray can be minimised by mixing only what you need for the job at hand.

After the chemical has been used, equipment should be rinsed and cleaned before storage. Try to produce as little wash water as possible. Use an efficient flush washing system rather than filling the spray tank with water and pumping it through the equipment, generating a large volume of wash water.

Spray tank washings can be stored in a sump or tank and used later to make a further batch of the same pesticide. Otherwise, dispose of washings as follows.
- never dispose of wash water to a drain or surface waterway
- wash water can be applied to the treated crop but this may reduce the efficiency of the last application of the pesticide
• wash water can be applied to an untreated site, spraying it over waste areas at a low application rate. The land must be able to absorb the liquid without runoff or ponding, or risk to wildlife, natural vegetation or waterways.

7.1.1.4 Agrichemical spillages

Extreme care is required to avoid spills when opening agrichemical containers containing concentrates, decanting or adding concentrates into measuring equipment or spray tanks, and mixing. Decant liquid concentrates carefully and cut paper containers cleanly. Ensure that mixing sites are at least 20 m away from any drain, well, bore or waterway.

If a minor spill occurs, contain and clean it up immediately and safely. Prevent any spillage from entering drainage systems, waterways or ponds. Use absorbent materials such as sawdust or dry soil to soak up and stop liquid spills spreading. Do not allow spills to simply soak away. Sweep the contaminated material into leak-proof sealable bags or containers and contact your local Regional Council for advice on disposal. Spilled solids, such as granules, dusts or powders, should also be shovelled into a leak-proof container. They may need to be moistened first to prevent dusting.

Do not hose down the spill with water as this may contaminate nearby drains and watercourses.

For a major spill try to contain it as best you can, but do not put yourself in danger. Call the Fire Service 111 and advise them of the location, nature of the incident, and type and quantity of agrichemicals involved. Call the local Regional Council (many have a Pollution Hotline) if agrichemicals have entered a waterway, or land where they could enter water. Inform those who may be affected.

Make sure the appropriate clean-up equipment is always at hand, such as absorbent material (e.g. sawdust, zeolite, oil absorbent granules or kitty litter), shovels and buckets. Remember to wear appropriate safety gear when cleaning up an agrichemical spill.

For spillages of farm detergents or sanitisers, ensure the spill is fully diluted (i.e. at least 500:1) if it is going into the effluent system. Contact the Regional Council to check on local rules.

7.1.1.5 Soil contamination

Residues from some chemicals remain in the soil for a long time. Therefore, when selecting a herbicide or pesticide to use, it is important to choose one that breaks down as quickly as possible and is least persistent in soil. By preference, use a chemical that does not require an approved handler or tracking, as these are comparatively less harmful chemicals (refer to the Environmental Risk Management Authority website www.ermanz.govt.nz for these lists).

The best known residue in New Zealand is the now-banned organophosphate DDT and its breakdown product DDE. DDT was widely used to treat grass grub from the 1950s to the 1970s. DDT residues can be ingested by grazing animals through soil and plant material and the residues then accumulate in animal fat, including milk.

Milk is now regularly tested for DDT/DDE residue and the level of DDT/DDE in soils restricts land from being used for dairying in some areas. Soil levels of DDT/DDE need to be checked before deciding to buy a property for dairy conversion.

Milk levels of DDE generally peak in the first 6 weeks of lactation as body fat is used up and the residues accumulated by the cow while dry are released into the milk. The levels are largely determined by:

1. The cow’s condition at calving.
2. The soil DDT residue levels of winter and heifer grazing areas.

To minimise problems on an existing farm:

• test the level of DDT/DDE in your soils
• winter graze cows on soils with the lowest DDT levels (i.e. less than 0.2 ppm)
• priority graze early calving cows, cows to be induced and young, low-condition cows on the lowest DDT winter grazing. Lower priority can be given to older and later calving cows
• calve cows in good condition (condition score of 5) by drying off at a condition score of 4.5 or better, and feeding well during autumn and winter
• graze replacements on low or zero DDT soils
• if using green feed crops, ensure that they are grown on the lowest possible DDT residue soils
• if expanding the farm or purchasing a runoff block, test for DDT first
• fence out high DDT areas.

Another potential source of soil contamination on dairy conversions are historic sheep dips which used dieldrin or arsenic. Residues of these chemicals can enter milk and meat. These should be fenced from stock.

7.1.2 Personal hygiene and protection

Toxic agrichemicals may be ingested by inhalation, swallowing or direct skin contact. Inhalating dusts or sprays should be avoided and you should never eat or smoke while spraying or dusting.

Always read the label before opening the container and using any agrichemical. Safety information is always on the label, covering safe handling, application and disposal. Follow the instructions and note warnings and cautions. Re-read the label each time the agrichemical is used. Safety information on labels may outline:

• contact re-entry – minimum time required to elapse after application before unprotected re-entry into a treated area where skin contact is likely to take place
• non-contact - minimum time required to elapse after application before unprotected re-entry into a treated area where no skin contact with any surface can take place
• animal handling interval – minimum permissible time required to elapse before any unprotected handling of the animal can take place after application.

For additional use and safety information, refer to the Novachem Manual or the NZ Agrichemical Manual (www.agrichemical.co.nz). The Code of Practice for the Management of Agrichemicals (NZS8409:2004) sets out practices that comply with all hazardous substances legislation.

The specific requirements for personal protective clothing and equipment to be used with each type of agrichemical should be clearly stated on the product label. This is the minimum standard required. Where more than one agrichemical is being mixed or applied, the protective clothing applicable to the most hazardous agrichemical should be worn.

The correct mask or respirator described on the label should be used. A simple fabric dust mask will only protect you from non-hazardous dust and liquid particles. A cartridge or canister-type respirator should be used where:

• there are toxic dusts or vapours
• the chemical is present as dust or mist or the droplet size is very small
• spraying will occur indoors or in confined spaces.

Always check the shelf life of respirator filters. Change the filter immediately if you start tasting or smelling the fume or have difficulty breathing while using the mask. Storing the respirator in an airtight container when not in use can extend the filter life.

Wear safety glasses, goggles or a face shield when mixing pesticides and whenever there is a possibility of spray drift. The spraying of pesticides while wearing soft contact lenses is not advised.

Put protective clothing on before mixing and spraying, and while cleaning up equipment.

If a spill occurs, remove the contaminated clothing and wash the skin immediately with cold water. In the event of eye contamination, flush immediately with clean water. Soap and water should be available at the storage area/loading site and on the spray rig, to allow prompt washing of exposed areas if skin contact occurs.

After working with agrichemicals, the applicator should wear the protective clothing for no longer than is necessary, and then take a cool shower (hot water opens the skin’s pores) and put on freshly laundered clothes. Clothing worn during spraying should be laundered separately to household washing prior to reuse. Protective clothing and equipment should be cleaned thoroughly and examined for damage after use.

Always have on hand a first aid kit containing basic items, plus those specifically required for the treatment of agrichemical poisoning. The agrichemical container label will carry instructions on the correct first aid treatment for that product. Familiarise yourself and your staff with the signs and symptoms of poisoning and the recommended actions to be taken in the event of an accidental poisoning, including where to obtain medical assistance.
Users regularly working with organophosphates or carbamates should have periodic cholinesterase tests.

The National Poisons and Hazardous Chemicals Information Centre in Dunedin operates a 24 hour service for URGENT information: 0800 POISON (0800 764 766)

For non-urgent and general information
Phone: (03) 470 1200  Fax: (03) 477 0509 or email poisons@otago.ac.nz

7.1.3 Spray application precautions

Before spraying, take the following steps:

• check with your Regional Council for any rules that may relate to your proposed activity
• always check and calibrate equipment before applying pesticides. Accurate calibration will ensure safety for users, crops and the environment. Repair leaky or damaged hoses and valves
• ensure that the correct precautions have been followed and that the warnings on the label are observed
• make sure that all staff who are to use the sprays have been fully trained
• warn neighbours and anyone else who could be affected by spray drift (especially if you have neighbouring properties that are practising organic production). Consider putting a notice on the gate of your property to warn people that you are spraying
• cover pools and water supplies, and bring in pets and washing.

While spraying, the following considerations apply:

• spot spray where feasible rather than blanket spraying
• do not spray in very windy conditions. Application should preferably be done with a slight wind away from sensitive non-target areas, starting at the downwind edge, to make easier to predict likely outcomes, to ensure accurate application, eliminate waste and prevent drift to adjacent crops, pastures, livestock, dwellings, workers, or watercourses
• spray only when people and stock are not nearby
• turn the sprayer off at the end of each row or pass so that spray is not thrown high into the air. Be careful when spraying near sensitive areas. Do not rely on buffer zones, shelterbelts or low drift additives to eliminate spray drift hazards
• never apply pesticides where they could drift into waterways unless they are approved to be used near natural water and/or you have a resource consent. This is particularly relevant when using herbicides to control aquatic weeds. The Regional Council will know which pesticides can be used and the consent requirements
• ensure spray can not drift into the farm dairy premises.

7.1.3.1 Exposure to spray drift

If you are concerned that you have been exposed to spray drift, take the following steps:

• write down as much information as possible regarding who is spraying, time and place, chemical used if known, method of spraying, weather details (e.g. wind speed and direction, air temperature)
• if possible, approach or phone the person on whose property the spraying is taking place and let them know of your concerns
• disconnect the roof supply if you use tank water and are concerned that your roof may be contaminated. Leave it disconnected until there have been several hours of heavy rain
• seek medical attention if you are worried about symptoms of illness
• contact your Regional Council.
7.1.4 Agrichemical storage

Food safety regulations developed with the dairy industry state that:

- pesticides and similar high-risk substances, unless required for farm dairy management purposes, shall not be stored or mixed in farm dairies and shall not be stored with animal remedy dispensing units or in the same room as detergents or any other equipment used in the farm dairy

- a separate building should be used to store these chemicals, which has no direct entry to or from the dairy

- farm dairy equipment must not be used for mixing or storing these substances. Separate, identifiable containers must be used to measure or mix chemicals

- these chemicals should not be stored within 45 metres of the farm dairy water source (for surface waters only)

- the use of pesticides and similar substances in or near farm dairies must be controlled in a manner that will not contaminate milk either directly or indirectly

- pesticide containers must be clearly labelled and not be re-used for any other purpose in the farm dairy.

Never store agrichemicals in unlabelled containers or containers unsuitable for the purpose (e.g. beverage or food containers). Keep all agrichemicals in their original container and keep them tightly closed. It is recommended that cardboard-packaged pesticides be placed, package and all, into a clear plastic bag for storage.

All agrichemicals should be stored in a secure, separate designated area, away from people (especially children), animals, foodstuffs, crops and seed (a requirement of the Hazardous Substances and New Organisms Act (1996)). Small quantities may be stored in a secure and dry chest, cupboard or shed. For larger quantities, a separate storage area with the following features must be provided (refer to Figure 7.1-1).

- Secure locking.

- HAZCHEM signage visible from all lines of approach showing that dangerous agrichemicals are stored within. (This is available from safety suppliers).

- An impervious floor with bunding sufficient to contain any spilt agrichemical, and a floor sump to allow pumping out of agrichemical spills.

- Secure side walls constructed of fire-resistant materials (e.g. concrete, concrete block or galvanised iron) and fire extinguishers.

- Adequate ventilation and light.

The storage building should be separate from other farm buildings, and located at least 50 metres from a waterway and 20 metres from any obvious hazard (e.g. workshops, fuel pumps, heaters, welding equipment, motors). Agrichemical stores and mixing areas should be sited well away from ponds, ditches, drains, wells and bores to avoid pollution being caused by spillages and/or flooding.

Store only agrichemicals in the storage area. Some agrichemicals are reactive in the presence of oxidisers (e.g. sodium chlorate) or other agrichemicals. Examples where segregation is required include: pesticides and fertilisers, agrichemicals and swimming pool chemicals. Never store explosives with any agrichemical.

Store containers off the ground on pallets or shelves. Shelves should be rigid, secure and capable of supporting full containers. Containers should be stacked having regard for their size, design and the material from which they are made and in accordance with the advice provided by the manufacturer. Containers should be stacked so that their labels are visible and incompatible materials are stored on different shelves. A raised edge on the front of the shelf will prevent containers falling in the event of an earthquake.

Regularly check all containers for leaks, secure closure and intact and legible labels. Transfer the contents of any damaged or leaking container into a correctly labelled, suitable container.
7.1.4.1 Storage of detergents, bloat and teat care products

Poisonous substances such as animal treatments and detergents should be kept out of reach of children and stored in a location that minimises any likelihood of milk contamination.

Farm detergents, sanitisers, bloat control and teat care products should be stored in their correct containers or a secondary container used only for that particular product. The new container should contain the same label information as the original container. Acid detergents should not be stored in a container previously used for alkali detergent and the two must not be stored alongside each other or with chorine in such a manner that they could possibly mix.

Follow these guidelines:

• do not use a common drip tray for different detergents
• do not use a common drum pump for different detergents
• do not dispense acids and alkali at the same time in the same area
• store these products in a bunded area with a nib wall of no less than 150 mm that has the capacity to contain the contents of the largest storage container
• secure storage areas so children cannot access them.

It is recommended that no more than 1300 litres/kilos of farm detergents and sanitisers be stored on the farm at any one time. Only MAF/NZ Food Safety Authority approved detergents and sanitisers should be used.

7.1.5 Transport of agrichemicals

For ANY vehicle used for the transport of agrichemicals, drivers shall at all times note the following:

• Load protection. The agrichemical shall be well protected from water damage
• Safe loading. All agrichemicals shall be stowed so that they remain in a fixed position despite normal vehicle movement
• Food. Food packaging material and food containers shall not be carried with any load of agrichemicals
• Security. All agrichemicals in transit shall be secured so as to prevent unauthorised access
• Loading and unloading. All care shall be taken during loading and unloading to prevent contamination of people and the environment.

The transport of dangerous goods, which includes farm dairy detergents and sanitisers is covered by land transport rules (see www.ltsa.govt.nz). These rules set out the quantity limits for dangerous goods transported for agricultural goods. Ask your farm supplies retailer for transport information.

7.1.6 Agrichemical residues in products

There is growing consumer awareness of pesticide issues and a desire for products that are seen to be free of agrichemical residues. Products have been withdrawn from markets due to detection of agrichemical residues.

To ensure continued market access, minimise the hazards of agrichemicals and develop pest and disease controls that leave no residues and pose no risk to the environment. Farmers can benefit from spending less on pesticides and sprays, and may receive premiums for organic products.

To reduce the potential for agrichemical residues, agrichemical users should do the following:

• use non-chemical methods and bio-control organisms where possible
• choose the least toxic if two agrichemicals are suitable for a specific crop or pest. Check product labels and classification
• apply the correct material and the proper dosage for the specific crop and pest
• check equipment before use, and ensure correct calibration and nozzle sizes so that the dose rate is accurate and even
• be certain that timing of the application conforms with established residue tolerances, the proper stage of growth and withholding periods before harvest or grazing
• avoid spray drift
• dispose of containers and waste product properly.
7.1.7 Chemicals for animal pest control

While controversial, poisons are widely used as a method of controlling pests such as possums. There are four commonly used poisons - 1080, cyanide (paste and capsules), phosphorus and brodifacoum (Talon). However, new products are always under development – seek advice from your Regional Council on current options.

Only registered persons who work for local government, the Department of Conservation or contractors to these organisations can use 1080. Cyanide and phosphorus can only be used by people with a controlled substances licence. (These replaced the old approved operator licenses and are administered by the Environmental Risk Management Authority). Brodifacoum can be used by the public but not on Department of Conservation land.

Rodent poisons are readily available but care must be taken if these are used around the farm dairy. Food safety regulations state that rodent baits shall not be laid in the milk storage and collection area and shall be laid in a bait station or similar in such a position as to minimise the risk of poison being spread or picked up by children, dogs or other animals.

7.1.7.1 1080

The toxin sodium monofluoroacetate (1080) occurs naturally in plants growing in South America and Australia. It was first manufactured synthetically in 1944, and has been in use in New Zealand for pest control since 1954. Although its use is under constant review, it continues to be one of the safest and most effective toxins for the control of possums and rodents.

Possums stop eating within 30 to 90 min of ingesting 1080. They become listless and drowsy and die between 6 and 40 hours after eating the toxic bait (depending on how much was eaten).

Poisoning operations are carried out by applying poisoned bait from helicopters or fixed wing aircraft, or by using bait stations on the ground. 1080 poisoning operations may kill up to 80-95% of the possums in the area of use.

Because it is biodegradable, 1080 is rapidly broken down by soil micro-organisms and does not accumulate in the food chain or pose a threat to the environment.

All toxic baits (including 1080) are coloured green to clearly identify that they are poisonous and to deter birds and other animals that are not attracted by the colour green. Before laying poison, notices are placed at all major access points to the operational area and on all properties involved. Take care to tell all neighbours, visitors and beekeepers that poison is being laid on your property.

Dogs are ten times more susceptible than possums to 1080 poison. Dogs will be poisoned if they lick or eat toxic bait and there is a strong possibility of secondary poisoning if a dog eats a poisoned carcass. The greatest danger to dogs comes from eating the guts of rabbits or possums. Carcasses poisoned by 1080 pose a danger to dogs until the fleshy parts have completely broken down. During cold weather, this can take up to 3 months.

Cats are also at risk from secondary poisoning, although not to the same degree because cats do not usually eat dead animals. There is no danger of secondary poisoning from fur, skin or bones.

Dogs should be under strict control as long as poisoned carcasses are still accessible, i.e. tied up when not working or muzzled when working in or near a baited area. Suitable muzzles are available through stock and station agents, veterinary clinics or Regional Councils.

Dogs suspected of having eaten 1080 should be given an emetic immediately to cause the dog to vomit. Zinc sulphate emetic capsules are available from Regional Councils and veterinarians. A knob of washing soda (sodium carbonate) about 1 cm in diameter is another suitable emetic. Vomiting can also be induced by giving a salt and water solution if an emetic is not available. If possible, give milk prior to vomiting. Allow 10 min after administering the emetic for the dog to vomit. Further doses may be given if the first dose is not effective.

Emetics are not an antidote and the dog must be taken to the vet for treatment immediately after vomiting. Success will depend on the time lapse between poisoning and treatment.

Farm animals must be kept out of paddocks that have been treated with poison until natural weathering has ensured that the baits are no longer toxic. About 100 mm of rain is needed to make 1080 bait non-toxic. Ensure that gates to baited paddocks are secure and that the fences are stock proof.

The dairy company must be notified immediately if it is suspected that milking animals have been poisoned.
7.1.7.2 Cyanide, phosphorus and brodifacoum

Cyanide and phosphorus can be used for possum control. Phosphorus is generally more effective, with less risk of animals becoming bait shy. With phosphorus, as possums usually die in their nests, not many carcasses will be found. As with 1080, dogs and other animals will die if they eat a possum carcass poisoned with phosphorus and carcasses can remain lethal for many weeks after poisoning.

Cyanide and phosphorus are dangerous to humans but they are effective poisons as long as baits are destroyed after they have been in place for several days. Otherwise possums can feed on sub-lethal doses and become bait shy.

In the Feratox cyanide product the potassium cyanide pellets are encapsulated, which assists with weather protection and prevents the emission of any gas. As a result there is no contact with cyanide when handling pellets. Feratox cyanide pellets are fed to possums with a quantity of ferafeed (non-toxic feed pellets or feed paste) in a special pellet feeder. A magnetic catch secures a cover over the feeding dish, protecting the pellets from wet weather and restricting access from smaller non-target species.

Brodifacoum (e.g. Talon) is an easily purchased and handled anti-coagulant poison that comes in the form of pellets. It will kill rats as well as possums. However, since death is not instantaneous, large amounts of it can be eaten by possums or carried away by rats, making it an expensive option unless numbers have already been reduced in an initial knock-down. Its use is no longer approved on Department of Conservation land due to concerns over persistence and possible contamination of game animals.

Cyanide paste and phosphorus are normally placed in small amounts in bait stations or on stones, tin lids or sticks. Brodifacoum is fed out as bait pellets through bait stations. These should not be filled continuously, as already-poisoned animals will continue to consume pellets. Instead, bait stations should be filled in pulses (refer to 7.1.7.4 Using bait stations).

It is vital to pre-feed possums before laying cyanide or phosphorus. Use a mixture of flour (80%) and icing sugar (20%) with a lure of curry powder, cloves, cinnamon or fruit essence added. Do not use oil of roses, wintergreen, banana or raspberry essences as they also attract some bird species. Lay poison once there is a good acceptance of pre-feed baits. This may take 2 to 3 days. Before laying poison, remove the pre-feed baits.

Dead possums should be collected and disposed of the following morning. Remove all baits and bury them. It is not only a dangerous practice to neglect to do this, but remaining baits lose toxicity, causing poison shyness. Provided there is no rain, the best results are obtained on the first two nights. Phosphorus poisoning can be carried out at fortnightly or monthly intervals to keep the possum population as low as possible.

7.1.7.3 Licensing and safety

To purchase cyanide or phosphorus, the user must have a controlled substances license. To obtain a licence, complete the application form available from the Environmental Risk Management Authority (ERMA) on 0800 376 234 or the website www.ermanz.govt.nz

The regulations require that permissions be gained prior to the laying of poison. Any land under poison control must have conspicuous notices erected at every place where people normally gain access, specifying the name of the person laying the poison, the fact that it is a poison, the name of the poison and the date it is intended to be laid.

Poison cannot be laid:
- on or within 60 m of a public road or place to which the public are entitled to have access
- inside or within 400 m of any community, town or city boundary, or any catchment area from which water is drawn for human consumption, without the prior consent of the appropriate authority and the Medical Officer of Health.

Safety precautions include the following:
- always comply with the instructions on the container
- always store cyanide and phosphorus paste in locked containers
- always wear protective clothing. Do not wear contaminated clothing in vehicles or at home
- do not point the base of the tube towards your face when squeezing
- do not let cyanide paste come in contact with acids
• do not smoke or eat while handling poisons
• wash hands thoroughly after using poisons
• keep children and domestic pets away from the area being poisoned
• bury all toxic baits at the finish of an operation
• once the bait station is no longer needed, remove it from the tree, bury any toxic material and scrub the bait station with hot soapy water. Allow it to dry and store it in a dry place
• always carry amyl nitrate capsules when using cyanide and learn how to use them.

7.1.7.4 Using bait stations
Bait stations keep bait dry and can be fastened to trees or fences out of reach of pets and farm animals.

Each bait station will effectively cover a range of 100 m. They should be located clear of the reach of children and stock, and ideally about 30 cm above a tree branch or on fence posts from which possums can easily feed on the bait. Concentrate bait stations around the edge of bush and crops, especially near tracks. Pine, willow and poplars are very attractive to possums and bait stations should be placed on the outer edges of plantations.

With anticoagulant poisons, possums will consume a lethal dose if they ingest up to 60 g of bait (approximately one small cupful) and may take 10-20 days to die once a lethal dose has been ingested. The time lapse between ingesting a lethal dose and death gives a possum plenty of time to eat more poison than it needs to. To avoid wasting bait, a ‘pulse baiting’ strategy is advised.

• Keep the bait station filled for 7 to 10 days.
• Leave the station empty for 21 days.
• Repeat the cycle as necessary.

At the conclusion of a bait programme or pulse baiting, the unused bait should be collected and any material dropped around the bait stations should be removed or buried.

7.1.8 Chemicals for plant pest control
Plant pests may occur in pasture or in retired and planted areas.

In either case, it is important to carefully assess the problem and get positive identification and advice on control options. Weed control can be time-consuming and expensive so it is important to step back and prioritise the problem.

Regional Councils have Pest Management Strategies, outlining what level of control is required over which types of weeds (e.g. total control or boundary control only). They usually provide a free identification and advice service for weed species and may have lists of common problem weeds on their websites.

Weeds in retired areas or riparian strips may be unsightly but they can do a good job filtering runoff and holding banks together. Leaving them may be an option if control is not required under Regional Council rules and they are not too invasive or likely to cross property boundaries. Similarly, ridding steeper faces of gorse can consume large amounts of time and resources when leaving it as a nitrogen-fixing shelter plant can be the first stage to regenerating a patch of native bush while preventing erosion from steep and unproductive faces. Proactively fencing weed-prone parts of the farm and planting with a timber crop or native species is a good preventive weed management strategy that allows you to focus your resources on your better land.

The use of herbicides can be minimised by:
• careful grazing management to avoid pugging and opening up bare ground
• spot spraying or grubbing target species rather than blanket spraying an area. Since clovers are sensitive to many weed sprays, avoid aerial application where other means will be effective. Spot spray with a tank on the back of the bike, use a knapsack on hills, or use weed wands or swipers. If this is not feasible, choose a chemical that will have least impact on clover and spray during winter if possible (e.g. for buttercup)
• vigilance in spotting weed problems early and responding immediately. Schedule regular weed surveillance in any retired or planted areas. Consider paying someone to control weeds during busy periods as this may be a large cost saving compared to leaving the infestation until it reaches more challenging proportions
• mulch in planted areas to stop weed seeds germinating and dense planting to get canopy closure early and exclude weeds
• ringbarking woody weeds or using the ‘drill and fill’ technique to inject a small amount of herbicide directly into the plant.
Seek professional advice and ask other farmers about the best chemicals to suit your situation. Be sure to use herbicides at recommended rates and take particular care around native plantings as they are sensitive to herbicides.

7.1.8.1 Aquatic weeds

Introduced aquatic weed infestations cause numerous problems including out-competing native aquatic plants, robbing the water of oxygen as dead plant material breaks down, blocking waterways and impeding drainage causing flooding. Recreational use becomes very difficult where aquatic weeds have flourished.

Examples of problem aquatic weeds include alligator weed (*Alternanthera philoxeroides*), some oxygen weeds (*Egeria densa, Lagarosiphon makur and Ceratphyllum demersum*), parrot’s feather (*Myriophyllum aquaticum*) and Manchurian rice grass (*Zizania latifolia*). Take precautions to prevent them being introduced onto the property as they can be extremely difficult to eradicate.

If you think you have some of these weeds, contact your Regional Council to get positive identification and advice on best control methods.

Spraying directly into a waterway will often require a consent. Find out from your Regional Council what is permitted before spraying aquatic weeds. There are also controls under Hazardous Substances and New Organisms legislation that may require an approved handler for certain chemical applications near water.

• Most glyphosate herbicides can be applied around water bodies without the need to be an approved handler.
• Escort and similar metsulfuron based herbicides must be under the control of an approved handler when applied onto or into water.

7.1.9 Petroleum products

All petroleum product storage facilities should be sited as follows:

• away from waterways or field drains in case of spillage or leakage
• where accidentally spilled fuel cannot come into contact with any heated surface
• in a position where the delivery driver can see the filling gauge
• away from main traffic passage to avoid accidental collisions by vehicles
• on an impervious base.

Above-ground tanks are normally fabricated from welded mild steel plate and supported by either masonry walls or steelwork. Such tanks may become unstable during strong winds when empty and should be connected to secure foundations to prevent overturning.

It is recommended that fuel drums and above-ground tanks greater than 1000 litre capacity should be surrounded by a bund constructed from durable and impervious materials. This bund should be large enough to hold the volume of the tank(s) plus 10%. The bund should be positioned so that all parts of the tank and all taps empty vertically downwards inside the bund. There should not be a direct outlet from the bund. Instead a small sump that can be emptied easily (e.g. with a hand pump) should be provided. Large amounts of oil can be taken out of the bund water using a blanket specially designed to absorb oil.

Ensure that all hose connections for fuel tanks are sound and are replaced or repaired, if leaks occur, as soon as possible. Tank valves and taps should be locked shut when not in use. If a flexible pipe is used for filling vehicles, it should be fitted with a tap that closes automatically.

Below ground tanks should be positioned in a masonry or concrete chamber. Storage tanks should not be buried directly in the ground where:

• the occurrence of a leak might contaminate groundwater
• the water table is likely to rise above the bottom of the tank
• soil is acidic and corrosive to the tank material.
Mobile tanks should be built to withstand accidental damage. They should be stable enough to travel on roads and have suitable brakes. Mobile tanks should not be overfilled. All valves should be kept locked when the tanks are not being used. The fuel systems and tanks of all tractors and diesel engine machinery used in a fixed position should be checked regularly.

Before installation, all tanks should be cleaned internally and externally and protected with a rust-inhibiting, priming paint. Tanks should be provided with a fuel level indicator (e.g. dip stick, float gauge, sight tube). Sight tubes should not be made of glass.

Anti siphon devices should be used where any inlet is below the highest fuel level in the tank. Outlets should be marked to clearly show whether they are open or closed.

Tanks should be closed at all times to prevent entry of foreign matter (e.g. dust). Inspect all tanks regularly and repaint them on the outside to prevent corrosion. Check for leaks at all times and repair them as soon as they appear.

If at all possible a member of staff should be present when fuel is delivered. Provide sand or another absorbent material next to the storage area to soak up any spillages. Take precautions to minimise the risk of fire.

A Location Test Certificate may be needed (previously a Dangerous Goods Licence) and/or a Tank Certificate for bulk tanks. Information on this and the legal requirements for fuel storage can be found at the ERMA website www.ermanz.govt.nz

For information on disposal, refer to 7.2.2.5 Disposal of waste oil.

7.1.10 Top tips for chemical use

• Have all farm staff do a GROWSAFE® course on safe chemical handling.

• Investigate alternatives to chemicals and only use where necessary – choose the least toxic and least persistent chemical available.

• Always read the label before opening an agrichemical container and follow the mixing and use instructions. Do not store agrichemicals in containers without the correct label.

• The best way to dispose of any agrichemical is to use it for its intended purpose.

• Chemicals must be disposed of safely - do not pour them into drains or waterways, into the ground or into offal pits and farm landfills.

• If transporting agrichemicals, make sure that they are separate from passengers and food, and well protected from the elements.

• Work with neighbours to avoid issues with chemical use.

• Discuss with the Regional Council the most effective control method for animal and plant pests in your area.
7.2 WASTE DISPOSAL

Waste disposal on the farm includes plastic wastes such as silage wrap, hazardous and toxic wastes such as chemical products, and organic waste such as milk, dead cows and offal.

Waste disposal facilities and rules differ from one region to another, so it is important to check with your Regional Council and local transfer station or waste collection facility for the relevant information in your locality.

There are moves to encourage greater levels of product stewardship recovery in New Zealand (e.g. through the AgRecovery project) – where producers or brand owners take responsibility for the packaging they put into the marketplace. This could create new avenues for reducing and managing waste in the future.

7.2.1 Plastic silage wrap

Plastic silage wrap is a convenient method of storing and feeding out silage. Its use has also reduced the volume of potent leachate that exudes from traditional silage pits and stacks. Plastic silage wrap is commonly used in all major dairying areas, resulting in the generation of many thousands of kilometres of used wrap each season.

Although convenient for farmers, the use of plastic silage wrap presents a problem because of the necessity to dispose of the wrap after the bale is fed out. Because the wrap tends to be contaminated with organic matter, it is difficult to recycle and there are currently no recycling options within New Zealand. Some export of the wrap has occurred but there are biosecurity risks associated with export of this waste if it carries organic matter.

There may be some local recycling centres that are prepared to accept silage wrap and store it until future options become available – check with your local recycling facility. Farmers could also choose to store wrap on-farm until recycling becomes possible. If so, keep the wrap as clean as possible by following these steps:

- while the bale is on the tractor forks, strip off the outer layer of plastic, shake it and put it away where it will not be soiled by trampling or being driven over on the ground
- secondly remove the inner webbing layer – if clean enough it can also be recycled
- if storing the wrap, keep it out of the sun.

Burning and burial are not recommended practices for silage wrap. Burning silage wrap gives off dense black smoke and toxic gases such as formaldehyde and acrolein, and in some regions is specifically prohibited by rules to protect air quality. Burial on-farm is not recommended because, unless the plastic is tightly packed and buried deep, it has a tendency to work its way to the surface within a year or two. This creates problems of unsightly plastic blowing loose around the farm and the possibility of stock ingesting it. Veterinarians have reported cattle dying after eating silage wrap.

Where there is no storage or recycling option, wrap should be tightly packed into bales and transported to an approved public landfill site (refer to Figure 7.2-1).

To package the wrap, drive four fence standards into the ground to make a 1-2 m square. Stretch layers of wrap around the standards to form a box. Cram the rest of the wrap into the box and remove the standards. The wrap will shrink in on itself and compact into a tight bundle. Alternatively, bale up the plastic in a wool fadge using a wool press.

Better options for silage wrap are being actively investigated nationally so farmers should watch for new information.

Research into the use of edible protein based sprays (e.g. soya bean and casein) is also being undertaken to devise a waste-free means of waterproofing hay and silage bales and reducing losses from bales left out in the weather.
7.2.2 Chemical containers, hazardous substances and waste oil

The disposal of these materials is complicated because of the hazard created by toxic and/or inflammable substances.

All of these substances and the empty containers should be kept in a secure store to await disposal. Do not use empty containers to make water troughs or feed containers as residues may remain even after rinsing.

7.2.2.1 Disposal of chemical containers

The plastic in chemical containers is of recyclable quality, but potential tainting from residues creates a hazard risk for handlers at recycling facilities and potentially could contaminate the recycled products that are produced from these plastics.

Check with your local recycling centre to find out their policy on accepting these containers.

Wherever possible, return the container to the retailer or manufacturer. Some drums may be able to be sold to a company equipped to neutralise any adhering agrichemicals.

A national recycling system is also likely in the future for agrichemical containers.

If there is no current recycling option for the containers in your locality, transport them to a facility to go into an approved landfill. Contact your local landfill or Regional Council if you are unsure which containers they accept.

Whether the containers are to be recycled or landfilled, it is essential to:

- empty the container thoroughly at the time of use (e.g. into the spray-tank or other receiving container). This minimises the risk and saves money
- triple rinse, using the washings to dilute the chemical where dilution is to be achieved prior to use
- where the chemical is not being diluted before use, rinsings should be spread on waste ground, never down stormwater drains or into septic systems or the effluent treatment system. Do not rinse containers near a waterway, drain, well or bore head
- puncture and/or crush the container to render it unusable
- do not destroy or remove container labels.

Burying agrichemical containers on the farm is not recommended and may be prohibited by your Regional Council. No container should be buried where there is any risk of polluting surface water or groundwater or within 0.8 m of the land surface or land drains. Records should be kept of any waste buried on the farm.

Burning agrichemical containers is not recommended and is prohibited by many Regional Councils as fumes and smoke under rules designed to protect air quality.

7.2.2.2 Disposal of unwanted chemicals

Chemicals should be purchased in small quantities to avoid being caught with excess as farm practices or legal frameworks change. Chemicals must be disposed of safely to protect the environment from contamination.

Do not pour left over agrichemicals into drains or waterways or toxic substances may enter rivers, lakes or the sea and kill fish and aquatic life. Water supplies may be contaminated.

Do not pour concentrated agrichemicals on to the ground or into offal pits and farm landfills as chemicals may kill pasture, seep into the soil and contaminate underground water supplies.

Very persistent chemicals such as DDT and Dieldrin must now be stored in a safe manner and should be disposed of through a drop off or collection programme.

Agrichemical drop-off or collection for safe transfer to a secure facility is now available in most regions. Contact your Regional Council to find out how the agrichemical collection and disposal scheme in your region operates.

If an agrichemical container is leaking, place it in two strong plastic bags, one inside the other and secure it firmly. Label the bag clearly.

It is important that labels remain intact so that agrichemicals can be readily identified.

Note the precautions for transporting agrichemicals – refer to 7.1.5 Transport of agrichemicals.
7.2.2.3 PCBs

PCB (polychlorinated biphenyl) in its most common form in the electrical industry, is an oily liquid first used as an electrical insulator during the 1950s, 1960s and 1970s inside transformers and capacitors of electrical appliances such as fluorescent lights and electrical motors. Fluorescent lights have inside their body a ballast component. Inside the ballast or alongside it is a capacitor that contains the PCB liquid. In some cases the ballast may also contain PCB resin.

Because PCBs are chemically stable at high temperatures they take a long time to break down into less harmful substances. This means PCBs persist for a long time in the environment and accumulate in the food chain. PCBs are fat-soluble and tend to accumulate in the fatty tissue of humans and animals where they can have health effects. PCBs can also threaten export markets.

It may be difficult to identify whether PCBs are present in farm equipment but any electrical equipment more than 30 years old and fluorescent light fittings from the same period may contain PCBs.

If you suspect you have a PCB-containing item:

- do not remove the capacitor from the ballast
- seal the ballast in a heavy plastic bag and take it to an approved drop-off point. Contact your Regional Council to locate such a point, in some areas councils fund the disposal of PCB's
- if the capacitor is leaking, wear heavy PVC gloves. If any liquid spills, mop it up with either kitty litter, sand or rags and put these inside the plastic bag along with your gloves and the ballast/capacitor
- clean the area with a kerosene-moistened rag followed by a clean, dry rag. Place everything inside the plastic bag.

PCBs can not be buried in a regular rubbish tip or landfill. They must be isolated and dealt with separately.

7.2.2.4 Tanalised timber

Timber that has been tanalised to increase its durability contains toxic chemicals. This is becoming an increasing concern, and kiwifruit orchardists are now moving away from the use of tanalised timber to allay market concerns about these chemicals.

There is no recycling option for treated timber. The only option currently is to landfill treated timber unless on-farm uses can be found. Using alternatives such as concrete or steel posts should be considered.

7.2.2.5 Disposal of waste oil

Waste oil is generated during the servicing of agricultural machinery. The main types of waste oil are used lubrication oil from engines and hydraulic oil from hydraulic systems.

Waste oil is best disposed of by taking it to a recycling centre, waste oil dealer or motor service station for re-refining and re-use.

Collect used oil drained from machinery during routine servicing and store it in suitable leak-proof containers. Different grades of oil should be kept separate.

Never dispose of waste fossil fuel into soak holes, waterways, drains or sewers as it can cause serious environmental damage.

Waste oil should not be burned or buried on farm.

Waste oil should not be used on roads for dust suppression.

Do not leave empty oil containers lying around the farm - store all empty containers in a safe, dry area and dispose of them in an appropriate way.

7.2.2.6 Other hazardous waste

Hazardous wastes can be flammable, corrosive or poisonous and should not be buried in a landfill but separated out and dealt with by an approved refuse centre.

These include solvent-based products, petroleum products, explosives, cleaning chemicals, paints and batteries.
7.2.3 Farm and household waste

Food safety regulations require that litter not accumulate or be scattered inside or surrounding the farm dairy as it is unsightly, unhygienic, can emit odour and encourages flies and rodents.

Rubbish should be placed in a lidded drum that is emptied and cleaned regularly.

7.2.3.1 Waste reduction

Using materials and equipment carefully can extend their useful life and reduce the amount of waste produced. Regular maintenance will reduce wear and prolong the useful life of farm machinery.

Take waste disposal into account when choosing products for the farm. Choose less toxic alternatives when purchasing potentially hazardous substances and only buy the amount you need for a particular job. Aim for minimal packaging when purchasing products. Wherever practical, choose those methods, equipment and practices that give extended life and produce low amounts of waste for disposal.

7.2.3.2 Recycle and reuse

Separate out general rubbish into waste types and recycle it where possible. Food scraps and other organic matter can be composted. Timber, bricks and wire can be reused on the farm.

Other recyclable materials such as metals, plastics and glass can be washed where necessary and taken to a recycle centre or sold to a local scrap merchant. Sort different types of waste materials and stockpile them in good condition.

Polythene materials recycled by some specialist companies include:
• inners from fertiliser bags
• fertiliser sacks
• pallet covers.

Carefully reclaim and reuse items such as silage stack covers.

Hay and crop residues can be used for animal bedding, mulch or composted for garden or cropping land use.

7.2.3.3 Landfill

All rubbish that cannot be reused or recycled should be disposed of to an approved landfill operation.

7.2.3.4 On-farm burying

Check with your Regional Council as to rules regarding burying rubbish on farms.

Under Food Safety regulations, rubbish pits must be 45 m away from a surface water take for the farm dairy.

Never bury hazardous materials on-farm. They may contaminate soil and groundwater. For example, used batteries contain heavy metals such as lead and cadmium that can be harmful to the environment.

7.2.3.5 On-farm burning

Check with your Regional Council about rules regarding burning of rubbish. Avoid burning if it will cause a nuisance to nearby residential areas.

Do not burn:
• plastics, rubber, tyres or other materials that can produce dark smoke
• aerosol containers that can cause explosions
• treated timber that can release poisonous gases.
7.2.4 Carcass and offal disposal

Dead animals and offal must be disposed of in such a way that they will not produce odour, cause health problems, or result in groundwater and waterway contamination. If a surface waterway becomes contaminated, dead animal material can cause disease and impact on fish and other aquatic species through oxygen depletion of the water. Groundwater drinking supplies can become contaminated with disease-causing organisms or high levels of nitrate. Poorly constructed and managed offal pits can also create adverse effects from odours, insects and vermin infestation, and risks to domestic animals.

It is illegal to:

- dump dead animals and offal into rivers and streams or the sea
- feed animal carcasses or offal to pigs
- leave dead animals lying around the farm.

Where possible, carcasses should be picked up by a licensed dead stock carrier. Alternatively, they should be composted on-farm. Where this is not possible, carcasses may be buried in a covered offal pit.

Food safety regulations state that:

- rubbish pits and offal holes must be at least 45 m away from the surface water take for the farm dairy
- care should be taken on the location of offal holes so that leaching does not contaminate the underground water supply
- an offal hole containing decaying matter must not be within 45 m of the dairy or tanker loop
- offal holes must be adequately covered to reduce odour and insect infestation and to prevent scavenging
- dead animals must not be held beside the tanker roadway within 45 m of the farm dairy
- dead animals held beside the tanker track must not impede tanker access, and must be collected within 12 hours. The collection point should be screened from the roadside.

General recommendations include:

- dispose of dead stock as soon as possible
- move or cover dead carcasses to ensure they are not visible from the roadside
- do not leave animal carcasses in the open where dogs can gain access
- never dispose of carcasses in farm dairy effluent ponds
- keep dead stock out of waterways.

7.2.4.1 Pick up by licensed dead stock carrier

Many areas are served by a dead animal collection service. Operators skin the dead animal and render the carcass to produce protein meals, tallow and fertiliser.

Dead calves and cows should be carefully handled to avoid damaging their skins and hides as their value is greatly diminished if they are dragged or ripped. Much of the potential damage can be avoided if the carcass is carried to the collection point by a front-end loader.

A number of companies now require collection to occur within a specified period to avoid odour during trucking and processing.

To avoid negative perceptions of the industry by the public and tourists, the collection point should not be observable from the road.
7.2.4.2 Composting

Composting is an increasingly common stock disposal option that creates a useful product, reuses other farm resources such as calf-shed sawdust, and can be used in areas of high groundwater with minimal risk of contamination (where carried out correctly).

Composting is a biological process by which organic wastes are converted into safe, stable humus by micro-organisms. Carcasses are completely broken down within months, including bones. The high temperatures (around 70°) generated by the composting process destroys pathogens and prevents fly incubation. However, it is important that finished compost not be spread on pasture grazed by stock. Suitable end uses include domestic gardens, shelter belts, woodlots or gate sales.

Requirements

There are four requirements for efficient composting:

1. The material to be composted must be organic (e.g. animal carcasses, sawdust).
2. The carbon to nitrogen (C:N) ratio of the material should be at least 5:1. Since animal carcasses are high in nitrogen, a carbon supplement such as hay, straw or sawdust is needed. Sawdust is recommended because of its small particle size and high absorbency that minimises leachate production.
3. The process must be aerobic if odour is to be minimised, so air penetration through the compost heap is essential. The bulking agent used to adjust the C:N ratio (e.g. sawdust) will also increase aeration of the compost mixture.
4. The compost must be moist, but not wet to the point that anaerobic conditions occur.

Untreated sawdust is by far the most successful carbon-rich material, however other materials such as ground cornstalks may also work. Materials must be able to settle around and be in contact with the carcass. Straw can be used but there are problems in using it such as longer breakdown times, and leachate production. Generally a straw stack will need to be roofed and built on a concrete surface so that leachate can be collected.

Location

Siting of the piles should be considered carefully:

- locate compost piles well away from sensitive water areas such as streams, lakes, ponds and drainage ditches
- choose high points in the landscape rather than depressions to avoid water flowing through the bottom of the pile
- if on sloping land, create a diversion bank on the upper side to keep stormwater out
- think about neighbouring residences. While odour is not normally a problem, neighbours may not wish to watch dead stock being handled
- consider ease of access
- locate compost stacks well away from the farm dairy (at least 100 m).

Bin design

Bin design is not critical, but the bin should be easily accessible with a front-end loader. Two bins are needed for primary composting with a third for secondary composting. A fourth bin for storing the sawdust material is also useful. The sawdust to be added to the heaps should be kept as dry as possible to aid in faster breakdown of the carcass. The bins should be located together for ease of movement between them.

The compost bins must be fenced from stock.

Large round bales of low quality hay can be used to form the bins. Place bales end to end to create walls for a three-sided enclosure.
An alternative is to use concrete for the bin floor and walls. Although more costly, the concrete is durable, requires less room than round bales, and can be used to capture any leachate.

Excessively large bins should be avoided. Bins 12-15 m² work well (2 bales deep by 3 bales wide). Use Table 7.2-1 to calculate the total area of bins required.

### Table 7.2-1

<table>
<thead>
<tr>
<th>1. Weight of carcasses to be disposed</th>
<th>Example</th>
<th>Your farm</th>
</tr>
</thead>
<tbody>
<tr>
<td>A) Enter number of dead animals per year</td>
<td>12.5</td>
<td></td>
</tr>
<tr>
<td>B) Enter average weight of a dead animal</td>
<td>400 kg*</td>
<td></td>
</tr>
<tr>
<td>C) Calculate the total weight of carcasses for disposal. C (weight in kg) = (A) x (B)</td>
<td>5000 kg</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2. Size of compost facility</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>D) Calculate the volume of primary (Bin 1 and 2) bins needed. D (volume in m³) = (C) / 600</td>
<td>8.33 m³</td>
</tr>
<tr>
<td>E) Calculate the volume of secondary (Bin 3) bins needed. E (volume in m³) = (C) / 900</td>
<td>5.55 m³</td>
</tr>
<tr>
<td>G) Calculate the area of primary (Bin 1 and 2) needed. G (area in m²) = D / 1.5</td>
<td>5.55 m²</td>
</tr>
<tr>
<td>H) Calculate the area of secondary (Bin 3) bins needed. H (area in m²) = E / 1.5</td>
<td>3.7 m²</td>
</tr>
</tbody>
</table>

* Use 400 kg Jersey, 500 kg Friesian

**Process**

Start Bin 1 by placing sawdust on the ground to a depth of 60 cm. Carcasses placed directly on the ground or on concrete will NOT compost properly. Place the carcass on the sawdust and split the stomach to avoid it bloating and opening up the sawdust to expose the carcass. (Note, if the carcass is chopped up into smaller pieces it will compost faster). All body parts should be at least 30 cm from the sides of the bin and completely covered with at least 60 cm of sawdust. Covering carcasses adequately avoids any problems with odours and rodents. NEVER leave legs, hooves, ears or any body part out of the sawdust pile. Carcasses may need extra sawdust covering after the pile has settled for a day or two. Continue placing and covering carcasses until the bin is full.

In a typical situation, Bin 1 is filled with dead stock after about three months. Bin 1 is then allowed to compost for three months once the last carcass has been added. During this time any new carcasses are added to Bin 2. After Bin 2 is full, the contents of Bin 1 are moved into Bin 3 and left to compost for a further three months, while new carcasses are once again collected and covered in Bin 1.

After the collection period followed by 3 months in primary composting (in either Bin 1 or Bin 2), and then three months of secondary composting (in Bin 3), the compost should resemble black humus or soil. Some body parts (skull, teeth) may still be identifiable but will be soft and crumbly. At this point the compost can be carted away. The hay bale surrounds can be replaced over time as required.

A probe thermometer can be used to monitor the temperature of the compost. When operating properly temperatures should reach 60-70°C. The compost should heat up shortly after being assembled. If it does not, it may be too dry and need additional water.

The moisture level of the pile should be damp to touch but not overly wet. Initially the animal will provide enough moisture to keep the composting pile moist so a tarp should be placed over the pile in Bin 1 or 2 as it is built up and during the first three-month composting period. The pile should be uncovered during the final three-month composting period in Bin 3, as animal liquids will have been used up by then.

Too much moisture is the most common reason a stack will fail, produce odour or leachate. The use of dry sawdust is the best way to eliminate excessive moisture. If a composting pile becomes too wet it can usually be recovered by moving it to another bin and mixing in some additional dry sawdust. A recording system can be kept either on the side of the bin or in a book, to note when carcasses were put in, bins filled, and piles moved.
Compost with the correct content of carbon materials and moisture should not produce any leachate and therefore should not pose a threat to groundwater or surface waterways. However, some Regional Councils have rules for larger composting operations – check with your Regional Council before constructing bins.

The finished compost has no noxious odours and can be used as an effective fertiliser and soil conditioner. It must not be applied to grazed pasture.

7.2.4.3 Burying

Shallow burial is a convenient method of carcass disposal where water tables are not high enough to risk contamination of groundwater. Controlling vermin and scavengers can be difficult. Make sure that the hole is backfilled immediately and that the buried carcass is well covered, so dogs and other scavengers cannot dig it up.

Select an area with clay or impervious soil below and site the hole at least 100 m from domestic bores or surface waterways to avoid contamination. Do not bury the animal in the floodplain of a waterway.

7.2.4.4 Offal pits

Farmers commonly resort to offal pits for disposal of dead stock and offal. However, it is recommended that only small and infrequent amounts of animal offal are disposed of in offal pits (e.g., after an animal has been slaughtered for home use). Some quantities of other organic matter (e.g., food scraps) can also be placed in offal pits.

Offal pits may be narrow deep trenches dug by an excavator or vertical shafts dug using a large-diameter auger.

To keep an offal pit safe for children and inaccessible for dogs and vermin, the top of the pit should be covered with a heavy-duty concrete slab at least 125 mm thick with access from at least one airtight cover-plate (refer to Figure 7.2-3).

When carcasses and offal are disposed of in a deep covered pit, the animal material breaks down anaerobically. As the material breaks down, there is a potential risk of groundwater contamination.

Nitrate levels may become elevated as nitrate is released from the material in the offal pit. Depending on the number of carcasses and other organic material, and the background nitrate levels in the groundwater, nitrate concentrations in the groundwater may become elevated for some distance down-gradient from the pit.

Offal also contains potentially pathogenic organisms, such as Salmonella. The heat produced by the putrefaction process may destroy some of these, but others may survive and enter the groundwater.

Therefore, the following minimum guidelines should be used when siting an offal pit:

- offal pits should be at least 100 m from a domestic bore in any direction and 200 m in an up-gradient direction
- do not dig the offal pit any closer than 1 m above the maximum expected groundwater level beneath the site. Where there is a high water table, consider composting as an alternative disposal option
- offal pits should be sited at least 100 m from any surface waterway, open drain, wetland or neighbouring boundary and away from the floodplain of a waterway
- offal pits should be sited well away from any other offal pit that has been used within the previous five years.

Some Regional Councils have rules regarding siting of offal holes so check with them before making a new pit. Do not light fires near offal holes since explosive gases may be present.

To aid decomposition of dead animals disposed in an offal pit:

- slit the stomach to allow the intestines out
- puncture the rumen on its left side to prevent toxic gas build-up
- add a spadeful of a bacterial starter such as oxidation pond sludge.
Once an offal pit is filled to within a metre of the surface, backfill it with compacted earth, and regrass or plant a tree over it. Identify the site so that future owners can be informed.

Offal pits are not a replacement for an approved landfill or other recommended disposal options. The following material must not be tipped into an offal pit:

- chemicals and chemical containers
- human sewage and other household wastewater
- commercial quantities of any animal, chicken or fish carcasses.

### 7.2.4.5 Burning

As a last resort, animal carcasses and offal may be burned but this is the least acceptable option and may not be permitted by some Regional Councils.

If animal carcasses are burnt on the farm this should be done in an incinerator wherever possible. The incinerator used is best fitted with a secondary combustion chamber so that high temperatures are achieved. This will ensure complete combustion of all products. Do not exceed the design loading rate of the incinerator at any time.

If open burning is to be carried out, dig a shallow pit with cross trenches to provide a good air supply to the base of the fire. Use only dry fuels that will burn easily with minimal smoke. An accelerant may be required to reach the necessary temperatures. Ensure the fire is hot and smoke does not create a nuisance to neighbours or other parties. Do not use tyres as a fuel and do not use the fire to dispose of other wastes not recommended for burning (i.e. rubbish or plastics).

Place the dry fuel at the base of the fire and place the carcasses on top. Use enough fuel to ensure the carcasses are completely burned. Do not overload the fire with carcasses. Burning should begin as early in the day as possible.

Remember that many rural districts are subject to fire restrictions during the summer months and burning may not be an option. When a District Council fire ban or restricted fire season is in force contact your local District Council for information before you light a fire of any sort outdoors.

Air pollution nuisances may result. Most Regional Councils have regulations relating to on-farm burning.

### 7.2.5 Milk disposal

At certain times of the year, it is possible that milk will have to be disposed of (e.g. if it cannot be sold or collected due to poor weather, industrial action or milk contamination).

Milk spillage and emergency milk disposal is a serious concern as milk has an extremely high BOD\textsubscript{5} and so there is a very high risk of it causing problems if it reaches surface waterways. Milk is approximately 400 times the strength of domestic sewage and 1000 times the strength of treated farm dairy effluent. It can cause oxygen depletion in the waterway, killing aquatic life, and can affect downstream users of the water.

Any person or party responsible for a discharge of milk to a waterway (directly or indirectly) may be liable to prosecution by the Regional Council.

If you need help, contact your Dairy Company, the Regional Council or the Ministry of Agriculture for advice.

The choices of milk disposal include:

- feeding milk to livestock
- land application of diluted milk
- adding the milk to the effluent treatment facility.

Farmers should ensure they have a plan in place and resources available to dispose of milk by the chosen option should the need arise (e.g. pipes or hoses that can connect to the vat outlet and allow drainage to the farm dairy yard or to holding tanks or drums).
7.2.5.1 Feeding milk to livestock

If at all possible, feed the surplus milk to livestock. Nutritionally, milk is low in dry matter content (i.e. approximately 13%), and is high in energy (i.e. 20 to 23 MJ ME per kg of DM), protein and fat.

Calves can consume between 8 and 12 litres of whole milk per day before weaning. After weaning, up to 4 litres per day can replace 1 kg of concentrate feed. However, the use of milk should be limited to minimise the risk of digestive disorders. It should be introduced to the calves slowly, and be supplemented with digestible fibre-based feed to encourage proper rumen function. Ad-lib access to hay is advisable while milk is being fed.

Dairy cows can be fed up to 10 litres in a day. The milk could be fed via water troughs or spread on silage if it is suitably contained. The milk must be fit for purpose (i.e. must not contain antibiotics).

Milk may also be transported to neighbours with piggeries or commercial calf rearers.

Milk is best fed consistently fresh or consistently sour to dairying stock. Souring in a storage facility can be prevented for up to one week by adding 1 litre of 40% formaldehyde solution (i.e. commercial formalin) to 1000 litres of milk. At this concentration it is safe to feed the milk over the week. Citric acid or acetic acid may also be added to milk to prevent souring. Commercial yoghurt starters can also be used to make a coagulated yoghurt from the milk, and the yoghurt fed to stock. If in any doubt about the feeding of milk to stock, consult a veterinarian.

7.2.5.2 Land application

Milk can be applied directly to land. The following guidelines should be followed when applying milk to land (similar guidelines apply to the disposing of whey or any other liquid dairy products):

- dilute the milk with at least the same volume of water (i.e. 1 : 1 dilution) before applying it directly to land
- dilutions up to 10 : 1 water to milk should be considered to reduce the possibility of odour problems and pasture damage
- do not apply more than 50,000 litres of the diluted milk per hectare to pasture (i.e. 5 litres per square metre of land). Use as much land area as practically possible. If possible use land that can be worked following application
- irrigate onto recently grazed pasture and following irrigation, flush with fresh water to rinse milk residues from foliage.

Do not apply milk to:

- land within 20 m of a drain or waterway
- land close to public areas or neighbours where odour problems may arise
- paddocks which are likely to flood, have steep slopes, are pipe drained or mole ploughed or are frozen hard.

7.2.5.3 Discharge to effluent ponds

Milk can be control-fed into a pond system, though land application is preferable to discharging to a waterway. Properly designed 2-pond systems (adequate size and correct construction) can cope with milk from four consecutive milkings. After this, another option should be used, as additional milk will cause rapid deterioration in the quality of the discharge.

Odour problems may occur 5 days after milk has entered the system. Be aware that a mixture of milk and effluent can give off lethal or explosive gases. Do not mix them in confined spaces or buildings, or enter any enclosed effluent storage facility.

Ideally the treated effluent from the ponds should be spread onto land as soon as possible, (e.g. using a contractor) to reduce any impact on the receiving waterway.

7.2.6 Sewage

Care must be taken when disposing of sewage as it contains heavy metals which can be poisonous to humans, animals, plants and soil micro-organisms if they are present in large concentrations. Sewage can also contain a wide variety of pathogens including bacteria, viruses, fungi and eggs of parasites.
Most houses in rural areas rely on a septic tank system to dispose of household sewage and wastewater.

Food safety regulations require that:

• no discharge from any toilet shall enter the farm dairy effluent system
• no discharge from any toilet shall be spread onto pasture to be grazed by dairy animals or harvested for feed for dairy animals
• there should be no direct access to a toilet from the milking area, milk receiving area, or milk storage area – the toilet should be in a separate room with a ceiling and adequate ventilation
• any toilet with no septic tank should not be within 45 m of the farm dairy or tanker loop or 45 m of the dairy water source, unless it complies with local authority requirements for toilets in a dwelling and/or food premises
• septic tanks should not be sited within 10 m of the milking area, milk receiving area, or milk storage area or within 45 m of the dairy water source

Septic tanks must be properly installed and maintained. Problems can occur with systems which have not been maintained and where drainage fields have become blocked or clogged. Septic tanks must be emptied regularly (at least every 3 years) to remove the build up of solids in the tank. For more information, contact your District Council.

7.2.7 Top tips for waste disposal

• **Wherever possible, minimise waste and reuse resources on the farm.**
• **Do not use empty chemical containers for other purposes.**
• **Where recycling is an option, triple rinse chemical containers into the spray tank first.**
• **Shake the outer plastic wrap from silage bales to remove organic matter before storing to avoid soiling the wrap by trampling or driving over it.**
• **Avoid burning or burying waste on the farm.**
• **Store calf shed sawdust with a cover so it can be used to compost dead stock and offal.**
• **Dispose of milk by feeding to stock where possible. Ensure calves have access to hay or a similar fibrous supplement to avoid scouring.**
• **Take unwanted chemicals to an approved collection facility for disposal.**
7.3 FURTHER READING


Environmental Risk Management Authority, 2005. “Do you have banned pesticides on your farm?” ERMA, Wellington.


A4.3 Bay Of Plenty Regional Council\(^2\) (A Guide to Regional Plans – focussed on farming activities)

\(^2\) http://www.boprc.govt.nz/media/31767/Publication-090528-GuideToRegionalPlansFarmingActivities.pdf
A Guide to Regional Plans

Farming Activities

Working with our communities for a better environment
E mahi ngatahi e pai ake ai te taiho

Environment
Bay of Plenty
Regional Council
Regional Plans for the Bay of Plenty

- Regional Water and Land Plan
- Regional Air Plan
- Rotorua Geothermal Regional Plan
- River Gravel Management Plan
- Regional Plan for the Tarawera River Catchment
- Regional Coastal Environment Plan
- On-Site Effluent Treatment Plan

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Introduction

If you are working in the horticultural, dairy, beef or sheep farming industries, what you can do may be restricted by Environment Bay of Plenty’s regional plans, particularly the Regional Water and Land Plan. These plans have been prepared under the Resource Management Act to improve and maintain the quality of our environmental resources. They set out policies and rules that govern the environmental effects of various activities.

This Guide will help you interpret our regional plans. It will also help you to work out what kinds of activities are covered by the requirements of the plans.

What the plans mean

Our regional plans look at the environmental effect your activity is likely to have on the land and on water resources. Depending on what the effect is, your activity may be permitted, prohibited or need resource consent.

Typical farming activities have few environmental effects and resource consents are not needed, provided the conditions set out in the regional plans can be met. These activities are classified as permitted activities.

Other activities have greater environmental effects. You must get a resource consent before these activities can be carried out. This ensures that environmental effects are avoided or minimised.

There are also some activities that are not allowed to be carried out at all – they are classified as prohibited.

This Guide does not cover all farming activities or consents that you may need. It does not contain all the detail of the regional plans. However, it includes the most common activities. If you are in any doubt, or need more information please refer to the relevant regional plan and/or contact us.
How we can help

- We can help you work out if a resource consent is required.
- We can also help you look at different ways of planning and carrying out your activities so that you may not need a resource consent.
- You can find information on resource consents and how to apply for them at the end of this Guide (see page 43 *How to apply for a resource consent*).
- You can also visit www.rma.govt.nz to get a copy of ‘An everyday guide to the RMA’ which is produced by the Ministry for the Environment.

If you are unsure about how to meet the conditions or other requirements of the regional plans, need further information on resource consents, or any other assistance, contact us.

**Environment Bay of Plenty staff are available to help you and answer your questions.**

**Phone us:** 0800 ENV BOP (368 267)  
**Fax us:** 0800 ENV FAX (368 329)  
**Visit our website:** www.envbop.govt.nz  
**Email us:** info@envbop.govt.nz
How to use this guide

- Use the table of contents at the front of this booklet to see if what you want to do is included.
- Read the information to see whether you need a resource consent.
- Check the headings on the table of contents page to see if there are any other activities that you might also want to do.
- Throughout the Guide there are shaded boxes that give a quick reference about good practice, prohibited activities, and where you can get more information.

Key

- Prohibited activities
- Good practice
- Contact us for more information
- Website links
- Important note
- See the related booklet or pamphlet on the subject

Does your activity need a consent or permission from someone else?

As well as Environment Bay of Plenty’s requirements, you may need consent or permission from another organisation.

- Buildings, subdivisions, quarrying, or other land uses, effects on archaeological and heritage sites, or indigenous bush – contact your local district council.
- Lighting fires – contact the rural fire officer at your local district or city council, or if you are close to a conservation area (such as a national park or a reserve), contact the Department of Conservation.
- Logging native timber for milling – if so, also contact the Ministry of Agriculture and Forestry.
- Effects on archaeological sites – contact the Historic Places Trust.
You may need to contact one of these councils or organisations for permission to begin work:

**Tauranga City Council** 07 577 7000  
**Rotorua District Council** 07 348 4199  
**Western Bay of Plenty District Council** 07 571 8008  
**Whakatane District Council** 07 306 0500  
**Kawerau District Council** 07 306 9009  
**Opotiki District Council** 07 315 3030  
**Taupo District Council** 07 376 0899  
**Department of Conservation (DOC)** 07 349 7400  
**Ministry of Agriculture and Forestry** 04 894 0100  
**Historic Places Trust** 07 578 1219

**Is there anything else that could affect what I want to do?**

The location of your farm may determine whether you need a resource consent for a particular activity. For example, the Rotorua lakes catchments and harbour/estuarine areas have particularly high environmental values and as a result, have special rules. Contact us on 0800 ENV BOP (368 267) for more information.

⚠️ If it is not clear from this Guide whether your activity is permitted or requires a resource consent from Environment Bay of Plenty, refer to the relevant regional plan or contact us on 0800 ENV BOP (368 267).
Earthworks

Earthworks on farms may involve activities like paddock recontouring, quarries or putting in new tracks. This does not include cultivation (see page 10).

Earthworks on farms

Any earthworks on farms are subject to the Regional Water and Land Plan. Earthworks can cause soil erosion, sediment discharges to water, and dust discharges to neighbouring properties.

The Regional Water and Land Plan sets out a number of rules to manage the effects of earthworks and sediment discharges. Check the list of regional rules in the plan for the relevant earthwork activity.

Some guiding principles

You will need a resource consent to:

- work in any river, stream, lake or wetland (See Wetlands on page 35 for exceptions).

You may need a resource consent:

- for work near watercourses (riparian areas), depending on the scale of works and the slope of the area
- depending on the slope of the land. Work on steep slopes (>35°) is more likely to cause erosion and sediment discharge to water
- for work near coastal areas, depending on scale of works and if on sand dunes
- for work in ephemeral flowpaths, depending on scale of works.

All earthworks must meet the following conditions:

- avoid discharging sediment or vegetation to watercourses
- the activity must not block river or stream flows
- machinery must be kept out of streambeds, except for unavoidable crossings of streams
- manage stormwater to avoid areas of exposed soil
- avoid causing erosion
- check extra requirements for earthworks for stream crossings
- avoid damage to wetlands.
Earthworks limits

In sensitive areas, only small volume earthworks are permitted.
These areas are:

- in the riparian areas of streams, rivers, lakes and wetlands
- on the margins of estuaries, harbours and rocky coast
- in ephemeral flowpaths.

Check with Environment Bay of Plenty to find out the earthworks limits in these sensitive areas.

On land away from watercourses and sand dunes, the permitted limits are:

- slope 0-15° – 1 ha exposed area and 5,000 m³ volume
- slope 15-25° – 5,000 m² exposed area and 5,000 m³ volume
- slope 25-35° – 500 m² exposed area and 500 m³ volume.

Check with Environment Bay of Plenty for more information about earthworks limits.

Environment Bay of Plenty has prepared ‘Erosion and Sediment Control Guidelines for Land Disturbing Activities’. These can be ordered free of charge from Environment Bay of Plenty and are also available on our website: www.envbop.govt.nz

Consider how close you are to watercourses and soil slopes. Keep away from watercourses and steeper slopes unless you have a resource consent.

When your earthworks are finished: Stabilise against erosion. This includes planting vegetation (e.g. hydro seeding) or mulching, compaction, drainage control, sealing or metalling the site and diverting stormwater away from unstabilised areas.
Cultivation

Agricultural and horticultural cultivation is addressed by the Regional Water and Land Plan. Cultivation can cause soil erosion sediment discharge to water and dust problems.

Direct seed drilling, no-tillage practices and undersowing of existing areas are not subject to the rules.

Areas where a consent is needed are:

- land where the slope is greater than 25°
- within 10 m of rocky coast, estuaries and harbours
- on sand dune country
- on the margins of streams, rivers, lakes and wetlands.

Check Rule 5 of the Water and Land Plan for slope and distance restrictions.

All cultivation must meet the following conditions:

- avoid discharge of sediment or vegetation to watercourses
- avoid causing erosion
- cultivate across the land contour
- retain a permanent vegetation filter strip between the cultivated area and rivers, streams, wetlands and lakes
- avoid damage to wetlands.

Check Rule 5 of the Regional Water and Land Plan for more details.

Use best management practices to reduce sediment discharged to watercourses – this includes using silt traps, silt fences, bunding or appropriate cropping techniques.
 Soil conservation

You will probably need to take soil conservation measures where erosion is occurring and stabilisation works will be required. You may be able to get funding for these works. Contact our land resources staff for more advice.

Environmental Programmes

Environmental Programmes help landowners protect indigenous biodiversity and water and soil values on their property. We develop each programme with the landowner, producing an agreed environmental management plan for the property.

Environment Bay of Plenty provides both financial and technical assistance. In some situations it may also be appropriate to include assistance from district or city councils, the Department of Conservation, the QE II National Trust or Nga Whenua Rahui.
Vegetation clearance

Vegetation clearance means removing, clearing, destroying or crushing vegetation that disturbs land and soil.

Activities that are not controlled by rules in the plan are:

- routine maintenance of tracks
- trimming, moving, pruning, thinning to waste
- harvesting crops (excluding forestry)
- removing plant pests/weed control
- creating and maintaining tracks by hand up to 1.5 m wide.
- Other vegetation clearance is allowed depending on the slope and location of the land.

Areas where a resource consent is needed are:

- any land where the slope is greater than 35°
- sand dune country
- within 40 metres of rocky coast or estuary and harbour margins.

You can do some vegetation clearance in the riparian margins of streams, rivers, lakes and wetlands; and in ephemeral flowpaths, depending on the type of vegetation and the exposed area. **Check Rule 2 of the Regional Water and Land Plan for details.**

Vegetation clearing must:

- avoid discharging sediment to water
- avoid erosion
- avoid blocking streams or rivers
- avoid damage to wetlands.
Clearing vegetation by burning

A resource consent is needed for any burn-offs on:

- the margin of rocky coast, estuaries and harbours
- sand dune country
- riparian margins of rivers, streams, lakes and wetlands
- any slopes greater than 40°.

In any other area, burn-offs of less than 5 ha on slopes up to 15° are permitted, and also on slopes 16-40° up to 50 m². **Check Rule 4 of the Regional Water and Land Plan for details.**

Clearing vegetation by burning must:

- avoid discharging sediment to water
- avoid erosion
- avoid blocking streams or rivers
- avoid damage to wetlands.

Burning vegetation may need:

- a permit from the relevant fire control authority
- a permit from the relevant district council and/or
- an air discharge permit from Environment Bay of Plenty if you cannot comply with Rule 5 of the Air Plan:
  - no smoke beyond the boundary of the site
  - good management practice when burning
  - no inversion layer – light winds preferable (less than 10 knots)
  - ensure material is dry and suitable to burn
  - do not burn green material.

See page 24, Burning farm waste, for more information.
Grazing and stock in water bodies

We encourage landowners to retire and fence riparian areas, and install single span bridges or culverts. This reduces the damage caused by stock crossing streams and rivers. Stock walking through waterbodies can degrade the quality of the water through an increase in nutrients, faecal matter or sediment, and can cause erosion in streams and damage or destroy wetland areas.

Stock and stock crossings are prohibited in the beds of the Rotorua lakes and in the Ohau Channel.

Stock and stock crossings in streams in the catchments of the Rotorua lakes or in water supply streams need a resource consent, unless there is an Environment Bay of Plenty Environmental Programme for the property or other agreed management programme.

Frequent stock crossings (more than twice per week) require a consent in these areas unless there is an Environment Bay of Plenty Environmental Programme for the property or other agreed management programme:

- in the catchment of Tauranga Harbour (after 1 July 2007)
- in the catchment of Ohiwa Harbour (after 1 July 2007)
- in an Aquatic Ecosystem stream (after 1 July 2010).

In any other stream, river or lake, stock and stock crossings are permitted if:

- there is an Environmental Programme for the property

Or it is actively managed to:

- avoid erosion
- minimise sediment, nutrient and stock effluent to water
- avoid damage to aquatic habitats and native vegetation
- avoid damage to wetlands (there are many sizes and types of wetlands – contact Environment Bay of Plenty for advice)
- avoid contaminating bathing sites.
Stock crossings must also:

- be at right angles to the flow of water
- be on a shallow slope
- divert stormwater away from the stock crossing approach.

Check Rules 6, 7, 8 and 9 of the Regional Water and Land Plan for details.

The grazing of stock in the coastal marine area (harbours, estuaries and the open coast) is prohibited by Rule 14.2 (k) of the Coastal Plan.

For information about grazing stock in other areas, check Rule 10 of the Regional Water and Land Plan.
Land use in Rotorua lakes catchments

The Regional Water and Land Plan has rules that target the effect of land use in the Rotorua lakes catchments, to help improve water quality. Farming activities can release large amounts of nitrogen and phosphorus into the land that contribute to the degradation of the water quality in the Rotorua lakes catchments.

The aim is to encourage improved land management practices or to apply measures to off-set any increased nutrient export to the environment as a result of the land use activities.

Some activities that can increase nutrient export are:

- increased stock numbers
- additional fertiliser application
- conversion from low intensity land uses to high intensity land uses.

Activities that can offset any increase in nutrient loss include planting lake and stream edges to soak up nutrients, using a feedlot in winter or changing stock food.
We can help landowners identify appropriate options for their property.

**Rules in the Regional Water and Land Plan are part of a package of methods to improve lake water quality.** These rules have been referred to as ‘Rule 11’. Other methods include the development of Action Plans for each lake, encouraging and funding riparian planting, education, and sewage reticulation.

The lake catchments targeted by Rule 11 are Rotorua, Rotoiti, Okareka, Rotoehu and Okaro. The rule will stop further increases of nitrogen and phosphorus inputs from activities like agriculture and will affect what landowners can do with their property.

For information relating to Lakes Rerewhakaaitu, Tarawera, Rotoma, Okataina, Tikitapu, Rotokakahi and Rotomahana, refer to Rules 12 and 13 in the Regional Water and Land Plan.

Contact Environment Bay of Plenty for the details of the rules that apply in each lake catchment.
Spraying - agrichemicals

You can apply agrichemicals as long as:

- they are legal to use in New Zealand
- they meet the conditions of the Air Plan. The Air Plan includes the coastal marine area.
- they meet the conditions of the Regional Water and Land Plan for applications over land or near waterbodies. **Check Rule 21 for more details.**

**Air Plan requirements**

To meet the general requirements of the Air Plan all agrichemical applications must:

- not result in any harmful concentration beyond the boundary of the subject property
- comply with NZS 8409:2004 New Zealand Standard Management of Agrichemicals, e.g. GrowSafe
- not breach any requirement specified in the manufacturer’s precautions and instructions.

There are extra requirements to be met where:

- motorised equipment is used to spray agrichemicals
- application is by aircraft
- spraying is on land that adjoins public land/roads
- spraying is on public land.
Regional Water and Land Plan requirements

Note: These requirements are in addition to those in the Air Plan.

Control of aquatic weeds that grow above the water surface

Spraying herbicide over water to control aquatic weeds that can be seen above the water surface is permitted as long as:

- the chemical is approved for use over water by the Environmental Risk Management Authority (ERMA)
- the aquatic herbicide used is for:
  - controlling plant species that are listed in the Plant Pest Management Strategy for the Bay of Plenty Region, or the National Plant Pest Accord in rivers, streams, lakes and wetlands; or
  - maintenance of farm or roadside drains, and land drainage canals.
- it is used as directed by the manufacturer’s instructions
- the spray does not result in any fish kill or the contamination of any water take
- there is no harmful concentration of aquatic herbicide beyond the target area
- there is no spraying of aquatic herbicide in the tidal reach of any surface water body between 1 March and 31 May
- the discharge of aquatic herbicide complies with the requirements of the Air Plan (see the requirements on the previous page).

Check Rule 16 of the Regional Water and Land Plan for more details on controlling aquatic weeds.
Application of agrichemicals to land

Land-based spraying above dry land is permitted as long as:

- there is no spray discharge to streams, rivers, lakes or wetlands
- it is used as directed by the manufacturer’s instructions
- there is no harmful concentration of agrichemicals beyond the target area
- the discharge meets the requirements of the Air Plan
- where the discharge is near a surface waterbody:
  - the chemical is approved for use near water by ERMA
  - the spray does not result in any fish kill or the contamination of any water take
  - there is no spraying in the tidal reach of any surface water body between 1 March and 31 May.

Where the discharge is in the riparian area of a river, stream, lake or wetland, the spray method must accurately apply the chemical to the target species or land area. The riparian area distance depends on slope with a minimum of 5 m from the surface waterbody.

**Check Rule 21 of the Regional Water and Land Plan for more details.**

Hints for good spraying practice:

- do not apply when the wind direction and speed are unfavourable
- dead calm weather conditions are not necessarily the best conditions when spraying. Know the drift direction when spraying and consider the “downstream” environment
- use the right spray for the job
- use a drift control additive
- establish buffer zones and shelterbelts
- check the label for the toxicity of the chemical
- notify neighbours as required under the Air Plan rules
- consider neighbouring houses, crops etc.

A pamphlet with more detail is available free from Environment Bay of Plenty. Ask for ‘Application of Agrichemicals – Responsibilities of Applicators’. 
Fertiliser application

Land based application
The Regional Water and Land Plan addresses land based application methods and generally permits applying fertiliser to land without needing a resource consent.

However, make sure:

- fertiliser is not discharged directly to streams, rivers, lakes or wetlands
- measures are taken to avoid run-off of fertiliser into surface water and leaching of nutrients to groundwater
- fertiliser is accurately applied if within 10 m of a waterbody
- the discharge of fertiliser to farm drains is minimised.

The application of Aa biosolids to land is permitted, if a number of conditions can be met.

Check Rule 20 (Application of fertiliser to land) of the Regional Water and Land Plan for more details on fertilisers, including Grade Aa biosolids.
Aerial application
Fertiliser application by aircraft is addressed by the Air Plan.

You must:

- avoid discharges to the Rotorua lakes
- only apply fertiliser to the site, and avoid discharges beyond the property boundary or to surface waterbodies
- only apply as much as and when the plants need
- follow manufacturer’s instructions
- comply with the Code of Practice for Fertiliser Use, and Spreadmark.

Tips

- Consider the use of slow release fertilisers.
- Only apply as much as and when the plants need.
- Soil tests help target appropriate amounts of fertiliser.
- Do a nutrient budget to manage fertiliser application rates.
- Consider weather conditions when applying fertiliser.

Farm dumps

On-farm rubbish dumps can cause environmental problems through leachate and poor siting. To reduce this risk, farmers should follow Rule 25 in the Regional Water and Land Plan.

Farm dumps are permitted if you can meet the following conditions:

- only material from your farm is allowed in your dump
- no dumping of hazardous substances, oil, fuels, human sewage, stock effluent, offal or dead stock is allowed
- chemical containers must be triple rinsed, bungs or lids removed and holes cut to prevent reuse
- dumps must be at least 50 m from a bore, river, lake or wetland, a geothermal feature or the coastal marine area
- they must not be located in an area that floods, or where groundwater is less than 1 m below the base of the dump
- stormwater must be diverted away from the dump.

At the end of its life, the dump must be covered with at least 300 mm of soil.

**Prohibited** - The dumping of waste into streams, rivers, lakes, wetlands or coastal margins.

Contact your city/district council for information about correct disposal methods regarding burning or disposal of waste materials.
Burning farm waste

Disposing of rubbish is an on-going problem on most farms in the region. Burning rubbish is a common disposal method for both domestic rubbish and farm rubbish. What you burn, how you burn and when you burn are all likely to have effects on the environment. These may include smoke nuisance, odours, and production of airborne chemical pollutants, and also disposal of potentially contaminated ash.

In most cases, you can burn tree trimmings and timber without a resource consent (see page 12 for more details on vegetation clearance). If you are planning larger vegetation burns check Rule 4 of the Regional Water and Land Plan. As well as the requirements under the Air Plan, you may need to get a fire permit from your district or city council during restricted fire seasons or fire bans.

On conservation land, fires are restricted all year round. You must contact your local office of the Department of Conservation to obtain a permit from them.

Prohibited - Burning of tyres, coated wire, treated timber, plastics (i.e. silage plastic covers), waste oil or other waste petroleum products, pesticides and other chemicals.

A free brochure available from Environment Bay of Plenty, Smoke Sense provides a sensible approach to lighting fires in rural areas.

The National Rural Fire Authority website provides information on fire seasons and restrictions for each region in New Zealand: http://nrfa.fire.org.nz
Offal holes

Disposing of dead farm animals and offal on your own property is permitted under the Regional Water and Land Plan. However your disposal method must not contaminate water and prevent offsite odour problems.

Any offal hole constructed and used on a farm must meet the following requirements:

- it must only be used for disposing of animal or vegetable material from normal farm operations and which is sourced from the same farm property
- it must not be used for disposing of hazardous substances or containers, oils or fuels, human sewage or stock effluent
- it must be at least 50 m from a bore, river or lake, any geothermal feature or the coastal marine area
- it must not be located on land that is subject to flooding
- the highest groundwater level must be at least 2 m below the base of the hole
- leachate is not allowed to pond or flow away from the hole
- the hole must be covered to prevent stormwater entering.

At the end of its useful life the hole must be covered with at least 300 mm of soil.

Also, when planning an offal hole, consider:

- how close it is to neighbours
- District Plan compliance – contact your district or city council
- the size of the hole to promote breakdown of materials and minimise scavenging.

Check Rule 26 of the Regional Water and Land Plan for more details.
Silage pits and feedpads

Leachate from silage pits and feedlots contains contaminants that can affect the environment, particularly the quality of streams. If these discharges are controlled so that they do not or are not likely to reach a river or stream, future problems can be avoided. Locate silage stacks away from bores, streams and wetlands to prevent leachate discharge.

Under the Regional Water and Land Plan you do not need a resource consent for a silage pit as long as:

- there is no discharge of leachate to a surface waterway
- there is no ponded leachate at the silage pit site or overland flow of leachate from the silage pit or stack site
- all practical steps are taken to divert stormwater away from the silage pit or stack.

In addition, the silage pit or stack must not be within:

- 50 m of any groundwater bore, stream, river, lake, wetland, land drainage canal, geothermal surface feature, or the coastal marine area
- a gully or depression, or an area that is flooded during storm events
- an area where the highest groundwater level is less than 1 m below the base of the silage pit or stack.

Discharge from feedpads will need resource consent. Run-off from the feedpad may be incorporated in the dairy effluent treatment system or it may require a stand alone system. This option will depend on the volume of effluent to be disposed of and the location of disposal.

When planning a feedpad consider the following:

- how close it is to watercourses
- collection, storage, treatment and disposal systems
- how close it is to neighbours.

Check Rule 27 of the Regional Water and Land Plan for more details on silage pits and stacks and Rule 32 for feedpad discharges.

For further information on requirements contact Environment Bay of Plenty compliance staff. More advice can be found on the Dexcel website: www.dexcel.co.nz
**Farm dairy effluent**

You need a resource consent before you can discharge farm dairy effluent. This applies regardless of whether you have an oxidation pond system or apply the effluent to land.

If you are applying for a consent to discharge effluent to a water course (after the effluent has been treated in some way, such as in an oxidation pond system), then your application will need to include an assessment of environmental effects. Environment Bay of Plenty will assess your application and it is likely that it will be publicly notified.

The regional council will consider the environmental effects before deciding whether or not to grant you a consent.

If you are applying for a consent to discharge farm dairy effluent to land, then your application will be approved as long as it is clear that:

- land soakage is not preferred in the Rotorua lakes
- effluent will not run off to water
- nitrogen application (effluent and fertiliser) rates meet the guideline standard (150–200 kg/ha)
- a contingency plan is available should your pump or system fail
- the proposal is sustainable.

Odour from dairy effluent treatment does not need a resource consent, but you do need to ensure that storage, treatment and disposal systems are managed to avoid odour, as required by the Air Plan.

**Check Rule 32 of the Regional Water and Land Plan for more details.**

✅ **Note:** We encourage irrigating dairy effluent to pasture. Resource consent is required but the cost of monitoring will be lower, once a good compliance record is built up.

**File:** You should refer to the latest *Environment Bay of Plenty Dairy Shed Effluent Treatment and Disposal Guidelines* before making an application.
Stock truck effluent

Moving stock in trucks can produce significant amounts of effluent that require disposal. It is no longer acceptable to the general public, district, city and regional councils, and road controlling authorities for stock effluent to be spilt or dumped on roads by trucks. It is a hazard to motorists, unappealing, and can reach waterways and degrade water quality.

You can play an important part in reducing the amount of stock truck effluent that needs to be disposed of. Standing stock before they are moved helps. Empty stock travel better, which leads to reduced stock stress and therefore improved meat quality.

Standing stock off pasture or crops (but still with access to water) before a move has little effect on the animals’ carcass weight. In some instances, farmers may receive better prices for clean, well presented stock.

Most stock-carrying companies have effluent tanks fitted to their trucks. Occasionally stock trucks may arrive at your farm with full or partially-full effluent tanks.
Farmers can allow the effluent to be disposed of on their properties either by:

- disposal to a farm dairy effluent treatment system
- discharging to land where the discharge does not result, or is not liable to result, in any of the effluent entering water

Check Rule 32 of the Regional Water and Land Plan for more details on dealing with effluent.

It is prohibited to discharge stock truck effluent directly to water or onto land where it will or is likely to reach water.

**Good practice for farmers to reduce stock truck effluent**

- Stand stock off pasture/crop (allow access to water) for a minimum of four hours before transporting.
- Dry feed (e.g. hay, grain, meal) can be used where standing stock is difficult, or stock are being transported long distances.
- Allow the disposal of stock truck effluent to appropriate farm dairy effluent systems or to land (where the discharge will not reach water), where possible.
Taking water from streams and rivers

You may want to use water for:

- domestic water supply
- stock water
- dairy farm wash down
- irrigation (pasture, fodder crop)
- frost protection of crops.

Contact Environment Bay of Plenty to discuss your water needs as many streams are fully utilised and there is no water available. Heavy use from some streams and rivers means there may be limits on the amount you can take.

Taking water for any purpose can be done without resource consent, as long as the volumes taken do not exceed 15 m³/day (15,000L) and at a rate no more than 2.5 litres per second.

Taking larger volumes of water, say for the irrigation of pasture, needs a resource consent. We look at applications on a case-by-case basis. **Check Rule 41 of the Regional Water and Land Plan for more details.**

The placement and use of the intake structure can be done without resource consent, as long as fish can swim past the intake structure easily when it is pumping, scour is prevented, and the structure does not restrict flood flows.

**Check Rule 52 of the Regional Water and Land Plan for detailed requirements on surface water intake structures.**

Contact Environment Bay of Plenty to check and discuss the options. There are areas in the region where no more water is available.
Taking groundwater

You may want to use groundwater for:

- domestic water supply
- stock water
- dairy farm wash down
- irrigation (pasture, fodder crop).

To access groundwater you first need to install a bore. You must obtain a resource consent to install a bore. Check Rules 39 and 40 (Installation of bores) of the Regional Water and Land Plan and contact Environment Bay of Plenty for more information.

Taking groundwater for any purpose can be done without resource consent, as long as the volumes taken do not exceed 35 m$^3$/day (35,000L) and the temperature of the water taken is less than 30° Celsius. Rule 38 (Take and use of groundwater) of the Regional Water and Land Plan provides for this.

You will need resource consent to take larger volumes of water, say for irrigation of pasture. We look at these proposals on a case-by-case basis.

Groundwater information for some areas of the region is available.

Contact Environment Bay of Plenty to check and discuss the options.
**Damming of water**

Damming of water in a farm drain, ephemeral flowpath or surface runoff is permitted under Rule 46 of the Regional Water and Land Plan if the following requirements are met:

- it must not cause flooding on another property
- it must not change, damage or destroy an existing wetland
- maximum dam size is: 5,000 m³ and 2.5 m high, or 10,000 m³ and 1.5 m high
- proper design of the dam
- inclusion of a spillway.

**Check Rule 46 of the Regional Water and Land Plan for more details.**

Damming can result in damage and changes to the natural features of a waterway, as well as destroying aquatic plants and animals. Also, damage to fish passages can occur, affecting fish spawning, breeding and future populations.

Although low dams in some small permanent streams are permitted by **Rule 47 of the Regional Water and Land Plan**, there are a number of requirements, including structural aspects of the dam. Check Rule 47 for more details.

However, most dams in streams and rivers will require a resource consent - ask Environment Bay of Plenty for advice.
Stream crossings

Stream crossings include culverts, bridges and fords. The following points are the **minimum requirements** for permitted activities. You will need a resource consent if you cannot meet them.

Culverts and single span bridges in land drainage canals are permitted if you get the flood design level from the Land Drainage Scheme Administrator at Environment Bay of Plenty. Also, check Section 9.10 of the Regional Water and Land Plan or contact Environment Bay of Plenty for more information.

Stream crossings in artificial watercourses are not restricted by regional plans. Bylaw approval is required where it is within a flood control scheme area.

For all stream crossings:

- stabilise against erosion
- minimise disturbance of the stream
- avoid works during fish spawning and migration times
- provide for fish passage.

Any stream crossing needs a resource consent where it is located:

- where adjacent land slope is more than 35°, and/or
- in an urban area or within 1 km upstream, and/or
- in a wetland.

There are controls on the location, installation and maintenance of stream crossings – check Rule 59 (culverts), Rule 60 (single span bridges) and Rule 62 (fords) of the Regional Water and Land Plan.

**Culverts**

The basic requirements for a permitted culvert are:

- one culvert per crossing
- design to allow 1:20 year flood or 1:100 year flood event (check with Environment Bay of Plenty)
- diameter between 300 mm and 1,200 mm
- fill height over the culvert must not exceed 1.5 m.
Single span bridges

The basic requirements for a permitted single span bridge are:

- design to 1:10 year flood event
- catchment above the bridge must not exceed 100 ha
- where the bridge is more than 4 m long, it must be designed by a certified professional engineer.

Fords

The basic requirements for a permitted ford are:

- poured concrete fords only
- must not be in a watercourse listed in Schedule 1 of the Regional Water and Land Plan
- streambanks at the site must not be more than 1 m high
- stream depth at the site must not be greater than 0.6 m.

Environment Bay of Plenty has prepared fact sheets which set out the requirements for stream crossings.

Ask an Environment Bay of Plenty consents officer for advice.

0800 ENV BOP (0800 368 267)
Wetlands

Wetlands are diverse habitats that are home to a variety of endangered plants and animals, including birds such as the fernbird and bittern, and fish such as the giant and banded kokopu.

Wetlands also regulate water flows into rivers and lakes, reduce erosion, reduce the amount of sediment and nutrients entering watercourses and help in groundwater renewing the volumes. In addition, wetlands can have important cultural, recreational, economic, aesthetic and educational value.

Wetlands can take many forms and there may be areas on your farm which you don’t realise are important wetland areas which need protection and possible enhancement. A wetland is:

- a natural boundary between land and water
- a permanently wet area or an area that is wet some of the time
- often found in the margins of lakes and rivers but can also be found on flat slopes, basins and on the margins of estuaries
- may be known as a bog, marsh, fen or swamp.

Because of the advantages and value of wetlands, we have taken a strong role in encouraging the protection and enhancement of wetlands throughout the region.

Wetlands can be protected and restored by:

- fencing off the area and encouraging others to do the same
- avoiding making drainage ditches near wetlands
- on-going maintenance
- controlling pest plants and animals
- legally protecting your wetland.
Our Land Management Officers work directly with landowners and the community to actively manage wetlands. They can help with:

- identifying, creating, protecting and restoring wetlands
- Environmental Enhancement Fund (EEF) funding
- Environmental Programmes
- resource consent requirements
- wetland management agreements
- wetland legal protection.

The Regional Water and Land Plan deals with the management of wetlands.

Under the Regional Water and Land Plan wetland enhancement works can be permitted depending on the type of works proposed. Some minor works, like planting native species or weed removal are permitted. **Check Rule 83 and Rule 78 of the Regional Water and Land Plan** for more details.

Other works may involve production of a management plan with Environment Bay of Plenty. It is best to seek advice from a consents officer on whether your enhancement works will need a resource consent.

Destruction, draining or infilling of a wetland is a discretionary activity and requires a resource consent.
Taking gravel from a river

You can take less than 100 m³ of gravel per year from the dry part of any aggraded gravel beach in a bed of a river, as long as conditions of Rule 1 of the Regional River Gravel Management Plan are met.

These conditions are:

- A requirement for the extractor to notify Environment Bay of Plenty five days before gravel excavation takes place, and

- For gravel only to be taken from dry parts of the beach that are more than 0.3 m above the level of the adjacent river. You need to check with our works engineers whether the site you choose is suitable.

If gravel excavation is done on behalf of Environment Bay of Plenty it is permitted under certain conditions (Rule 2 of the Gravel Plan). If the natural bed width is less than 25 m then excavation up to 1,000 m³ is permitted, but no more than 3,000 m³ cumulatively over 12 months. If the natural bed width is greater than 25 m then excavation up to 2,500 m³ is permitted, but no more than 7,500 m³ cumulatively over 12 months.

Contact a works engineer at Environment Bay of Plenty for more information on gravel excavation under this rule.
As well as the requirements on the previous page, gravel excavators operating under this rule must also ensure that other affected parties (i.e. Department of Conservation, Fish and Game and the relevant iwi authority) are notified of the gravel excavation.

If gravel extraction is not permitted under Rules 1 or 2, you will need to obtain a resource consent. Operators must be familiar with the consent conditions.

Failure to comply with the conditions of either the permitted activity rules or the resource consent can leave the excavator liable for enforcement action.

You must get the permission of the landowner if you need to cross private property.
Domestic wastewater

On many farms, domestic wastewater is disposed of through conventional septic tanks or more advanced wastewater systems. The daily discharge of up to 2 m³ of treated wastewater onto land can be done without resource consent. However there are specific site criteria that need to be met.

For both conventional and advanced on-site effluent treatment systems, the disposal site must not be subject to slippage, subsidence or inundation. There should be no overland flow or ponded effluent from the system.

Make sure that the discharge area is more than 20 m from any drinking water bore and any surface water.

There are also a number of specific design requirements that wastewater systems must meet (including tank size, slope of section, depth to groundwater and required effluent trench length) in order to avoid resource consent. These are set out in the On-Site Effluent Treatment Plan.

We can help you work out what system is required for your particular site. If it is unlikely that you can meet these requirements, you must apply for a resource consent.

Your on-site effluent treatment system may also need to comply with the building requirements of your district or city council, so you will need to check with them too.

Read our booklet ‘Dealing with your wastewater – a guide to the On-Site Effluent Treatment Plan’.
Waste milk disposal on farms

Disposal of milk can be an environmental issue.

Failure by a milk company to pick up milk from the dairy farm, or milk over and above the farmer’s quota can create a problem for farmers who need to dispose of the excess milk. Discharging or dumping of milk into a waterway is not acceptable. Milk’s effect on watercourses is 1000 times more drastic than the effect of farm dairy shed effluent. Any discharge of milk depletes oxygen and kills all river and stream life – trout, eels, insects, koura and vegetation.

Preferred disposal methods:

- Spray irrigate to land. Dilute to avoid pasture damage (1 litre milk to 10 litres water). Flush the irrigation system with clean water to clean the grass. Keep away from watercourses. Change location daily.
- Pond disposal can be used. (For more information see Environment Bay of Plenty Farm Dairy fact sheet 6 – disposal of waste milk)
- Feed to calves.
Disposal of kiwifruit can be an issue. In the 1990s inappropriate disposal of kiwifruit contaminated several watercourses. Environment Bay of Plenty has now formulated guidelines for disposal of reject kiwifruit.

Dumping and storing kiwifruit can result in leachate that is high in biochemical oxygen demand. This has the potential to deplete oxygen from watercourses, kill fish and promote aquatic growths.

The guidelines promote the following more sustainable options:

- use for stock feed
- land spreading, away from watercourses
- constructed trenches.

Further details are contained in the guidelines which are available from Environment Bay of Plenty. Also, check Rule 28 of the Regional Water and Land Plan for composting of green waste.

The main issues concerning the disposal of kiwifruit are:

- protect watercourses
- keep at least 100 m from watercourses
- consider leachate from storage areas
- avoid deep trenches that intercept groundwater
- avoid porous soils
- divert clean stormwater away from storage or dumps.

Dumping kiwifruit can result in the spread of unwanted kiwifruit growth in native bush areas and reserves. Consider covering the fruit to avoid seed dispersal.
Applying compost or stored animal manure

Applying compost or stored animal manure to land is generally permitted without needing a resource consent.

However, make sure:

- the material is not discharged directly to streams, rivers, lakes or wetlands
- measures are taken to avoid run-off into surface water and leaching of nutrients to groundwater
- the material is applied as much as and when the plants need.

In the Rotorua lakes catchments also check the requirements of the nutrient management rules.

The application of Grade Aa biosolids to land is permitted, if a number of conditions can be met.

**Check Rule 19 of the Regional Water and Land Plan** for more details about the application of biosolids, compost, wood fibre, animal manure and vermiculture to land.

Composting sites

On-farm composting sites are a good way of reducing the dumping of organic waste. But they can cause environmental problems through leachate and poor siting.

Composting sites are permitted if you can meet the following conditions:

- don’t compost offal or animal carcasses (this needs a resource consent)
- leachate must not pond on land or enter surface water
- dumps must be at least 50 m from a bore, river, lake or wetland, a geothermal feature or the coastal marine area
- they must not be located in an area which floods or where groundwater is less than 2 m below the base of the site
- stormwater must be diverted away from the compost pile.

**Check Rule 28 of the Regional Water and Land Plan.**
How to apply for a resource consent

Contact our consent and compliance staff if you are thinking of doing any activity which may affect the environment. They will advise you if a resource consent is needed and discuss your proposal with you.

⚠️ It is essential to provide all the relevant information requirements. If you don’t, your application may take longer for us to process.

We have specific application forms for different types of consent. These show the information we require. The appropriate application form(s) can be posted to you or visit our website: www.envbop.govt.nz

There is an annual charge on each resource consent. The amount you are charged varies depending on the activity you do.

What else should I do?

If you need resource consent it is important that you talk with everybody who is interested, or is likely to be affected by your proposed activity. Your consultation could include such people and groups as the Department of Conservation, local iwi, your neighbours, and Environment Bay of Plenty staff.

If your proposed activity has only a minor effect on the environment and all affected parties have given their written approval, your application may not have to be advertised (notified).

It is important to discuss your proposal with your neighbours and other interested parties as it may save both time and costs.

Environment Bay of Plenty staff can help you to organise talks with people who have an interest in your proposal.
• 5 Quay Street, Whakatane
• 1125 Arawa Street, Rotorua
• 6 Rata Street, Mount Maunganui

Post: P O Box 364, Whakatane

Phone: 0800 ENV BOP (368 267)
Fax: 0800 ENV FAX (368 329)

Pollution Hotline: 0800 73 83 93
Email: info@envbop.govt.nz
Website: www.envbop.govt.nz