

## **DOCUMENT B**

THIS DOCUMENT IS AN ATTACHMENT TO AGENDA ITEM 6 FOR THE COUNCIL MEETING OF THE 21 OCTOBER 2010

# **ANNOTATION of CHAPTER 4: WATER QUALITY (as modified by the Hearing Panel in their report)**

## **PROPOSED**

## **CANTERBURY NATURAL RESOURCES REGIONAL PLAN**

### **Comprises two parts:**

**(1) a copy of the Hearing Panel's recommendations for amendments to Chapters 4, with shading used to show those parts that no longer form part of the Council's decisions as a result of withdrawing parts of variation 6. Note that the Hearing Panel did not show their changes against the notified version of Variation 6 in all cases. For consistency, the Panel's document has been used here with shading added.**

**(2) A Schedule of Changes to Chapter 4 of the NRRP from Decisions on Submissions on Variation 6. This Schedule uses the decisions numbers and shows related amendments. In the event of any inconsistency with (1) above, this Schedule will prevail**

**Release of decisions 23 October 2010**

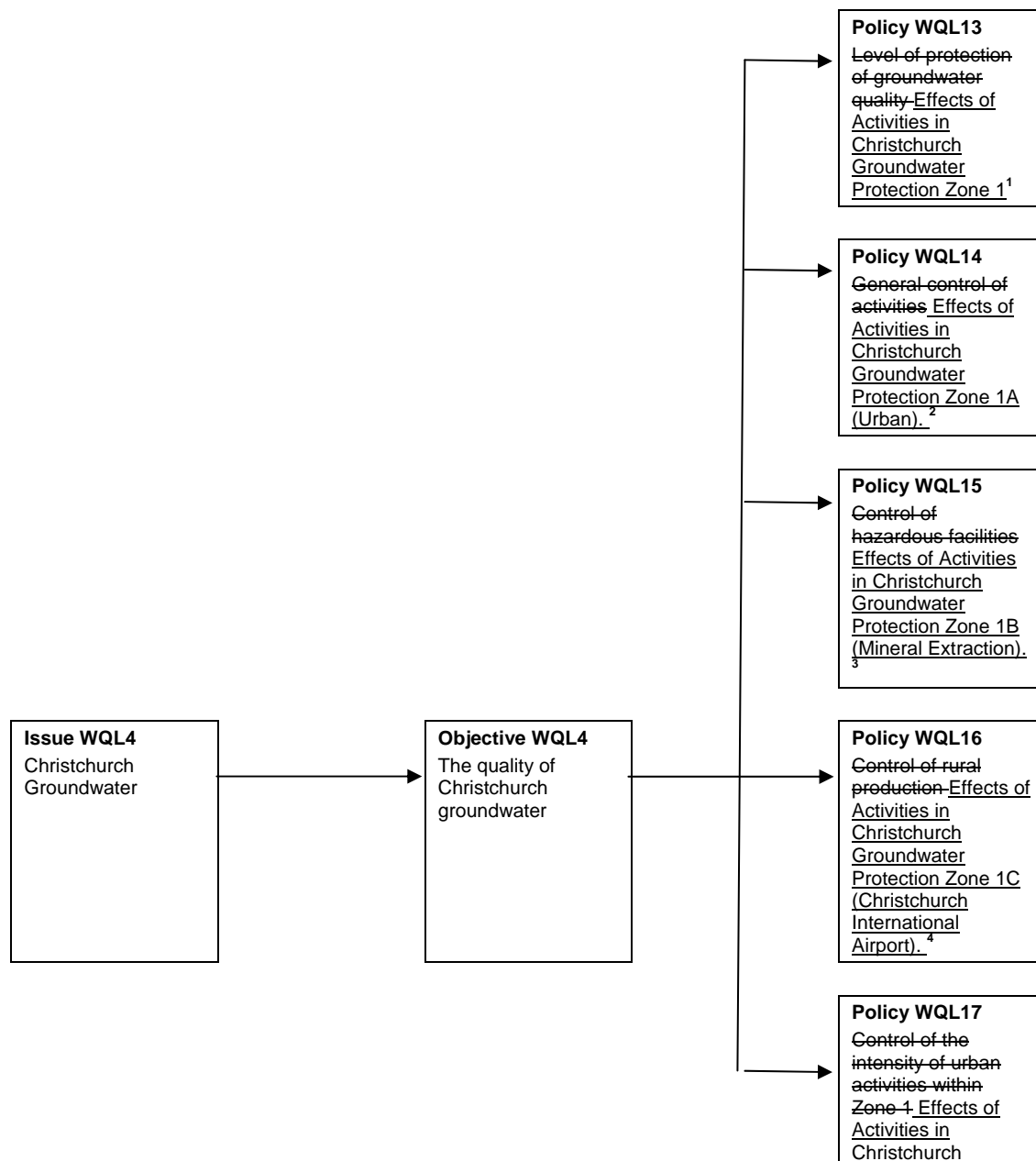


## **Changes to Chapter 4 NRRP as a result of recommendations on Submission on Variation 6**

**This document has been shaded to  
indicate those recommendations  
which no longer apply as a result of  
the partial withdrawal of Variation 6.**

**Changes which are not shaded are considered to be changes from  
decisions. See the Schedule of Changes to Ch4 from Decisions V6  
document for a list of these changes from decisions adopted by  
Council on Variation V6**

# Part 1: Proposed Canterbury Natural Resources Regional Plan Variation 6, Changes to Chapter 4: Water quality



<sup>1</sup> WQLV6.1

<sup>2</sup> WQLV6.1

<sup>3</sup> WQLV6.1

<sup>4</sup> WQLV6.1

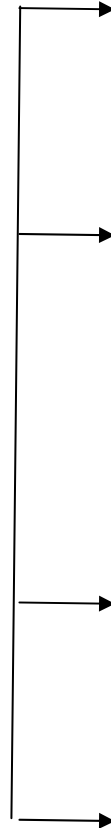
Groundwater  
Protection Zone 1D  
(Designated  
Activities).<sup>5</sup>

**Policy WQL18**  
Control of mineral  
extraction activities  
Effects of Activities  
in Christchurch  
Groundwater  
Protection Zone 2.<sup>6</sup>

**Policy WQL19**  
Control of existing  
and future urban  
development within  
Sub-Zone 1A and  
Zone 2 Effects of  
Activities in  
Christchurch  
Groundwater  
Protection Zone 3  
(Urban).<sup>7</sup>

**Policy WQL20**  
Control of existing  
and future  
development within  
Sub-Zone 1C  
(Christchurch  
International Airport)

**Policy WQL24**  
Control of existing  
and future  
development within  
Sub-Zone 1D  
(Designated  
activities).<sup>8</sup>



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<sup>5</sup> WQLV6.1

<sup>6</sup> WQLV6.1

<sup>7</sup> WQLV6.1

<sup>8</sup> WQLV6.1

**Policy WQL2 Prevent the discharge of certain contaminants to surface water**

**Avoid significant adverse effects on water quality, and associated ecological, amenity and cultural values of surface water, by:**

- (a) prohibiting the point source discharge of:**
  - (i) untreated human sewage, 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**
  - (ii) treated human sewage into a river or lake from a vessel; or**
  - (iii) treated human sewage into a river upstream of a community drinking water supply intake.**
- (b) requiring that a community system used to collect, treat and discharge human sewage effluent:**
  - (i) treats the effluent to a high standard and discharges the effluent onto or into land, but not within a community drinking water supply protection zone; and**
  - (ii) has in place effective measures to prevent effluent discharging to surface water or onto land where it may enter surface water, from a network in the event of a system failure or overloading of the system beyond its design capacity.**
- (c) only allowing a discharge of treated sewage to a river or an artificial watercourse in circumstances where:**
  - (i) it is not practicable to:**
    - (1) discharge the treated sewage effluent onto or into land because of the physical limitations of the land, or the discharge would contravene Policy WQL6; or**
    - (2) use individual onsite sewage effluent treatment and disposal systems because the cumulative effects of the discharges on groundwater quality would contravene Policy WQL6; or**
    - (3) establish sewage effluent collection systems and remove sewage effluent for disposal offsite; and**
  - (ii) the discharge is in accordance with Policy WQL1 and any adverse effects on the receiving water quality, Ngāi Tahu cultural values, and amenity values are no more than minor.**
- (d) 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 a river or lake bed, and provided that the following requirements are met:**
  - (i) the hazardous substance is of low toxicity to aquatic organisms, other than to the target organism, and the substance is not persistent in the aquatic environment; and**
  - (ii) the hazardous substance is used or applied in accordance with:**
    - (1) the manufacturer's instructions, or any relevant code of practice; and**

- (2) any requirements for the use of the substance laid down by the Environmental Risk Management Authority; and
- (3) conditions of a regional rule or a resource consent; and
- (iii) any person applying hazardous substances for a commercial use has appropriate training and qualifications.
- (e) avoiding or mitigating the adverse effects of an accidental discharge of a hazardous substance into surface water. Measures include requirements that:
  - (i) a hazardous facility, waste storage facility, or a pipeline should not be located where there is a significant potential that the facility or pipeline could be:
    - (1) flooded; or
    - (2) affected by subsidence or slippage of land; or
    - (3) disrupted by permanent ground deformation as a result of movement on an active fault line; and
 there is a practical possibility of a discharge entering a river or lake; and
  - (ii) where appropriate best practices are used in the design, construction and use of a hazardous facility, waste storage facility, or a pipeline, to prevent a discharge entering a stormwater system or entering surface water as a result of:
    - (4) routine use of a hazardous substance; or
    - (5) leakage from a facility or pipeline; or
    - (6) seismic activity that is likely to result in structural damage from ground motion or liquefaction.

### Explanation and principal reasons

Canterbury's groundwater resources are a significant natural resource and a strategic economic asset for the region. For Ngāi Tahu, groundwater is regarded as a taonga (treasure) in a way similar to surface water. While the water quality in these aquifers is generally very high, and in many areas it is used as drinking water without treatment, it is vulnerable to contamination from land uses and discharges onto or into land. Land use intensification has occurred over the plains and in the basins of Canterbury. This trend is likely to continue into the foreseeable future. Where intensification of land use occurs over a wide area of the unconfined aquifers there is very high risk that groundwater quality will decline unless management practices are adopted to prevent or minimise the entry of contaminants.

Some contaminants can persist for a long time in aquifers because of their slow rate of breakdown, or because groundwater flow is insufficient to flush out the aquifer. A considerable time lag can occur between the land use and the detection of contaminants in groundwater. Contaminant concentrations currently being measured may be the result of land uses from several decades ago rather than from the effects of current land uses. The impact of current land uses on groundwater may not become apparent for many years. The behaviour of contaminants in groundwater and total contribution of contaminants from a mix of different land uses and land use practices across a catchment is not well understood. For these reasons, any decision to allow a decline in groundwater quality must be approached very cautiously.

Experience has shown that by the time groundwater contamination has been detected it is usually difficult to control, and to prevent further decline in groundwater quality. Remediation of groundwater quality, even if it is technically feasible, is likely to be extremely costly and take a considerable amount of time. Changes to land use would also be very difficult to reverse. If contaminant concentrations of any determinand (a constituent of water measured to assess quality) specified in the Drinking Water

Standards for New Zealand 2000 2005<sup>9</sup> that exceeds the standard, then alternative supplies would need to be found or existing supplies treated to remove the contaminants. Either option is likely to be costly and may not be available locally if contamination is widespread.

The purpose of the Objective is to state the water quality outcomes to be achieved and the limits for acceptable change to groundwater quality in different aquifers and aquifer types. The Objective limits the extent to which water quality of an aquifer, or part of an aquifer already affected by human activities, may change. The minimum area comprising part of an aquifer will generally be an area of groundwater that underlies an individual property, however, in some cases, part of an aquifer may comprise an area smaller than an individual property, for example, where there are likely to be adverse effects in surface water bodies from emerging groundwater within a property.

It is not practicable to define groundwater quality to a high level of precision at every point in an aquifer. Environment Canterbury will monitor changes in groundwater quality by sampling groundwater from a set of wells across the affected part of the region to assess whether the groundwater quality objectives are being met. Where a change in groundwater quality is detected in a monitoring bore, or where there is insufficient information on groundwater quality, more intensive monitoring of groundwater may be undertaken to determine the water quality characteristics for that part of the aquifer.

For areas where there is little or no water quality data, the water quality will be inferred from land use activities, hydrological data, and by comparison with areas with similar land uses where groundwater quality is well understood. For a consent application at a specific location, groundwater quality may be inferred from existing monitoring data, but in some cases, additional site specific data may need to be collected.

The Coastal Confined Gravel Aquifer System is the principal source of water for more than 300,000 people in Christchurch City, Kaiapoi and other settlements. Because of the very high quality, the water in these aquifers can be generally used for potable supplies without treatment, although there are areas where naturally occurring contaminants affect the quality of the water. The availability of very high quality, untreated, potable water is one of the features that distinguishes Christchurch from other New Zealand cities. The aquifers are a significant economic asset and the water quality is of major importance to the community. For these reasons, Objective WQL2(1) seeks to maintain the water quality of coastal confined gravel aquifers in the current high quality state so that it continues to provide potable water supply needs in the future. A comprehensive analysis of the water quality data for these aquifers was published in July 2002<sup>10</sup>. This work is the basis setting a benchmark in the Objective against which changes to water quality can be measured.

The water quality of some parts of the Coastal Confined Gravel Aquifer System has been affected by human activities, particularly in the Woolston-Heathcote area where localised saltwater contamination of the aquifer has occurred. Chapter 5 establishes a groundwater management zone in this area to control the pumping from bores to remediate the groundwater quality.

The unconfined and semi-confined aquifers beneath the Canterbury Plains are composed of many water bearing layers at various depths. Water in these layers moves generally laterally towards the coast. It is understood that contaminants entering the groundwater nearest the land surface generally remain in the upper layers and are transported with relatively little mixing with the water in the deeper layers of the aquifer. The depth to the uppermost water bearing layer may vary from a few metres to over a hundred metres depending on the location. It is generally shallower close to large rivers or nearer the coast.

In the inland parts of Canterbury, the upper river valleys and inland basins are infilled with gravels containing shallow, unconfined water bearing layers, recharged predominantly by the loss of water

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<sup>9</sup> WQLV6.1

<sup>10</sup> Hayward, S. (2002) *Christchurch-West Melton Groundwater Quality: a review of groundwater quality monitoring data from January 1986 to March 2002*. Environment Canterbury unpublished report no. U02/47, Environment Canterbury, July 2002. 141 pp.

from rivers. The groundwater quality is generally high except in areas, where intensive land uses are occurring, such as the Amuri Basin. The unconfined, semi-confined, and other confined aquifers are naturally vulnerable to contamination, depending on the source of recharge, depth to groundwater, and nature of the overlying sediments and soil. In some areas, the water quality of the shallow aquifers remains high even though there may be intensive land uses. This is because the large volume of water entering the aquifer from large braided rivers dilutes contaminants in the groundwater. Where the intensity of land use over the aquifer is low, little contamination is occurring. In other areas, the intensity of land use and the lack of significant river recharge have resulted in elevated concentrations of contaminants in groundwater.

The concentration of nitrate-nitrogen in groundwater will vary seasonally with the highest concentrations occurring after winter, as the result of increased leaching and low rates of plant growth. The maximum concentrations are reasonably easy to monitor, because unlike other statistical measures of trends they do not require a large amount of data to be collected over a long period. A comprehensive analysis of the water quality data for these aquifers was published in 2002<sup>11</sup>.

The principal uses for unconfined, semi-confined, and other confined aquifers are drinking water for humans and stock, irrigation water, and commercial and industrial uses. Most of the groundwater is of higher quality than the Ministry of Health's Drinking Water Standards for New Zealand 2000 2005<sup>12</sup>. By maintaining the quality of the water at or higher than these standards, the water will be able to be used for a wide range of uses without the need for significant treatment. Objective WQL2(2)(b) uses the Drinking Water Standards for New Zealand 2000 2005<sup>13</sup> to establish limits to changes in the water quality of the aquifers relative to the existing groundwater quality. The use of numerical or guideline values provides clear outcomes against which changes to water quality can be measured and assessed.

Elevated concentrations of contaminants in land can reduce the versatility of land for alternative uses, such as residential, agricultural or amenity purposes which create potential adverse effects on surface water or groundwater quality, and result in the contamination of groundwater and connected surface water. The purpose of the Objective WQL2(3) is to ensure that contaminated land is managed or remediated to a point that it does not pose an ongoing risk to people or groundwater quality. Many of the substances that may be found in contaminated land are present naturally in soils at low concentrations. However, when the concentration of a substance exceeds the natural background level in soils or leaches into groundwater it may pose a risk to human or animal health.

To recognise the specific values of the Christchurch Groundwater System, in addition to this objective, and the resulting policies and methods, it is also subject to Objective WQL4, the subsequent policies and methods.

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<sup>11</sup> Hanson, C., (2002) *Nitrate concentrations in groundwater:-a review of existing data*. Environment Canterbury report no. R02/17, Environment Canterbury, August 2002. 83pp.

<sup>12</sup> WQLV6.1

<sup>13</sup> WQLV6.1

**Policy WQL8 ~~Prevent~~ Avoid or mitigate adverse effects from the entry of hazardous contaminants to groundwater**

- (1) Avoid the adverse effects arising from the discharge of contaminants into groundwater from new solid or hazardous waste landfills by:**
  - (a) not locating new landfills, except for landfills that only accept inert waste, over unconfined or semi-confined aquifers; and**
  - (b) prohibiting new landfills in the Coastal Confined Gravel Aquifer System and in Community Drinking Water Supply Protection Zones.**
- (2) Avoid or mitigate, as far as practicable, the adverse effects arising from 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 these facilities or pipelines in areas where the adverse effects of the discharge of contaminants could occur 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 these facilities or pipelines, including appropriate containment and emergency response measures, to minimise the adverse effects 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, or any excavation, or other means that intercepts groundwater:**
  - (a) hazardous substances and hazardous wastes, except where the discharge is associated with 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;**
  - (b) wastes from industrial or trade processes, excluding heated water;**
  - (c) human sewage effluent; or**
  - (d) animal effluent from a collection system.**

## **Policy WQL10 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 avoid or mitigate the adverse effects of 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 avoid or mitigate the adverse effects of the movement of a contaminant into the aquifer.**
- (2) In other areas, where there is an unconfined, semi-confined or confined aquifer:**
  - (a) avoid or mitigate, as far as practicable, the potential adverse effects of 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 avoid or mitigate the adverse effects of 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 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 this provision is operative shall comply with Schedule WQL4 and Policy WQN11(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, including<sup>14 15</sup> Sub-Zones 1A, 1B, 1C and 1D, and Zone 2; 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 two years of the relevant provisions of the plan becoming operative.**
- (4) Abandoned or obsolete bores or galleries are to be identified and decommissioned to prevent:**

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<sup>14</sup> WQLV6.6

<sup>15</sup> WQLV6.1

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- (i) the entry of contaminants from the land surface;
  - (ii) 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, including<sup>16</sup> <sup>17</sup>Sub-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.

### Methods

The methods used or to be used to implement Policy WQL10 are:

#### Method WQL10(a) Information and promotion

- (a) Environment Canterbury, in consultation with other parties as appropriate, will:
  - (i) promote the adoption and use of the “*Environmental Standard for Drilling of Soil and Rock NZS 4411:2001*”, and
  - (ii) provide information on methods for: decommissioning of bores; securing well-heads to prevent entry of contaminants; backflow prevention; and preventing the mixing of water between aquifers.
- (b) encourage to landowners to locate and decommission obsolete or abandoned bores on their properties. The priority areas for locating and decommissioning these bores are: Community Drinking Water Supply Protection Zones for groundwater, the Christchurch Groundwater Protection Zone 1, including<sup>18</sup> <sup>19</sup>Sub-Zones 1A, 1B, 1C and 1D, and Zone 2, and sites where activities involve the use of hazardous substances.

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### Issue WQL3: Community drinking water sources

Sources of high quality groundwater and surface water used for community drinking water supplies are susceptible to contamination from point source discharges or land use activities occurring in the catchment above the intake, in the recharge zone, or the groundwater protection zones for water supply wells. Contaminants in the water can pose a risk to human health, and if the water quality declines, the community may face considerable costs to treat the water to a potable standard, or to find and develop an alternative source of drinking water.

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<sup>16</sup> WQLV6.6

<sup>17</sup> WQLV6.1

<sup>18</sup> WQLV6.6

<sup>19</sup> WQLV6.1

### **Objective WQL3: Water quality of community drinking water sources**

The source water for a community drinking water supply is suitable for use as a water supply, by ensuring that

in a Community Drinking Water Supply Protection Zone, or upstream of a community water supply intake;

- (a) where the surface water or groundwater quality is in a natural state, the water quality is maintained in that state; or
- (b) where the surface water quality is not in a natural state, the water quality at the water supply intake meets both Objective WQL1.1(2) and the following values:
  - (i) the concentration of microbiological contaminants of health significance does not exceed the capacity of a treatment system to remove these contaminants; and
  - (ii) the water is not tainted or contaminated so as to make it unpalatable to humans; and
  - (iii) any other inorganic or organic determinand of health significance or pesticide, excluding microbiological contaminants, listed in the Drinking Water Standards for New Zealand 2000 2005<sup>20</sup> is not present at a concentration greater than one tenth of the Maximum Acceptable Value for that determinand.
- (c) where groundwater quality is not in its natural state, the water quality is maintained or improved so that at the community water supply well:
  - (i) the water quality meets Objective WQL2 (2)(b), except that the maximum concentration of nitrate–nitrogen in the water shall not exceed 5.6 milligrams per litre; and
  - (ii) the water is not tainted or contaminated so as to make it unpalatable to humans.

### **Explanation and principal reasons**

Clean, safe drinking water is an essential requirement for human health into the foreseeable future. Most of Canterbury's population obtain their drinking water from a community supply. Maintaining the quality of community drinking water supplies for present and future generations, especially in areas where the water is potable without treatment is very important for the Canterbury community. Christchurch, which comprises 60% of the region's population, is supplied with high quality untreated groundwater from confined aquifers which are recharged from the west of the City.

The areas where sources of community drinking water need protection from contamination are:

the Community Drinking Water Supply Protection Zone around a well or upstream of a surface water supply intake, where activities could directly affect the quality of the source water, and

It is better to protect the quality of the water in the community drinking water supply protection zones from potential adverse effects rather than trying to redress the impacts of contamination later.

Experience from overseas and within New Zealand has shown that unless community water supplies are protected from the adverse effects of land uses or point source discharges, the quality of these water resources will soon decline. The community will then be faced with increasing costs to treat the water, or having to find alternative high quality sources of water.

While Objectives WQL1 and WQL2 establish water quality outcomes for all surface and groundwater bodies in the region, the purpose of Objective WQL3 is to identify water quality outcomes for sources

<sup>20</sup> WQLV6.1

of community drinking water and to reduce the likelihood of contaminants entering drinking water sources thereby reducing the risk to public health.

Water quality in its natural state is water which is unaffected or largely unaffected by the adverse effects of some human activities. While this water may not be pristine, it is the highest quality water that is available as sources of community drinking water in the region.

For community water supplies where the water is not in its natural state, the Objective sets specific outcomes for water quality so as to maintain the source water at a consistent quality, enabling community water supply operators to plan for and operate efficient and effective water treatment systems. If the source water does not meet the specified quality, an investigation to identify the source of contamination and remedial measures may be required to restore the water quality.

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**Policy WQL12: Avoid the potential for contamination of community drinking water sources within Community Drinking Water Supply Protection Zones<sup>21</sup>**

**within a Community Drinking Water Supply Protection Zone or upstream of a community water supply intake:**

- (a) where a change of land use in these zones, or an activity in the bed of a river or lake upstream or in the vicinity of a community water supply intake, requires authorisation under either a district plan or a regional plan, any decision to authorise the land use or activity shall recognise and provide for the protection of the quality of the source water for the community drinking water supply from potential adverse effects on water quality;**
- (b) require adequate monitoring of existing hazardous facilities to ensure that each facility is operated and maintained to minimise the adverse effects that might occur as a result of leakage or accidental discharge;**
- (c) prohibit the establishment of a new municipal solid or hazardous waste landfill; and**
- (d) if as a result of a discharge or a land use, or the cumulative effects of these activities, the water quality within a Zone or the source water at an intake, does not meet Objective WQL3, implement measures to achieve the water quality outcomes of Objective WQL3. If it is not practicable to achieve the water quality outcomes of the Objective, the measures shall at least avoid or mitigate any adverse effects which might cause any further decline in the water quality.**

**Explanation and principal reasons**

Over 85% of Canterbury's population is supplied with drinking water from a community water supply. A well designed and operated community drinking water supply is an efficient and effective means of providing high quality potable water to large numbers of people, and can substantially reduce the risk to public health.

However, the quality of drinking water in a community supply system should not be solely reliant on treating the water. The modern approach to community water supply management is to apply a series of barriers to prevent or minimise the adverse effects arising from contaminants entering the source water, and to treat the water before distribution through a network. By keeping the source water as clean as possible, the effects of contaminants entering a water supply is lowered, and the cost of treatment is reduced. Policy WQL12 seeks to reduce the adverse effects to public health from the contamination of community drinking water sources. It does not seek to remove the risk altogether, or

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<sup>21</sup> WQLV6.97

the need for a treatment system in some situations. The approximate location of surface water intakes, water infiltration galleries and wells used for community water supplies are shown on the Map Volume – Part 2 Indicative maps.

The plan establishes a protection zone – Community Drinking Water Supply Protection Zone - around a well used for a community water supply. In this zone, activities that pose a risk of adverse effects to the quality of drinking water will be assessed to determine and minimise the risk to public health. Each well will need a specific zone delineated based on a range of factors, including the depth of the well, the type of aquifer, rate of pumping and potential contaminant sources. Until these zones are delineated, the plan establishes methods for determining provisional zones.

Policy WQL12(1) requires that a more stringent approach is used to protect the water quality for drinking water purposes in these areas. Many land use activities have adverse effects which may affect water quality, and therefore when an application for a change in land use is being considered within a Community Drinking Water Supply Protection Zone or approval is sought for an activity in the bed of a river upstream of a community water supply intake, the protection of the quality of the source water for a community drinking water supply must be given considerable weight when considering a proposed change to land use or authorising a land use activity in these areas. Other policies of Chapter 4, particularly Policy WQL2 and Policy WQL8, must also be applied in Community Drinking Water Supply Protection Zones and catchments upstream of community water supply intakes to protect the quality of the source water.

### **Methods**

The methods used or to be used to implement Policy WQL12 are:

#### **Method WQL12(a) Advocacy**

Environment Canterbury will advocate to authorities responsible for community drinking water supplies to implement measures, such as signs or publications, to identify the boundaries of community drinking water supply protection zones and measures to promote greater awareness of these zones and the need to protect water quality.

#### **Method WQL12(d) Land under the management of Environment Canterbury**

Environment Canterbury will prepare a strategy for land it owns or administers that incorporates best management practices to achieve the objectives and implement the policies of this plan. Environment Canterbury will implement these practices to manage this land in a Community Drinking Water Supply Protection Zone.

#### **Method WQL12(k) Territorial Authorities**

Territorial authorities shall, in the preparation, variation, change or review of their district plans, and the exercise of their functions under RMA 1991, make provision for the avoidance or mitigation of adverse effects on the water quality in Community Drinking Water Supply Protection Zones and catchments upstream of a community drinking water supply intake by:

(a) the storage, use, disposal or transport of hazardous substances that:

- (i) are not listed in Policy 1(a)(ii) of Chapter 17 of the Canterbury Regional Policy Statement; and
- (ii) are listed in Policy 1(a)(ii) of Chapter 17 of the Canterbury Regional Policy Statement and are transported by means other than through a pipe.

These provisions shall include the following requirements:

- (i) a hazardous facility including a pipeline, should not be located, as far as practicable, where there is a significant potential that the facility or pipeline could be flooded, affected by subsidence or slippage of land, or disrupted as a result of movement on an active fault line; and as a consequence there is a practical possibility of a hazardous substance entering a river, or lake; and
- (ii) where appropriate best practices are used in the design, construction and use of a hazardous facility, including a pipeline to prevent a discharge entering a stormwater system

or entering surface water as a result of; routine use of a hazardous substance, leakage from a facility or pipeline, or seismic activity that is likely to result in structural damage from ground motion or liquefaction.

- (b) requiring that any decision on an application for land use change under the district plan, within a Community Drinking Water Supply Protection Zone recognise that the primary purpose of these zones is to protect the water quality of the source water for community drinking water supplies and as a consequence that purpose must be given considerable weight in any decision-making as to activities within the Zone;

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## Issue WQL4: Christchurch Groundwater

Reduction and loss of the present and future benefits of the current high quality of Christchurch groundwater, including being an untreated source of major importance of drinking water for Christchurch City, as a result of the adverse effects of existing and<sup>22</sup> potential contamination from a variety of sources, including land uses, water use and discharges (both deliberate and accidental).

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## Objective WQL4: The quality of Christchurch groundwater

- (1) The quality of Christchurch groundwater is maintained or enhanced as far as practicable in its overall high quality state in the long term
- (2) Christchurch groundwater subject to existing localised contamination will be remediated as far as practicable to endeavour to re-establish its overall high quality state.

### Explanation and principal reasons

Objectives WQL1 and WQL2 establish water quality outcomes for all surface and groundwater bodies in the region, including the Coastal Confined Gravel Aquifer System. The Christchurch Groundwater System forms part of the Coastal Confined Gravel Aquifer System. Objective WQL4 identifies specific water quality outcomes for Christchurch groundwater recognising its particular resource management issues and values.

Objective WQL4 is to avoid or mitigate any further overall long-term decline in water quality from occurring. 'Overall' refers to the background or ambient groundwater water quality. It is recognised that this varies in space and time, reflecting the hydrogeological characteristics of the groundwater system and the seasonal influences of activities. When applying Objective WQL4, it is important to take this into account. Environment Canterbury undertook a comprehensive analysis of existing water quality within the Christchurch Groundwater System in July 2002<sup>23</sup>. This provides an understanding of existing groundwater water quality. This understanding will be of assistance when considering how well the policies and methods within, and activities considered in terms of, this Plan achieve Objective WQL4.

Where there is already evidence of localised contamination of Christchurch groundwater, Objective WQL4 is that groundwater quality is remediated as far as practicable. The necessary level of remediation is the removal of the localised contamination, resulting in the groundwater quality

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<sup>22</sup> WQLV6.11

<sup>23</sup> Haywood, S. (2002) *Christchurch-West Melton Groundwater Quality: a review of groundwater quality monitoring data from January 1986 to March 2002*. Environment Canterbury unpublished report no. U02/47, Environment Canterbury, July 2002. 141 pp.

reflecting the overall ambient quality of the groundwater within the Christchurch system. In practical terms, this will be achieved by addressing the source of the contamination and where it is beneficial to do so, enabling activities that contribute to that remediation process.<sup>24</sup>

Maintaining the high quality of Christchurch's groundwater enables present and future generations to gain social, economic and other benefits, contributing to the health of the community and its overall wellbeing. It is a major economic and social asset to Christchurch and the Region. If, over the long term, Christchurch's groundwater quality further declines, there are potentially serious and costly consequences to the community, including the water supply to Christchurch City. It provides a low cost and highly important untreated drinking water supply for the community, serving over 60% of the Region's population. Recognising these values, the Christchurch Groundwater system is an outstanding natural feature.

The area of land to the west of Christchurch bounded by the Waimakariri River to the north and a line approximately between Halkett and Prebbleton to the south, is the principal recharge area for the Christchurch Groundwater System that is the source of Christchurch City's water. Increases in groundwater levels and the intensification of some land uses over this recharge area could give rise to potential adverse effects to water quality within the Christchurch Groundwater System. These land uses include; the intensification of those rural productive activities which could cause such adverse effects, the intensification of the use and storage of hazardous substances in an uncontrolled manner that might give rise to such adverse effects, and the uncontrolled spread and intensification<sup>25</sup> of urban development in any respect that gives rise to such adverse effects.

The quality of water in Aquifer 1 of the Christchurch Groundwater System is more likely to be affected by any adverse effects that might arise from such intensive activities if they occur over the recharge area. If contaminated water enters the confined aquifers it may take many decades for the contaminated water to be flushed from the aquifer. In addition, it may take a considerable amount of time and resources to determine the extent of contamination, and to apply remediation measures, if remediation is possible. Therefore, over the long term the water quality in the unconfined part of the recharge area must be maintained in a high quality state in order to prevent a decline in the quality of the Christchurch Groundwater System.

~~Objective WQL4 is to prevent any further overall long-term decline in water quality from occurring. 'Overall' refers to the background or ambient groundwater water quality. It is recognised that this varies in space and time, reflecting the hydrogeological characteristics of the groundwater system and the seasonal influences of activities. When applying Objective WQL4, it is important to take this into account. Environment Canterbury undertook a comprehensive analysis of existing water quality within the Christchurch Groundwater System in July 2002<sup>26</sup>. This provides an understanding of existing groundwater water quality. This understanding will be of assistance when considering how well the policies and methods within, and activities considered in terms of, this Plan achieve Objective WQL4.~~

~~Where there is already evidence of localised contamination of Christchurch groundwater, Objective WQL4 is that groundwater quality is improved. The necessary level of improvement is the removal of the localised contamination, resulting in the groundwater quality reflecting the overall ambient quality of the groundwater within the Christchurch system. In practical terms, this will be achieved by addressing the source of the contamination.~~<sup>27</sup>

The existing overall water quality within the Christchurch Groundwater System is high, but not pristine. This reflects the long history of human activities in this location. Objective WQL4 anticipates that, with

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<sup>24</sup> WQLV6.12

<sup>25</sup> WQLV6.12

<sup>26</sup> Haywood, S. (2002) *Christchurch-West Melton Groundwater Quality: a review of groundwater quality monitoring data from January 1986 to March 2002*. Environment Canterbury unpublished report no. U02/47, Environment Canterbury, July 2002. 141 pp.

<sup>27</sup> WQLV6.12

appropriate mitigation, activities will be able to continue and develop as provided for in the Canterbury Regional Policy Statement, City of Christchurch District Plan and Proposed Selwyn District Plan. Central to this is ensuring that any adverse effects of activities that increase further decline in groundwater quality are managed. The policies that follow set out the most appropriate way to achieve this. The result of these policies is that some contaminants will enter groundwater, but the concentrations of these contaminants will be such that existing overall ambient water quality is at least maintained, and where appropriate is remediated where its quality has already declined. These policies reflect judgments made in relation to the efficient, effective and most appropriate way to achieve the objective.

The vulnerability of the Christchurch groundwater system to contamination depends on its intrinsic susceptibility (the aquifer system hydrogeological properties), and the location and types of sources of naturally occurring and anthropogenic contamination, relative locations of wells, and the fate and transport of the contaminant(s). For management purposes, the Christchurch Groundwater System is divided into three main zones reflecting its intrinsic hydrogeological properties. This zone system is:

Zone 1 (High intrinsic hydrogeological vulnerability): this zone generally covers the area of the Christchurch Groundwater System of high hydrogeological vulnerability and is as shown on Map Volume Part 1 – Planning Maps. It comprises a significant portion of the land surface recharge area for the Christchurch Groundwater System. Substantial areas of this land have very thin soils over generally highly permeable gravel. Groundwater varies in depth from less than 1 metre below ground level near the Waimakariri River to greater than 10 metres below ground level near West Melton. It is characterised by the absence of an adequate surface confining layer and the absence of upwards groundwater pressure. As such, contaminants can move downwards into the groundwater system with minimal natural treatment.

Zone 2 (Transition in intrinsic hydrogeological vulnerability): this zone covers the area of the Christchurch Groundwater System where the hydrogeological vulnerability transitions from high to low and is as shown on Map Volume Part 1 – Planning Maps. It is that area where there is uncertainty in the existence/extent of a surface confining layer and/or the direction of the groundwater pressure. Areas where the surface confining layer is greater than 3m thick and where the Aquifer 1/Aquifer 0 pressure gradient is uncertain, are included in this zone. As such, the hydrogeological vulnerability of this area may vary in location and over time due to changes in water pressure.

Zone 3 (Low intrinsic hydrogeological vulnerability): this zone covers the area of the Christchurch Groundwater System of low hydrogeological vulnerability and is as shown on Map Volume Part 1 – Planning Maps. This low vulnerability is due to the presence of both an effective surface confining layer of between 3 metres to 45 metres thick and a constant natural upwards groundwater pressure.

In order to facilitate the establishment, and continuation, of appropriate activities within the area of high intrinsic hydrogeological vulnerability, a number of <sup>28</sup>sub-zones are established. For the purposes of this Plan, the sub-zones are discrete from Zone 1. These sub-zones are:

- |                                      |   |
|--------------------------------------|---|
| Sub-Zone 1A:<br>(Urban)              | this sub-zone recognises that part of Zone 1 that is currently, or is planned to be, used for urban purposes. It is as shown on Map Volume Part 1 – Planning Maps.  |
| Sub-Zone 1B:<br>(Mineral extraction) | this sub-zone recognises areas identified for mineral extraction, being those areas zoned Rural Quarry within the City of Christchurch District Plan and designated for this purpose in the Proposed Selwyn District Plan. It is as shown on Map Volume |

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<sup>28</sup> WQLV6.1

## Part 1 – Planning Maps.

- Sub-Zone 1C: (Christchurch International Airport) this sub-zone recognises areas associated with the operational and functional needs of the Christchurch International Airport. It is as shown on Map Volume Part 1 – Planning Maps.
- <sup>29</sup>Sub-Zone 1D: (Designations) this sub-zone recognises areas associated with regionally significant activities such as the state highway network, ~~Paparu Prison~~ Christchurch Prison<sup>30</sup> and land associated with Ministry of Defence activities. These areas are designated within the respective City of Christchurch District Plan and Proposed Selwyn District Plan.

Within Zone 2, the management approach is different. If adequate protection is provided as a result of the existence of permanent upwards hydraulic water pressure gradient and a confining layer of at least three metres, then provided this protection is not compromised by the proposal reduced control is necessary appropriate<sup>31</sup>. However, in the event these hydrogeological features do not exist at the site, or will be compromised by the proposal, then in recognition of the largely established urban land use patterns, the management approach is the same for existing legally established activities in Zone 1.

~~The w~~Water quality in the<sup>32</sup> Christchurch Groundwater System will continue to be characterised using an array of monitoring bores. These will be selected so that there is a sufficient density of bores in any given part of the System to ensure that the monitoring results can be used collectively to characterise the water quality for that part of the Groundwater System. Each bore will be located to avoid the effects of land use activities or discharges in the vicinity of the bore.

### **Policy WQL13: Level of protection of groundwater water quality**

~~Manage activities so that there is no significant increase in the risk of contamination of Christchurch groundwater by:~~

- ~~(i) avoiding activities that may result in contaminants entering and persisting in groundwater which have an adverse effect on groundwater quality~~
- ~~(ii) minimising the water quality effects of activities where contaminants will only exist in groundwater for a short period of time.~~

### **Explanation and principal reasons**

~~Many activities occurring over the Christchurch groundwater system have the potential to result in adverse effects on groundwater quality. This potential can be described in terms of risk – that is, the probability of contamination occurring together with the consequence of that contamination. As such, different activities are associated with different levels of risk, ranging from no risk to high risk. This~~

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<sup>29</sup> WQLV6.1

<sup>30</sup> WQLV6.1, WQLV6.26

<sup>31</sup> WQLV6.12

<sup>32</sup> WQLV6.12

assessment of risk informs the level of intervention required in order to achieve Objective WQL4. However, the classical risk approach undervalues potential consequences of significance that have a low probability of occurring.

The quality of Christchurch's groundwater can be adversely affected by an individual activity, or as a consequence of a number of activities. Both the individual and cumulative adverse effects of activities must be avoided.

The Christchurch groundwater system is highly valued and finite in character. The reversal of adverse groundwater quality effects is likely not possible, or if that is possible financially prohibitive. Accordingly, the purpose of this policy is to establish that the appropriate approach to managing groundwater quality is to avoid potential consequence, even if the probability of those consequences occurring is low. That is, the emphasis of management is to be on the consequences of an activity rather than the probability of those consequences occurring.

The purpose of Policy WQL13 is to avoid further overall contamination of Christchurch groundwater. In particular, Zone 1 is the principal recharge zone for the confined aquifer system beneath Christchurch. By maintaining the high quality of the groundwater in Zone 1, this will assure a continual supply of high quality water to the confined aquifer systems so that it remains suitable for a range of uses, including as a source of untreated drinking water. The groundwater in Zone 2 is also vulnerable to contamination. If the groundwater in Zone 2 became contaminated, the recharge from Zone 1 will provide a source of clean water to dilute the contamination and to replace the contaminated water in the aquifer.

The groundwater quality consequences are dependant on the properties of the contaminant. Many contaminants remain in the groundwater for long periods of time. The adverse effect on groundwater quality of this group of contaminants is long term, and is to be avoided. Other contaminants decay at a reasonably rapid rate. As a result, there can be greater tolerance of minor adverse effects of these contaminants on groundwater quality.

## **Policy WQL14: General control of activities**

- 1. Control activities within Christchurch Groundwater Protection Zone 1, or Sub-Zones 1A, 1B, 1C or 1D to avoid or mitigate adverse effects on groundwater quality at the boundary of the property within which the activity is occurring as follows:**
  - (a) minimise the adverse effects on groundwater of legally established existing activities by requiring all practicable management measures are implemented.**
  - (b) enable the establishment of activities provided for in the City of Christchurch District Plan and Selwyn District Plan on 1 August 2007 to the extent that:**
    - (i) the activity is consistent with the protection of groundwater quality, and**
    - (ii) best management practice measures are implemented.**
  - (c) avoiding all other activities which may result in contaminants entering and persisting in groundwater which have an adverse effect on groundwater quality, including by prohibiting the establishment of a new municipal solid or hazardous waste landfill.**
- 2. Control activities within Christchurch Groundwater Protection Zone 2 to avoid or mitigate adverse effects on groundwater quality at the boundary of the property**

~~within which the activity is occurring as follows:~~

- ~~(a) where the groundwater system is not protected by permanent upwards hydraulic water pressure gradient and a confining layer of at least three metres, minimising adverse effects on groundwater quality by requiring all practicable management measures are implemented; and~~
- ~~(b) where the groundwater system is protected by permanent upwards hydraulic water pressure gradient and a confining layer of at least three metres, by ensuring protection afforded to groundwater quality by these hydrogeological features is not compromised.~~
- ~~(d) prohibiting the establishment of a new municipal solid or hazardous waste landfill.~~

~~3. Ensure that activities within Christchurch Groundwater Protection Zone 3 do not:~~

- ~~(a) directly or indirectly compromise the natural hydrogeological protection of groundwater quality; and~~
- ~~(b) discharge directly to groundwater.~~

### **Explanation and principal reasons**

~~The Christchurch Groundwater System underlies an area of long established, and in places intensive, human activity. This policy recognises the existence of these activities and establishes the appropriate management approaches to be applied.~~

~~Contaminants can reach groundwater by a number of pathways. Each pathway has different characteristics. These characteristics influence:~~

- ~~1. the nature of the contaminants entering groundwater (including any natural attenuation)~~
- ~~2. the circumstances under which contaminants may enter groundwater~~
- ~~3. when, and how long from the time of release, contaminants will reach groundwater.~~

~~These pathways are:~~

- ~~1. the deliberate or accidental release of contaminants onto land that may result in that contaminant entering groundwater~~
- ~~2. the deliberate or accidental release of contaminants into land that may result in that contaminant entering groundwater~~
- ~~3. the deliberate or accidental release of contaminants into groundwater.~~

~~Irrespective of the 'intent' of the release, the consequences for the quality of Christchurch groundwater remain. In order to achieve Objective WQL4, it is important that all the contaminant pathways are managed in a comprehensive way. This requires the control of land uses, discharges and water takes and use.~~

~~The vulnerability of the Christchurch groundwater system to contamination depends on its intrinsic susceptibility (the aquifer system hydrogeological properties), and the location and types of sources of naturally occurring and anthropogenic contamination, relative locations of wells, and the fate and transport of the contaminant(s). Within respect to anthropogenic sources of contamination:~~

1. The intensity of activities affect the exposure of groundwater to the risk of contamination. The more intense activities, the greater the number of potential contaminants and contaminant pathways.
2. The transport, storage and use of hazardous substances is an important contamination 'risk' factor. As the quantity or amount of contaminant being stored and used on-site increases, so to does the level of consequence to groundwater in the event of a system failure. However, it is only in the event of failure, or accident, that contamination occurs. There is a clear need for a strong level of management of this risk.
3. The application of pesticides and fertilisers in both the urban and rural environments associated with intensive land use activities (eg horticulture) has significant consequences for groundwater contamination. Over application and improper application, in conjunction with irrigation and/or significant rainfall events, will result in contaminants being readily flushed into the groundwater system.
4. Land uses may require different levels of management dependent upon the time of their establishment. Existing activities may have legitimately established under lesser conditions or lower standards than currently exists today. For example, old petroleum storage tanks and on-site effluent disposal systems were designed and constructed to significantly lesser standards than those designed and built today.
5. In a catastrophic event such as earthquake, the failure of sewer and stormwater reticulation systems, and hazardous substance transportation and storage systems, will have significant consequences for groundwater quality.

The groundwater in Zone 1 and Sub-Zones 1A, 1B, 1C and 1D is particularly vulnerable to contamination from land use activities, because the groundwater is near the land surface and the overlying soil and gravel is very permeable. Zone 1 comprises a significant proportion of the recharge area for the Christchurch Groundwater System, and therefore land use activities that pose a significant risk to the water quality are not to be established in this area. Contaminants can enter groundwater as a result of chronic leakage, accidental spills during normal operations or as a result of system failure or an earthquake. Once groundwater becomes contaminated with a hazardous substance, remediation efforts are unlikely to restore the water quality to its former state. Experience elsewhere in the world shows that where land use has intensified over a recharge zone the groundwater invariably becomes contaminated.

The likelihood of contaminants entering groundwater will also increase if land use intensification proceeds in this area. Despite all precautions, including the application of high design standards, it is inevitable some discharges may occur. For these reasons, certain activities are not to occur within the Recharge Zone. Other land use activities across the Recharge Zone need to be managed with the primary aim of maintaining the quality of the groundwater in this area.

Once intensive land uses become established in Zone 1 and Sub-Zones 1A, 1B, 1C and 1D, it will be very difficult to apply measures retrospectively to protect or remediate groundwater quality. If this pattern of land use change begins, people will have an expectation that further intensification can proceed and it will be very difficult to control this change in land use. Therefore, the purpose of Policy WQL14(1) is to not allow any increase in extent or intensity of activities that will adversely affect groundwater quality, either directly or indirectly, beyond that currently anticipated.

Some areas identified for land uses that may pose a risk to groundwater quality, such as; parts of the urban area of Christchurch, Christchurch International Airport, mineral extraction or excavation, and other regionally significant activities, are already well established in Zone 1 and Sub-Zones 1A, 1B, 1C and 1D. While these land uses may continue in these areas, Policy WQL14(1) states they must be, to the extent practicable, undertaken in a way that ensures that they do not compromise the groundwater quality in Zone 1.

In recognition of the wider purpose of the Resource Management Act, including the social, economic and cultural aspirations of the Christchurch and Canterbury communities, the level of control appropriate to achieve Objective WQL4 must be determined by forming an overall judgement in relation to these competing values. The judgement made for Zone 1 and Sub-Zones 1A, 1B, 1C and 1D is:

1. Activities that currently exist, and can reasonably expect to continue, are able to continue provided the potential for contamination of groundwater is mitigated by the implementation of all practicable management measures. In this context 'all practicable management measures' means mitigation measures or practices that can be established while retaining the overall viability of the activity.
2. Activities that are provided for in the City of Christchurch District Plan and Proposed Selwyn District Plan, but yet to establish, are able to be established only if the activity is consistent with the protection of groundwater quality and all best management practice measures to protect groundwater quality are put in place. In this context, 'best management practice measures' means those mitigation measures or practices that would be expected to be implemented as part of an environmentally responsible activity in order to avoid the potential for groundwater contamination, irrespective of the implications for the financial viability of the proposed activity.
3. Other activities can only establish if the potential for groundwater contamination is avoided. Policy WQL13 establishes the necessary level of 'avoidance'.

The four sub-zones within the area of high intrinsic hydrogeological vulnerability reflect this judgement.

Within Zone 2, the approach to the control of activities is different. Policy WQL14(2) contains two different management regimes depending on hydrogeological characteristics at the site of the proposal. If adequate protection is provided as a result of the existence of permanent upwards hydraulic water pressure gradient and a confining layer of at least three metres, then provided this protection is not compromised by the proposal, reduced control is necessary. However, in the event these hydrogeological features do not exist at the site, or will be compromised by the proposal, then in recognition of the largely established urban land use patterns, the management approach is the same for existing legally established activities in Zone 1.

Within both Zone 1, Sub-Zones 1A, 1B, 1C and 1D and Zone 2, adverse effects are to be determined at the boundary of the property within which the activity is occurring. This is consistent with Policy WQL13, providing scope for activities to have short term adverse effects on groundwater within a property, provided that at the property boundary these effects are no longer present. It is anticipated that this will enable the discharge of contaminants onto land that then enter groundwater, or into groundwater, which decay at a rapid rate, such as some microbiological contaminants.

Within Zone 3 the hydrogeological characteristics of a significant confining layer over groundwater and the upwards hydraulic pressure of groundwater affords a high degree of natural protection of groundwater quality. Provided this protection is not compromised, activities do not pose a risk to groundwater quality.

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## **Policy WQL15: Control of hazardous facilities**

### **Within Christchurch Groundwater Protection Zone 1 or Sub-Zone 1B:**

- (1) Ensure existing authorised hazardous facilities implement the design and management standards required under the Hazardous Substances and New Organisms legislation and regulations.**
- (2) New hazardous facilities, and additions or extensions to existing hazardous facilities,**

**must:**

- ~~(i) not aggregate quantities of hazardous substances on a site where any substance is classified under the Hazardous Substances and New Organisms Act 1993 as ecotoxic (hazardous classification 9), and the aggregate quantity would exceed the minimum ecotoxicity quantity specified in Schedule 4 of the Hazardous Substance (Emergency Management) Regulations 2001, and~~
  - ~~(ii) be designed, constructed and maintained in accordance with best management practice so as to stop hazardous substances entering groundwater as a result of day-to-day use, leakage, accident or a natural hazard event.~~
- ~~(3) Mobile hazardous substance facilities must be managed so as to avoid hazardous substances entering land or groundwater, including during machinery refuelling and in the event of accidental spillage.~~

### **Explanation and principal reasons**

~~Hazardous substances entering groundwater is a significant threat to groundwater quality. Policy WQL15 addresses this issue with respect to Christchurch Groundwater Protection Zone 1 and Sub-Zone 1B. Policies WQL19, WQL20 and WQL21 address this issue with respect to the remaining Sub-Zones 1A, 1C and 1D.~~

~~Hazardous substances may enter groundwater in a number of ways, including via land. This may be a result of:~~

- ~~1. deliberate release of the hazardous substance, such as by inappropriate disposal~~
- ~~2. an unintended consequence of the transport, use or storage of hazardous substances, including by chronic leakages or accidental spillage~~
- ~~3. through stormwater or effluent disposal systems~~
- ~~4. a natural hazard event such as earthquake or fire.~~

~~To avoid adverse effects from the transport, use, storage and disposal of hazardous substances, careful management is required. This policy recognises that some transport, use and storage of hazardous substances is necessary to enable existing activities to occur within the Christchurch Groundwater Protection Zone 1 or Sub-Zone 1B. However, the amount of hazardous substances should be limited.~~

~~Policy WQL15(3) specifically recognises the risk posed by the use of mobile hazardous substance facilities, particularly when they are used to refuel machinery. Such facilities are mobile, moving from site to site on an 'as needed' basis. These mobile facilities need to be managed by the operator to avoid the risk to groundwater quality they pose.~~

### **Policy WQL16: Control of rural production**

**Within Christchurch Groundwater Protection Zone 1 or Sub-Zones 1A, 1B, 1C or 1D:**

- ~~(1) Existing authorised rural productive land uses must minimise the potential for contaminants to reach groundwater by instituting all practicable management~~

~~measures relating to:~~

- ~~(a) the application of water; and~~
  - ~~(b) the use and storage of fertilizer; and~~
  - ~~(c) agrichemical storage and application; and~~
  - ~~(d) incidental farm management activities such as farm landfills and offal pits.~~
- ~~(2) Rural productive land uses must not be intensified, or new rural productive uses established, that increase the potential for nutrient, chemical and microbiological contaminants adversely affecting groundwater quality, including by the take and use of water not authorised as of 3 July 2004.~~

### **Explanation and principal reasons**

~~Rural productive activities represent the dominant land use within the highly vulnerable Christchurch Groundwater Protection Zone 1. In addition, rural productive activities also exist within parts of Sub-Zones 1A, 1B, 1C and 1D. This reflects a long established land use pattern. Over the life of this Plan, it is expected that rural productive activities will continue to be the dominant form of land use in Zone 1 and may possibly continue in Sub-Zones 1A, 1B, 1C and 1D. From a groundwater quality protection viewpoint, this is appropriate if the risk these activities pose to groundwater quality is carefully controlled.~~

~~The risk that productive rural activities pose to groundwater quality is a result of land management practices. The more intense these land management practices the higher the risk that groundwater contamination will occur. This reflects the larger quantities of farm inputs which increase the potential of contaminants entering groundwater.~~

~~The land management practices with the potential to adversely affect groundwater quality include:~~

- ~~1. the use of fertiliser and agrichemicals in a manner that result in chemicals being transported past the root zone into the sub-soil, and eventually into groundwater~~
- ~~2. the application of water, and in particular in a manner that flushes contaminants through into groundwater~~
- ~~3. waste management practices, including the use of on-site landfills and offal pits for the storage and disposal, including decomposition of unwanted vegetation, of containers, and other materials.~~

~~In addition, the transport, storage and use of hazardous substances as part of the rural productive activities require careful control. Policy WQL15 addresses this issue.~~

~~The approach taken is to manage individual components of rural activities. Reflecting Policy WQL14, provision is made for the continuation of the existing legally established rural activities, subject to appropriate mitigation being implemented. However, intensification of rural productive activities is not to occur, or new rural production activities established, that have the potential to contaminate groundwater. In particular, the use of water (example, irrigation) is used as a key indicator of this undesirable intensification.~~

## **Policy WQL17: Control of the intensity of activities within Christchurch Groundwater Protection Zones 1 and 2**

- ~~(1) Within Christchurch Groundwater Protection Zone 1:~~
- ~~(a) development must only occur at intensities provided for as a permitted or controlled activity in the City of Christchurch District Plan or Selwyn District Plan on 1 August 2007, and only if:~~
- ~~(i) any onsite sewage collection, treatment and disposal system is designed, constructed and maintained in accordance with best management practices; and~~
- ~~(ii) stormwater collection, treatment and disposal systems are designed, constructed and maintained in accordance with best management practices;~~
- ~~(b) In addition to Policy WQL17(1)(a), avoid the:~~
- ~~(i) development of land for urban purposes that increases the risk of the contamination of groundwater; including~~
- ~~(ii) the development of land for commercial or industrial purposes listed in Schedule WQL3 that aggregates quantities of hazardous substances in excess of those set out in Policy WQL15(2)(i).~~
- ~~(2) Within the rural proportion of Christchurch Groundwater Protection Zone 2, minimise the adverse effects on groundwater to the extent that all practicable management measures are implemented.~~

### **Explanation and principal reasons**

Currently there are limited urban activities occurring within the highly vulnerable Christchurch Groundwater Protection Zone 1. In order to protect groundwater quality, this situation is to be maintained.

Intensification of urban activities poses increased risks to groundwater quality. These risks are in the form of increased use of inputs such as fertilisers and chemicals, increased potential for inappropriate waste disposal practices, increased potential for accidental spillage, and increased amounts of wastes such as sewage and stormwater to be managed. Many of these risks are cumulative, arising from dispersed or uncontrollable discharges. Accordingly, the most effective approach to managing these risks is to avoid them.

It is recognised that some intensification of, in particular, residential and some industrial activities are provided for within the City of Christchurch District Plan and Selwyn District Plan. Generally, these plans only enable a level of intensification that is appropriate within the rural environment. This expectation is recognised in Policy WQL17(1), which in turn is consistent with Policy WQL14(1)(b). Policy 17(1)(b) makes it clear what types of development are not anticipated due to the potential to contaminate groundwater quality.

Policy WQL17(1) recognises that the City of Christchurch District Plan and Selwyn District Plan control site size for land uses. Depending on the specific district plan zone, the typical requirement is that land uses establish on sites of 4ha or greater. This is an effective means of ensuring an overall low intensity of activities across Zone 1. Accordingly, Policy WQL17(1) does not provide for greater intensities of development than the district plans.

Within the rural portion of Zone 2 (the area of transitional vulnerability), in recognition that this area is largely already developed for urban purposes, adverse effects on groundwater quality are to be

minimised to the extent that all practicable management measures are implemented (Policy 17(2)) reflecting Policy WQL14(1)(a).

### **Policy WQL18: Control of mineral extraction activities**

- ~~(1) Within Christchurch Groundwater Protection Zone 1, or Sub-Zones 1A, 1B, 1C or 1D or Christchurch Groundwater Protection Zone 2 control the location of mineral extraction activities to reduce the potential of contaminants entering groundwater by:
  - ~~(a) recognising and providing for mineral extraction activities that on 1 August 2007 are authorised, or provided for in the City of Christchurch District Plan or Proposed Selwyn District Plan; and~~
  - ~~(b) avoiding mineral extraction activities in other locations.~~~~
- ~~(2) Within Christchurch Groundwater Protection Zone 1, Sub-Zones 1A, 1B, 1C or 1D, or Christchurch Groundwater Protection Zones 2, or Christchurch Groundwater Protection 3 where mineral extraction activities occur reduce the potential for contaminants entering groundwater by ensuring:
  - ~~(a) an effective buffer is maintained between the bottom of the excavation and the top of the highest level of groundwater to avoid any increased risk of contaminants directly or indirectly entering groundwater; and~~
  - ~~(b) the extraction site is developed and worked so as to avoid any increased risk of hydrocarbons entering land, and in the event they do enter land, any contaminated land is removed and reinstated with uncontaminated material; and~~
  - ~~(c) any re-instatement occurs with inert and uncontaminated material and contoured so that surface ponding does not occur; and~~
  - ~~(d) land uses occurring on the site following completion of the extraction avoid any increased risk of contaminants entering groundwater.~~~~

## Explanation and principal reasons

Mineral extraction activities pose three primary risks to groundwater quality, being:

1. the reduction in the protective layer of land above groundwater providing a pathway for contaminants entering groundwater – both during the time of extraction and after the extraction activities have occurred
2. the deposit of contaminants onto or into land as part of the mineral extraction activities, for example through the handling of fuel and from machinery – this risk is, in part, also addressed through Policy WQL15(3)
3. the deposit of contaminants into land as part of any re-instatement activity.

Currently there are a number of extraction activities occurring within the area of high intrinsic hydrogeological vulnerability. The City of Christchurch District Plan provides for quarry activities predominantly through zoning areas Rural Quarry. The Selwyn District Plan contains two designations providing for mineral extraction.

The purpose of this policy is to recognise and provide for:

1. existing authorised quarrying activities; and
2. future quarrying activities already provided for in the City of Christchurch District Plan and Proposed Selwyn District Plan.

Sub-Zone 1B is the method used to implement this policy.

It is anticipated that as sources of material reduce within the existing areas, there will be, over time, pressure for new areas of mineral extraction to be established outside of Sub-Zone 1B. While mineral extraction activities outside of Sub-Zone 1B are to be generally avoided, Policy 18(2) provides guidance on the situations where this may be appropriate – proposals in locations where it can be clearly demonstrated through location, topography, soil structure, hydrology and the adoption of mitigation measures that there will not increase the risk of adverse effects on groundwater quality.

It is recognised that mineral extraction activities provide the opportunity to establish long-term land uses following re-establishment that pose very low risk to groundwater quality. If this occurs, it is a long-term benefit that may result from mineral extraction activities.

### **Policy WQL19: Control of existing and future urban development within Christchurch Groundwater Protection Sub-Zone 1A or Zone 2.**

- (1) For existing activities occurring in existing urban areas within Christchurch Groundwater Protection Sub-Zone 1A, or Christchurch Groundwater Protection Zone 2, encourage all practicable management measures to protect groundwater quality be implemented, including:
  - (a) current industry design standards, and
  - (b) where appropriate, any relevant codes of practice.
- (2) Enable the City of Christchurch to develop for urban purposes within Christchurch Groundwater Protection Sub-Zone 1A on:

- ~~(a) land yet to be developed for urban purposes but which is zoned for such purposes in the City of Christchurch District Plan on 1 August 2007; or~~
- ~~(b) land yet to be zoned for urban purposes within City of Christchurch District Plan but which is within the Urban Limits identified in the Canterbury Regional Policy Statement.~~
- ~~(3) Ensure that for all new activities in the areas identified in Policy WQL19(2):~~
  - ~~(a) sewage collection, treatment and disposal systems are designed, constructed and maintained in accordance with best management practices; and~~
  - ~~(b) stormwater collection, treatment and disposal systems are designed, constructed and maintained in accordance with best management practices.~~
- ~~(4) Any extension to existing hazardous facilities, or any new hazardous facility, within Christchurch Groundwater Protection Sub-Zone 1A must provide adequate measures to prevent toxic, mobile or persistent contaminants entering groundwater as a result of:~~
  - ~~(a) the routine use of a hazardous substance;~~
  - ~~(b) leakage or spill from a hazardous facility or pipeline;~~
  - ~~(c) seismic activity that is likely to result in structural damage from ground motion; or~~
  - ~~(d) emergency situations.~~
- ~~(5) All hard surfaces and vehicle standing areas associated with urban activities within Christchurch Groundwater Protection Sub-Zone 1A must be designed, constructed and maintained so as to avoid hazardous substances and contaminants entering groundwater.~~
- ~~(6) Mobile hazardous facilities associated with urban activities within Christchurch Groundwater Protection Sub-Zone 1A must be managed so as to avoid hazardous substances entering land or groundwater, including during machinery refuelling, hazardous substance transportation, hazardous substance use and handling, and in the event of accidental spillage.~~

### Explanation and principal reasons

Within the area of high intrinsic hydrogeological vulnerability, recognition of the current urban area of the City of Christchurch must be provided, and provision made to enable a limited amount of further expansion of this area onto greenfield sites. This reflects the multiple considerations in the purpose of the Resource Management Act 1991, including enabling the social, economic and cultural aspirations of the Christchurch and Canterbury communities.

In order to implement this policy, Sub-Zone 1A includes land:

- ~~(i) with an existing urban zoning within the City of Christchurch District Plan~~
- ~~(ii) identified for urban development in the strategic assessment jointly undertaken by Environment Canterbury, Christchurch City Council, Waimakariri District Council and Selwyn District Council (as part of the Greater Christchurch Urban Development Strategy) and included within the Canterbury Regional Policy Statement.~~

In the context of this policy, development for urban purposes includes all the activities associated with a change in land use from rural to urban, or the intensification of current urban activities. These activities will include; residential, recreational, commercial, industrial, and community activities, together with the associated infrastructure.

The presence of existing urban activities within the Christchurch Groundwater Protection Sub-Zone 1A means that there is already potential for groundwater contamination. Intensification of these urban activities, and introduction of new urban activities, poses increased risk to groundwater quality, particularly through use, accidental spills and chronic leakage of hazardous substances.

To avoid adverse effects on groundwater quality, careful management is needed. Policy WQL19 identifies the management required, recognising the difference between existing and future urban land use, as set out in Policy WQL14.

Policy WQL19(1) recognises the existing urban activities occurring within the Christchurch Groundwater Protection Sub-Zone 1A, enabling their continuation provided practicable management measures are implemented.

New urban activities, or extensions to existing urban activities, need to be carefully managed and, where appropriate, avoided, reflecting the increased risks to groundwater quality. These risks arise from a range of activities associated with urban activities, including: increased use, accidental spills or leakage of hazardous substances; inappropriate waste disposal; and increased amounts of waste and contaminants within sewage and stormwater systems.

Policy WQL19(5) specifically recognises the risk posed to groundwater quality from run-off from hard surface areas. There are significant areas of hard surface within Sub-Zone 1A.

## **~~Policy WQL20: Control of existing and future activities in Christchurch Groundwater Protection Sub-Zone 1C (Christchurch International Airport)~~**

**~~Within the within Christchurch Groundwater Protection Sub-Zone 1C:~~**

- ~~(1) For all existing activities, encourage all practicable management measures to protect groundwater quality be implemented, including:~~**
  - ~~(a) current industry design standards, and~~**
  - ~~(b) where appropriate, any relevant codes of practice, including those prepared in accordance with the Hazardous Substances and New Organism management system.~~**
- ~~(2) Enable the Christchurch International Airport to continue to operate and function within Christchurch Groundwater Protection Sub-Zone 1C on:~~**
  - ~~(a) land which is zoned for such purposes (Special Purpose Airport) in the City of Christchurch District Plan on 1 August 2007; or~~**
  - ~~(b) land designated for Airport Purposes in the City of Christchurch District Plan on 1 August 2007~~**

**~~by~~**

  - ~~(c) recognising and providing for those activities provided for in Volume 3, Part 8, Rule 3.3.3 within the City of Christchurch District Plan in the Special Purpose~~**

~~(Airport) Zone on 1 August 2007, or undertaken by the requiring authority in accordance with Airport Purposes designation within the City of Christchurch District Plan;~~

~~but~~

- ~~(d) avoiding other activities in these locations that increase the risk of the contamination of Christchurch groundwater.~~
- ~~(3) Ensure that for all new development within Christchurch Groundwater Protection Sub-Zone 1C:~~
  - ~~(a) sewage collection, treatment and disposal systems are designed, constructed and maintained in accordance with best management practices; and~~
  - ~~(b) stormwater collection, treatment and disposal systems are designed, constructed and maintained in accordance with best management practices.~~
- ~~(4) Any extension to existing hazardous facilities, or any new hazardous facility, within Christchurch Groundwater Protection Sub-Zone 1C must provide adequate measures to prevent toxic, mobile or persistent contaminants entering groundwater as a result of:~~
  - ~~(a) the routine use of a hazardous substance;~~
  - ~~(b) leakage or spill from a hazardous facility or pipeline;~~
  - ~~(c) seismic activity that is likely to result in structural damage from ground motion; or~~
  - ~~(d) emergency situations.~~
- ~~(5) All hard surfaces and vehicle standing areas associated with commercial, industrial or institutional activities within Christchurch Groundwater Protection Sub-Zone 1C must be designed, constructed and maintained so as to avoid hazardous substances and contaminants entering groundwater.~~
- ~~(6) Mobile hazardous facilities associated with commercial and industrial activities within Christchurch Groundwater Protection Sub-Zone 1C must be managed so as to avoid hazardous substances entering land or groundwater, including during machinery refuelling, hazardous substance transportation, hazardous substance use and handling, and in the event of accidental spillage.~~

### **Explanation and principal reasons**

~~Within the area of high intrinsic hydrogeological vulnerability there are a number of activities that are of regional significance. One such activity includes the Christchurch International Airport.~~

~~The presence of the Christchurch International Airport within the Christchurch Groundwater Protection Zone 1 means that there is already a potential risk of groundwater contamination. Day to day operations associated with activities associated with the Airport involve hazardous substances and potential contaminants being transported, stored and used. This Policy sets out how the competing tensions are to be weighed between the continued operation and development of the regionally significant Airport, and the protection of Christchurch groundwater. The overall judgement formed is that:~~

- ~~1. those airport related activities identified in the City of Christchurch District Plan (Volume 3, Part 8, Special Purposes (Airport) Zone, Rule 3.3.3 Activities within Airport Zone), or~~

~~undertaken by the requiring authority in accordance with the Airport Purposes designation, are to be provided for in recognition of the regional significance of the Airport; but~~

- ~~2. other activities that pose a risk to groundwater quality, are to be discouraged, reflecting the approach in Christchurch Groundwater Zone 1.~~

~~Any expansion to existing aviation related activities or new such activities establishing within Sub-Zone 1C may result in an increased risk to groundwater quality, including from inappropriate waste disposal, increased potential for accidental spills or leakage, and increased amounts of waste and contaminants via sewage and stormwater systems. For sewerage and stormwater systems servicing development, it is appropriate to ensure that such treatment systems are designed, constructed and maintained in accordance with best management practices. For stormwater systems, where the greatest risk of contaminants entering groundwater is likely to occur, treatment to the standard corresponding to the existing ambient groundwater quality will best achieve the water quality outcome for Christchurch groundwater.~~

~~To avoid adverse effects on groundwater quality from any new Airport related activities establishing within Sub-Zone 1C, including activities permitted by the City of Christchurch District Plan, careful management involving, among other things, the adoption of best management practice measures, is required. While this policy recognises existing Airport related activities occurring within Sub-Zone 1C and enables their continued operation, it is important that any new aviation related or associated activity is carefully managed.~~

~~Policy WQL20(5) specifically recognises the risk posed to groundwater quality from run-off from hard surface areas. There are significant areas of hard surface within Sub-Zone 1C associated with the functioning of the Christchurch International Airport, including aircraft runways, associated large building, goods storage and apron areas and vehicle parking areas.~~

## ~~Policy WQL21: Control of existing and future activities in Christchurch Groundwater Protection Sub-Zone 1D (Designated Activities)~~

- ~~(1) Existing activities on designated land occurring within Christchurch Groundwater Protection Sub-Zone 1D, are encouraged to implement all practicable management measures to protect groundwater quality, including:~~

- ~~(a) current industry design standards, and~~
- ~~(b) where appropriate, any relevant codes of practice.~~

- ~~(2) Within Christchurch Groundwater Protection Sub-Zone 1D, enable the relevant requiring authority to undertake new activities, and undertake additions or extensions to existing activities, on:~~

- ~~(a) land which is subject to a designation for such purposes in the City of Christchurch District Plan or the Proposed Selwyn District Plan on 1 August 2007;~~

~~provided that~~

- ~~(b) those activities are designed, constructed and maintained in accordance with best management practice to protect groundwater quality;~~

~~but while~~

- ~~(c) avoiding other activities in these locations that increase the risk of the contamination of Christchurch groundwater.~~

- ~~(3) Ensure that for all activities on designated land within Christchurch Groundwater Protection Sub-Zone 1D:~~
- ~~(a) sewage collection, treatment and disposal systems are designed, constructed and maintained in accordance with best management practices; and~~
  - ~~(b) stormwater collection, treatment and disposal systems are designed, constructed and maintained in accordance with best management practices.~~
- ~~(4) Any extension to existing hazardous facilities, or any new hazardous facility, within Christchurch Groundwater Protection Sub-Zone 1D must provide adequate measures to prevent toxic, mobile or persistent contaminants entering groundwater as a result of:~~
- ~~(a) the routine use of a hazardous substance;~~
  - ~~(b) leakage or spill from a hazardous facility or pipeline;~~
  - ~~(c) seismic activity that is likely to result in structural damage from ground motion; or~~
  - ~~(d) emergency situations.~~
- ~~(5) All hard surfaces and vehicle standing areas associated with activities on designated land within Christchurch Groundwater Protection Sub-Zone 1D must be designed, constructed and maintained so as to avoid hazardous substances and contaminants entering groundwater.~~
- ~~(6) Mobile hazardous facilities associated with activities on designated land within Christchurch Groundwater Protection Sub-Zone 1D must be managed so as to avoid hazardous substances entering land or groundwater, including during machinery refuelling, hazardous substance transportation, hazardous substance use and handling, and in the event of accidental spillage.~~

### **Explanation and principal reasons**

Within the highly vulnerable part of the Christchurch Groundwater System there are areas of land which are subject to a designation in the City of Christchurch District Plan or Proposed Selwyn District Plan. Requiring authorities have established activities that are recognised as being of regional significance. These consist of; Paparua Prison, the Ministry of Defence Rifle range, and that part of the state highway network not located within Christchurch Groundwater Protection Sub-Zone 1A. These activities are located in rural areas and have existed for a significant period of time and are likely to continue for the foreseeable future. However, the range of activities associated with the functioning and operation designations are inconsistent with the underlying rural zoning in district plans. While exempt from district plan rules, designated land is not exempt from regional rules.

This Policy sets out how the competing tensions between the continued of the operation and functioning of the regionally significant activities, and the protection of Christchurch groundwater, are to be weighed. The overall judgement formed is that:

1. ~~those activities provided for by the way of designation in the City of Christchurch District Plan or Proposed Selwyn District Plan are to be provided for in recognition of their regional significance; but~~
2. ~~other activities that pose a risk to groundwater quality, are not to be encouraged, reflecting the approach in Christchurch Groundwater Zone 1.~~

~~Intensification of existing activities, and introduction of new activities, poses increased risk to groundwater quality, including from the use, accidental spills and chronic leakage of hazardous substances, and through the management of sewage and stormwater. This increase in risk requires management. For stormwater and sewerage systems, it is appropriate to ensure that such treatment systems are designed, constructed and maintained in accordance with best management practices. For on-site sewage and stormwater, where the greatest risk of contaminants entering groundwater is likely to occur, treatment to the standard corresponding to the existing ambient groundwater quality will best achieve the water quality outcome for Christchurch groundwater.~~

~~Policy WQL21(5) specifically recognises the risk posed to groundwater quality from run-off from hard surface areas. There are significant areas of hard surface within Sub Zone 1D.~~

## **Policy WQL13: Effects of Activities in Christchurch Groundwater Protection Zone 1**

**Manage the adverse effects of activities in the Christchurch Groundwater Protection Zone 1 so that there is no significant increase in the effects of contamination of groundwater by avoiding or mitigating the adverse effects of activities that may result in contaminants entering and persisting in groundwater, and minimising effects of activities where contaminants will exist in groundwater for only a short period. In particular:**

- (1) Enable the establishment of activities provided for in the City of Christchurch District Plan or Selwyn District Plan, or the Canterbury Regional Policy Statement, to the extent that:**
  - (a) the effects of the activity are consistent with the protection of groundwater quality; and**
  - (b) where appropriate best management practice measures are implemented to avoid or mitigate adverse effects on groundwater quality.**
- (2) Minimise the adverse effects on groundwater of lawfully established existing activities by requiring that all practicable management measures are implemented.**
- (3) Ensure that for all new activities enabled in (1) above:**
  - (a) any onsite sewage collection, treatment and disposal system is designed, constructed and maintained in accordance with best management practices; and**
  - (b) any stormwater collection, treatment and disposal system is designed, constructed and maintained in accordance with best management practices.**

- (4) Avoid or mitigate the adverse effects of the development of land for urban purposes in circumstances where that the adverse effects of the contamination of groundwater may be increased, including the development of land for commercial or industrial purposes listed in Schedule WQL3 that aggregates large quantities of hazardous substances in a manner where adverse effects to groundwater might potentially arise.**
- (5) Ensure existing lawfully established hazardous facilities implement the design and management standards required under the Hazardous Substances and New Organisms legislation and regulations.**
- (6) New hazardous facilities, and additions or extensions to existing lawfully established hazardous facilities, must:**
- (a) not aggregate large quantities of hazardous substances on a site in a manner which might potentially give rise to adverse effects on groundwater; and**
  - (b) be designed, constructed and maintained in accordance with best management practice so as to avoid or mitigate the effects of hazardous substances entering groundwater and causing significant adverse effects to groundwater quality as a result of day-to-day use, leakage, accident or a natural hazard event.**
- (7) Mobile hazardous substance facilities must be managed so as to avoid hazardous substances entering land or groundwater, including during machinery refuelling and in the event of accidental spillage so as to avoid causing significant adverse effects to groundwater quality.**
- (8) Existing lawfully established rural production land uses must reduce potential adverse effects from contaminants entering groundwater by instituting all practicable management measures relating to such effects arising from:**
- (a) the application of water; and**
  - (b) the use and storage of fertilizer; and**
  - (c) agrichemical storage and application; and**
  - (d) incidental farm management activities such as farm landfills and offal pits.**
- (9) Adverse effects on groundwater quality arising from rural production land uses existing at the date this policy becomes operative must be avoided or mitigated, and adverse effects from new rural production uses, that increase the potential for nutrient, chemical and microbiological contaminants to adversely affect groundwater quality, must also be avoided or mitigated.**
- (10) Avoid or mitigate the adverse effects of all other activities that may result in contaminants entering and persisting in groundwater and which have an adverse effect on groundwater quality, including prohibiting the establishment of a new municipal solid or hazardous waste landfill.**
- (11) Where mineral extraction activities occur, reduce the potential for adverse effects from contaminants entering groundwater by requiring:**
- (a) an effective buffer including an appropriate thickness of soils, an impermeable liner, a containment bund, and a depth to groundwater, to be maintained between the bottom of the excavation and the top of the highest level of groundwater to avoid or mitigate any adverse effect from contaminants directly**

or indirectly entering groundwater; and

- (b) the extraction site to be developed and worked so as to avoid or mitigate any adverse effect from hydrocarbons entering land, and in the event they do enter land, ensure any contaminated land is removed and reinstated with uncontaminated material; and
- (c) a rehabilitation or re-instatement plan to be adopted prior to excavation ceasing; and
- (d) a groundwater quality and/or soil quality monitoring programme to be adopted prior to excavation commencing; and
- (e) any rehabilitation or re-instatement that utilises fill material to be undertaken in accordance with the Ministry for the Environment “A Guide to the Management of Cleanfills” (2002); and
- (f) any rehabilitation or re-instatement that utilises inert uncontaminated cleanfill material must not adversely impact on groundwater quality and is contoured so that surface ponding of water does not occur; and
- (g) land uses occurring on the site following completion of the extraction avoid or mitigate any adverse effects from contaminants potentially entering groundwater.<sup>33</sup>

### **Policy WQL14: Effects of Activities in Christchurch Groundwater Protection Zone 1A (Urban)**

**Manage activities in the Christchurch Groundwater Protection Zone 1A so that there is no significant increase of the adverse effects affecting groundwater quality arising from contamination of groundwater by avoiding or mitigating the adverse effects of activities that may result in contaminants entering and persisting in groundwater, and minimising effects of activities where contaminants will exist in groundwater for only a short period. In particular:**

- (1) Enable the establishment of activities provided for in the City of Christchurch District Plan or Selwyn District Plan, or the Canterbury Regional Policy Statement, to the extent that:
  - (a) the effects of the activity are consistent with the protection of groundwater quality; and
  - (b) where appropriate best management practice measures are implemented to avoid or mitigate adverse effects on groundwater quality.
- (2) Manage the effects of existing lawfully established activities occurring in existing urban areas, by requiring where appropriate implementation of all practicable management measures to protect groundwater quality, including:
  - (a) current industry design standards; and

<sup>33</sup> WQLV6.1

(b) any relevant codes of practice.

(3) Ensure that for all new activities enabled in (1) abovein :

(a) any sewage collection, treatment and disposal system is designed, constructed and maintained in accordance with best management practices; and

(b) any stormwater collection, treatment and disposal system is designed, constructed and maintained in accordance with best management practices.

(4) Any extension to existing lawfully established hazardous facilities, or any new hazardous facility, must provide adequate measures to avoid or mitigate the adverse effects of toxic, mobile or persistent contaminants entering groundwater as a result of:

(a) the routine use of a hazardous substance; or

(b) leakage or spill from a hazardous facility or pipeline; or

(c) seismic activity that is likely to result in structural damage from ground motion; or

(d) emergency situations.

(5) All hard surfaces and vehicle standing areas associated with urban activities must be designed, constructed and maintained so as to avoid or mitigate the effects of hazardous substances and contaminants entering groundwater.

(6) Mobile hazardous facilities associated with urban activities must be managed so as to avoid or mitigate the adverse effects of hazardous substances entering land or groundwater, including during machinery refuelling, hazardous substance transportation, hazardous substance use and handling, and in the event of accidental spillage.

(7) Existing lawfully established rural production land uses must minimise the adverse effects of contaminants potentially entering groundwater by instituting all practicable management measures relating to such effects arising from :

(a) the application of water; and

(b) the use and storage of fertilizer; and

(c) agrichemical storage and application; and

(d) incidental farm management activities such as farm landfills and offal pits.

(8) Adverse effects on groundwater quality arising from rural production land uses must be avoided or mitigated, and adverse effects from new rural production uses that increase the potential for nutrient, chemical and microbiological contaminants to adversely affect groundwater quality, must also be avoided or mitigated.(10 9)  
Avoid or mitigate the adverse effects of all other activities that may result in

contaminants entering and persisting in groundwater and which have an adverse effect on groundwater quality, including by avoiding if possible mineral extraction activities, including prohibiting the establishment of a new municipal solid or hazardous waste landfill.

- (9) Where mineral extraction activities occur, reduce the potential for adverse effects from contaminants entering groundwater by requiring:
- (a) an effective buffer including an appropriate thickness of soils, an impermeable liner, a containment bund, and a depth to groundwater, to be maintained between the bottom of the excavation and the top of the highest level of groundwater to avoid or mitigate any adverse effects from contaminants directly or indirectly entering groundwater; and
  - (b) the extraction site to be developed and worked so as to avoid or mitigate any adverse effect from hydrocarbons entering land, and in the event they do enter land, ensure any contaminated land is removed and reinstated with uncontaminated material; and
  - (c) a rehabilitation or re-instatement plan to be adopted prior to excavation ceasing; and
  - (d) a groundwater quality and/or soil quality monitoring programme to be adopted prior to excavation commencing; and
  - (e) any rehabilitation or re-instatement that utilises fill material to be undertaken in accordance with the Ministry for the Environment “A Guide to the Management of Cleanfills” (2002); and
  - (f) any rehabilitation or re-instatement that utilises inert uncontaminated cleanfill material must not adversely impact on groundwater quality and is contoured so that surface ponding of water does not occur; and
  - (g) land uses occurring on the site following completion of the extraction avoid or mitigate any adverse effects from contaminants potentially entering groundwater.<sup>34</sup>

### Policy WQL15: Effects of Activities in Christchurch Groundwater Protection Zone 1B (Mineral Extraction)

Manage the adverse effects of activities in the Christchurch Groundwater Protection Zone 1B so that there is no significant increase in the effects of contamination of groundwater by avoiding or mitigating the adverse effects of activities that may result in contaminants entering and persisting in groundwater, and minimising effects of activities where contaminants will exist in groundwater for only a short period. In particular:

- (1) Enable the establishment of activities provided for in the City of Christchurch District Plan or Selwyn District Plan, or the Canterbury Regional Policy Statement, to the extent that:
- (a) the activity is consistent with the protection of groundwater quality; and
  - (b) where appropriate best management practice measures are implemented to

avoid or mitigate adverse effects on groundwater quality.

- (2) Minimise the adverse effects on groundwater of lawfully established existing activities by requiring that all practicable management measures are implemented.
- (3) Minimise the adverse effects on groundwater quality of mineral extraction activities and reduce the potential for contaminants to enter groundwater by:
- (a) recognising and providing for mineral extraction activities that are lawfully established, or provided for in the City of Christchurch District Plan or Proposed Selwyn District Plan on the date this policy becomes operative, or provided for in the Canterbury Regional Policy Statement; and
  - (b) requiring where appropriate all practicable management measures to be implemented to avoid or mitigate adverse effects on groundwater quality; and
  - (c) requiring where appropriate best management practice measures to be implemented to avoid or mitigate adverse effects on groundwater quality; and
  - (d) requiring an effective buffer including an appropriate thickness of soils, an impermeable liner, a containment bund, and a depth to groundwater, to be maintained between the bottom of the excavation and the top of the highest level of groundwater to avoid or mitigate any adverse effects from contaminants directly or indirectly entering groundwater; and
  - (e) requiring the extraction site to be developed and worked so as to avoid or mitigate any adverse effects from hydrocarbons entering land, and in the event they do enter land, ensure any contaminated land is removed and reinstated with uncontaminated material; and
  - (f) requiring a rehabilitation or re-instatement plan to be adopted prior to excavation ceasing; and
  - (g) requiring a groundwater quality and/or soil quality monitoring programme to be adopted prior to excavation commencing; and
  - (h) requiring any rehabilitation or re-instatement that utilises fill material to be undertaken in accordance with the Ministry for the Environment “A Guide to the Management of Cleanfills” (2002); and
  - (i) requiring any rehabilitation or re-instatement that utilises inert uncontaminated cleanfill material must not adversely impact on groundwater quality and is contoured so that surface ponding of water does not occur; and
  - (j) requiring land uses occurring on the site following completion of the extraction avoid or mitigate any adverse effects from contaminants potentially entering groundwater.
- (4) Ensure existing lawfully established hazardous facilities implement the design and management standards required under the Hazardous Substances and New Organisms legislation and regulations.
- (5) New hazardous facilities, and additions or extensions to existing lawfully established hazardous facilities, must:
- (a) not aggregate large quantities of hazardous substances on a site in a manner

which might potentially give rise to adverse effects to groundwater; and

- (b) be designed, constructed and maintained in accordance with best management practice so as to avoid or mitigate hazardous substances entering groundwater and causing significant adverse effects to groundwater quality as a result of day-to-day use, leakage, accident or a natural hazard event.
- (6) Mobile hazardous substance facilities must be managed so as to avoid hazardous substances entering land or groundwater, including during machinery refuelling and in the event of accidental spillage so as to avoid causing significant adverse effects to groundwater quality.
- (7) Existing lawfully established rural production land uses must reduce the potential adverse effects from contaminants entering groundwater by instituting all practicable management measures relating to such effects arising from:

  - (a) the application of water; and
  - (b) the use and storage of fertilizer; and
  - (c) agricultural storage and application; and
  - (d) incidental farm management activities such as farm landfills and offal pits.
- (8) Adverse effects on groundwater quality arising from rural productive land uses existing at the date this policy becomes operative must be avoided or mitigated, and adverse effects from new rural productive uses, that increase the potential for nutrient, chemical and microbiological contaminants adversely affecting groundwater quality, must also be avoided or mitigated..
- (9) Avoid or mitigate the adverse effects of all other activities that may result in contaminants entering and persisting in groundwater which have an adverse effect on groundwater quality, including by prohibiting the establishment of a new municipal solid or hazardous waste landfill.<sup>35</sup>

## Policy WQL16: Effect of Activities in Christchurch Groundwater Protection Zone 1C (Christchurch International Airport)

Manage the adverse effects of activities in the Christchurch Groundwater Protection Zone 1C so that there is no significant increase in the effects of contamination of groundwater by avoiding or mitigating the adverse effects of activities that may result in contaminants entering and persisting in groundwater, and minimising effects of activities where contaminants will exist in groundwater for only a short period. In particular:

- (1) Enable the establishment of activities provided for in the City of Christchurch District Plan or Selwyn District Plan, or the Canterbury Regional Policy Statement, to the extent that:

  - (a) the effects of the activity are consistent with the protection of groundwater quality; and

<sup>35</sup> WQLV6.1

(b) where appropriate best management practice measures are implemented to avoid or mitigate adverse effects on groundwater quality.

(2) Manage the effects of existing lawfully established activities, by requiring where appropriate implementation of all practicable management measures to protect groundwater quality, including:

(a) current industry design standards; and

(b) any relevant codes of practice, including those prepared in accordance with the Hazardous Substances and New Organism management system.

(3) Enable the Christchurch International Airport to continue to operate, function and expand to meet the community's needs on:

(a) land which is zoned for such purposes (Special Purpose Airport) in the City of Christchurch District Plan; and

(b) land designated for Airport Purposes in the City of Christchurch District Plan;

by

(c) recognising and providing for those activities provided for in Volume 3, Part 8, Rule 3.3.3 within the City of Christchurch District Plan in the Special Purpose (Airport) Zone, or undertaken by the requiring authority in accordance with Airport Purposes designation within the City of Christchurch District Plan;

but

(d) avoiding or mitigating the adverse effects on groundwater quality of any activities in these locations that potentially contaminate Christchurch groundwater.

(4) Ensure that for all new development:

(a) any sewage collection, treatment and disposal system is designed, constructed and maintained in accordance with best management practices; and

(b) any stormwater collection, treatment and disposal system is designed, constructed and maintained in accordance with best management practices.

(5) Any extension to existing hazardous facilities, or any new hazardous facility, must provide best management practice measures to avoid or mitigate the adverse effects of toxic, mobile or persistent contaminants entering groundwater as a result of:

(a) the routine use of a hazardous substance; or

(b) leakage or spill from a hazardous facility or pipeline; or

(c) seismic activity that is likely to result in structural damage from ground motion; or

(d) emergency situations.

- (6) All hard surfaces and vehicle standing areas associated with commercial, industrial or institutional activities must be designed, constructed and maintained so as to avoid or mitigate the adverse effects of hazardous substances and contaminants entering groundwater.**
- (7) Mobile hazardous facilities associated with commercial and industrial activities must be managed so as to avoid or mitigate the effects of hazardous substances entering land or groundwater, including during machinery refuelling, hazardous substance transportation, hazardous substance use and handling, and in the event of accidental spillage.**
- (8) Existing lawfully established rural production land uses must minimise the adverse effects of contaminants potentially entering groundwater by instituting all practicable management measures relating to such effects arising from:**
- (a) the application of water; and**
  - (b) the use and storage of fertilizer; and**
  - (c) agrichemical storage and application; and**
  - (d) incidental farm management activities such as farm landfills and offal pits.**
- (9) Adverse effects on groundwater quality arising from rural production land uses must be avoided or mitigated, and adverse effects from new rural production land uses that increase the potential for nutrient, chemical and microbiological contaminants to adversely affect groundwater quality, must also be avoided or mitigated.**
- (10) Avoid or mitigate the adverse effects of all other activities that may result in contaminants entering and persisting in groundwater and which have an adverse effect on groundwater quality, including by avoiding if possible mineral extraction activities, and by prohibiting the establishment of a new municipal solid or hazardous waste landfill.**
- (11) Where mineral extraction activities occur, reduce the potential for adverse effects from contaminants entering groundwater by requiring:**
- (a) an effective buffer including an appropriate thickness of soils, an impermeable liner, a containment bund, and a depth to groundwater, to be maintained between the bottom of the excavation and the top of the highest level of groundwater to avoid or mitigate any adverse effects from contaminants directly or indirectly entering groundwater; and**
  - (b) the extraction site to be developed and worked so as to avoid any adverse effects from hydrocarbons entering land, and in the event they do enter land, ensure any contaminated land is removed and reinstated with uncontaminated material; and**
  - (c) a rehabilitation or re-instatement plan to be adopted prior to excavation ceasing; and**
  - (d) a groundwater quality and/or soil quality monitoring programme to be adopted prior to excavation commencing; and**
  - (e) any rehabilitation or re-instatement that utilises fill material to be undertaken in accordance with the Ministry for the Environment "A Guide to the Management**

of Cleanfills” (2002); and

- (f) any rehabilitation or re-instatement that utilises inert uncontaminated cleanfill material must not adversely impact on groundwater quality and is contoured so that surface ponding of water does not occur; and
- (g) land uses occurring on the site following completion of the extraction avoid or mitigate any adverse effects from contaminants potentially entering groundwater.<sup>36</sup>

### Policy WQL17: Effects of Activities in Christchurch Groundwater Protection Zone 1D (Designated Activities)

Manage the adverse effects of activities in the Christchurch Groundwater Protection Zone 1D so that there is no significant increase in the effects of contamination of groundwater by avoiding or mitigating activities that may result in contaminants entering and persisting in groundwater, and minimising effects of activities where contaminants will exist in groundwater for only a short period. In particular:

- (1) Enable the establishment of activities provided for in the City of Christchurch District Plan or Selwyn District Plan, or the Canterbury Regional Policy Statement, to the extent that:
  - (a) the effects of the activity are consistent with the protection of groundwater quality; and
  - (b) best management practice measures are implemented to avoid or mitigate adverse effects on groundwater quality.
- (2) Manage the effects of existing lawfully established activities on designated land, by requiring where appropriate the implementation of all practicable management measures to protect groundwater quality, including:
  - (a) current industry design standards, and
  - (b) any relevant codes of practice.
- (3) Enable the relevant requiring authority to undertake new activities, and undertake additions or extensions to existing lawfully established activities, on:
  - (a) land which is subject to a designation for such purposes in the City of Christchurch District Plan or the Proposed Selwyn District Plan;  
provided that
    - (b) those activities are designed, constructed and maintained where appropriate in accordance with best management practice to protect groundwater quality;

but while

  - (c) avoiding or mitigating the adverse effects on groundwater quality of activities not consistent with the designations in these locations from contamination of Christchurch groundwater.

- (4) Ensure that for all activities on designated land:**
- (a) sewage collection, treatment and disposal systems are designed, constructed and maintained in accordance with best management practices; and**
  - (b) stormwater collection, treatment and disposal systems are designed, constructed and maintained in accordance with best management practices.**
- (5) Any extension to existing lawfully established hazardous facilities, or any new hazardous facility, must provide best management practice measures to avoid or mitigate the adverse effects of toxic, mobile or persistent contaminants entering groundwater as a result of:**
- (a) the routine use of a hazardous substance; or**
  - (b) leakage or spill from a hazardous facility or pipeline; or**
  - (c) seismic activity that is likely to result in structural damage from ground motion; or**
  - (d) emergency situations.**
- (6) All hard surfaces and vehicle standing areas associated with activities on designated land must be designed, constructed and maintained so as to avoid or mitigate the adverse effects of hazardous substances and contaminants entering groundwater.**
- (7) Mobile hazardous facilities associated with activities on designated land must be managed so as to avoid or mitigate the effects of hazardous substances entering land or groundwater, including during machinery refuelling, hazardous substance transportation, hazardous substance use and handling, and in the event of accidental spillage.**
- (8) Existing lawfully established rural production land uses must minimise the adverse effects of contaminants potentially entering groundwater by instituting all practicable management measures relating to such effects arising from:**
- (a) the application of water; and**
  - (b) the use and storage of fertilizer; and**
  - (c) agrichemical storage and application; and**
  - (d) incidental farm management activities such as farm landfills and offal pits.**
- (9) Adverse effects on groundwater quality arising from rural production land uses must be avoided or mitigated, and adverse effects from new rural production uses that increase the potential for nutrient, chemical and microbiological contaminants to adversely affect groundwater quality, must also be avoided or mitigated..**
- (10) Avoid or mitigate the adverse effects of all other activities that may result in contaminants entering and persisting in groundwater which have an adverse effect on groundwater quality, including by avoiding if possible mineral extraction activities, and by prohibiting the establishment of a new municipal solid or hazardous waste landfill.**
- (11) Where mineral extraction activities occur, reduce the potential for adverse effects**

from contaminants entering groundwater by requiring:

- (a) an effective buffer including an appropriate thickness of soils, an impermeable liner, a containment bund, and a depth to groundwater, to be maintained between the bottom of the excavation and the top of the highest level of groundwater to avoid or mitigate adverse effects from contaminants directly or indirectly entering groundwater; and
- (b) the extraction site to be developed and worked so as to avoid any adverse effects from hydrocarbons entering land, and in the event they do enter land, ensure any contaminated land is removed and reinstated with uncontaminated material; and
- (c) a rehabilitation or re-instatement plan to be adopted prior to excavation ceasing; and
- (d) a groundwater quality and/or soil quality monitoring programme to be adopted prior to excavation commencing; and
- (e) any rehabilitation or re-instatement that utilises fill material to be undertaken in accordance with the Ministry for the Environment “A Guide to the Management of Cleanfills” (2002); and
- (f) any rehabilitation or re-instatement that utilises inert uncontaminated cleanfill material must not adversely impact on groundwater quality and is contoured so that surface ponding of water does not occur; and
- (g) land uses occurring on the site following completion of the extraction avoid or mitigate any adverse effects from contaminants potentially entering groundwater.<sup>37</sup>

## Policy WQL18: Effects of Activities in Christchurch Groundwater Protection Zone 2

Manage the adverse effects of activities in the Christchurch Groundwater Protection Zone 2 so that there is no significant increase in the effects of contamination of groundwater by avoiding or mitigating the adverse effects of activities that may result in contaminants entering and persisting in groundwater, and minimising effects of activities where contaminants will exist in groundwater for only a short period. In particular:

- (1) Where the groundwater system is not protected by permanent upwards hydraulic water pressure gradient and a confining layer of at least three metres thickness, minimise adverse effects on groundwater quality by requiring that all appropriate practicable management measures are implemented.
- (2) Where the groundwater system is protected by permanent upwards hydraulic water pressure gradient and a confining layer of at least three metres thickness, ensure the protection afforded to groundwater quality by these hydrogeological features is not compromised or is appropriately mitigated.
- (3) Manage the effects of existing lawfully established activities occurring in existing

<sup>37</sup> WQLV6.1

urban areas, by requiring where appropriate implementation of all practicable management measures to protect groundwater quality, including:

- (a) current industry design standards; and
  - (b) any relevant codes of practice.
- (4) Within the non-urbanised rural portion, minimise the adverse effects on groundwater to the extent that where appropriate all practicable management measures are implemented.
- (5) Control the location of mineral extraction activities to manage any potential adverse effects on groundwater quality and reduce the potential for contaminants to enter groundwater by:
- (a) recognising and providing for mineral extraction activities that are lawfully established, or provided for in the City of Christchurch District Plan or Proposed Selwyn District Plan, or provided for in the Canterbury Regional Policy Statement; and
  - (b) avoiding or mitigating the adverse effects of mineral extraction activities in other locations.
- (6) Where mineral extraction activities occur, reduce the potential for adverse effects from contaminants entering groundwater by requiring:
- (a) an effective buffer including an appropriate thickness of soils, an impermeable liner, a containment bund, and a depth to groundwater, to be maintained between the bottom of the excavation and the top of the highest level of groundwater to avoid or mitigate adverse effects from contaminants directly or indirectly entering groundwater; and
  - (b) the extraction site to be developed and worked so as to avoid any adverse effects from hydrocarbons entering land, and in the event they do enter land, ensure any contaminated land is removed and reinstated with uncontaminated material; and
  - (c) a rehabilitation or re-instatement plan to be adopted prior to excavation ceasing; and
  - (d) a groundwater quality and/or soil quality monitoring programme to be adopted prior to excavation commencing; and
  - (e) any rehabilitation or re-instatement that utilises fill material to be undertaken in accordance with the Ministry for the Environment “A Guide to the Management of Cleanfills” (2002); and
  - (f) any rehabilitation or re-instatement that utilises inert uncontaminated cleanfill material must not adversely impact on groundwater quality and is contoured so that surface ponding of water does not occur; and
  - (g) land uses occurring on the site following completion of the extraction avoid or mitigate any adverse effects from contaminants potentially entering

groundwater.

(7) Prohibit the establishment of a new municipal solid or hazardous waste landfill. <sup>38</sup>

### **Policy WQL19: Effects of Activities in Christchurch Groundwater Protection Zone 3**

**Manage the adverse effects of activities in the Christchurch Groundwater Protection Zone 3 so that there is no significant increase in the effects of contamination of groundwater by avoiding or mitigating the adverse effects of activities that may result in contaminants entering and persisting in groundwater, and minimising effects of activities where contaminants will exist in groundwater for only a short period. In particular:**

- (1) Ensure that the adverse effects of activities do not:**
  - (a) directly or indirectly compromise the natural hydrogeological protection of groundwater quality; or**
  - (b) discharge directly or indirectly to groundwater.**
- (2) Where mineral extraction activities occur, reduce the potential for adverse effects from contaminants entering groundwater by requiring:**
  - (a) an effective buffer including an appropriate thickness of soils, an impermeable liner, a containment bund, and a depth to groundwater, to be maintained between the bottom of the excavation and the top of the highest level of groundwater to avoid or mitigate any adverse effects from contaminants directly or indirectly entering groundwater; and**
  - (b) the extraction site to be developed and worked so as to avoid any adverse effects from hydrocarbons entering land, and in the event they do enter land, ensure any contaminated land is removed and reinstated with uncontaminated material; and**
  - (c) a rehabilitation or re-instatement plan to be adopted prior to excavation ceasing; and**
  - (d) a groundwater quality and/or soil quality monitoring programme to be adopted prior to excavation commencing; and**
  - (e) any rehabilitation or re-instatement that utilises fill material to be undertaken in accordance with the Ministry for the Environment “A Guide to the Management of Cleanfills” (2002); and**
  - (f) any rehabilitation or re-instatement that utilises inert uncontaminated cleanfill material must not adversely impact on groundwater quality and is contoured so**

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**that surface ponding of water does not occur; and**

**(g) land uses occurring on the site following completion of the extraction avoid or mitigate any adverse effects from contaminants potentially entering groundwater.**<sup>39</sup>

### **Explanation and principal reasons**

Many activities occurring over the Christchurch groundwater system have the potential to result in adverse effects on groundwater quality. This potential can be described as the probability of contamination occurring together with the consequence of that contamination. As such, different activities are associated with different levels of adverse effects, ranging from no such adverse effects to effects having a significant adverse impact.. This assessment of effects informs the level of intervention required in order to achieve Objective WQL4. However, the effects based approach takes into account potential consequences of significance that have a low probability of occurring.

The quality of Christchurch's groundwater can be adversely affected by a single large event (e.g. a tanker spill) or an individual activity, or by the cumulative effects of many smaller events or activities. Both the individual and cumulative adverse effects of events and activities must be avoided or mitigated.

The Christchurch groundwater system is of major importance and finite in character. The reversal of adverse groundwater quality effects is likely not possible, or if it is possible it will be financially prohibitive. Accordingly, the appropriate approach to managing groundwater quality is to avoid or mitigate potential consequence, even if the probability of those consequences occurring is low. That is, the emphasis of management is to be on the consequences of an activity rather than the probability of those consequences occurring.

The groundwater quality consequences are dependant on the properties of the contaminant. The contaminants of most concern are those that are mobile, toxic, and persistent or which can taint large volumes of water. Many contaminants remain in the groundwater for long periods of time so their adverse effects on groundwater quality are long term, and are to be avoided. Other contaminants decay at a reasonably rapid rate. As a result, there can be greater tolerance of minor adverse effects of these contaminants on groundwater quality.

Contaminants can enter groundwater by a number of pathways. Each pathway has different characteristics which influence:

1. the nature of the contaminants entering groundwater (including any natural attenuation)
2. the circumstances under which contaminants may enter groundwater
3. when and how long from the time of release, contaminants will enter and remain in groundwater.

The pathways include the deliberate or accidental release of contaminants into groundwater, or into or onto land that may result in that contaminant entering groundwater. This may be a result of inappropriate disposal, leakage from stormwater or effluent disposal systems, or failure of systems due to a natural hazard event.

Irrespective of the 'intent' or cause of the release, the consequences for the quality of Christchurch groundwater remain. In order to achieve Objective WQL4, it is important that all the contaminant

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<sup>39</sup> WQLV6.1

pathways are managed in a comprehensive way. This requires the control of land uses, discharges, water takes and use.

The vulnerability of the Christchurch groundwater system to contamination arises from its intrinsic susceptibility (the aquifer system hydrogeological properties), and the location and types of sources of naturally occurring and anthropogenic contamination, relative locations of wells, and the fate and transport of the contaminant(s). With respect to anthropogenic sources of contamination:

1. The more intense the activities, the greater the need to manage effects as there are a larger number of potential contaminants and contaminant pathways.
2. The transport, storage, use and disposal of hazardous substances are important contamination factors. As the quantity of contaminant being stored and used on-site increases, so too does the level of consequence to groundwater in the event of a system failure. However, it is only in the event of failure, or accident, that contamination occurs. There is a clear need for a strong level of management of this adverse effect, e.g. limiting the quantity of hazardous substances on site, or requiring bunding and impervious sealing to ensure containment of any spillage and to avoid its penetration to groundwater.
3. The application of pesticides and fertilisers in both the urban and rural environments associated with intensive land use activities (e.g. horticulture) may have significant consequences for groundwater contamination. Over-application and improper application, in conjunction with irrigation and/or significant rainfall events, will result in contaminants being readily flushed into the groundwater system where it is unconfined.
4. Land uses may require different levels of management dependent upon the time of their establishment. Existing activities may have legitimately established under lesser conditions or lower standards than currently exists today. For example, old petroleum storage tanks and on-site effluent disposal systems were designed and constructed to significantly lesser standards than those designed and built today.
5. In a catastrophic event such as earthquake the failure of sewer and stormwater reticulation systems and hazardous substance transportation and storage systems, will have significant consequences for groundwater quality.

The groundwater in Zone 1 and Zones 1A, 1B, 1C and 1D is particularly vulnerable to potential adverse effects arising from contamination resulting from land use activities, because the groundwater is near the land surface and the overlying soil and gravel is very permeable. Zone 1 comprises a significant proportion of the recharge area for the Christchurch Groundwater System. Maintaining the high quality of the groundwater in Zone 1 will ensure a continual supply of high quality water to the confined aquifer systems so that it remains suitable for a range of uses, including as a source of untreated drinking water. The groundwater in Zone 2 is also vulnerable to such contamination effects.

The likelihood of adverse effects from contaminants entering groundwater may increase if landuse intensification proceeds in an uncontrolled manner in Zone 1 or 2. Despite all precautions, including the application of high design standards, it is inevitable some discharges will occur. For these reasons, the effects of certain activities are such that some activities should not occur within the recharge zone. Other land use activities across the recharge zone need to be managed with the primary aim of maintaining the quality of the groundwater in this area.

Once intensive land uses become established in Zone 1 and Zones 1A, 1B, 1C and 1D, it will be very difficult to apply measures retrospectively to protect or remediate groundwater quality. The purpose of the policies is to not allow any increase in the adverse effects of new activities that will adversely affect groundwater quality, either directly or indirectly..

### **Rural landuses**

Rural production activities represent the dominant land use within the highly vulnerable Christchurch Groundwater Protection Zone 1 and within parts of Zones 1A, 1B, 1C and 1D. This reflects a long-

established land use pattern which is expected to continue. The potential adverse effects of rural activities on groundwater quality is a result of some poor land management practices. The aim of the policies is to manage such poor practices so as to avoid or mitigate their potential adverse effects on groundwater quality. The rural land management practices with the potential to adversely affect groundwater quality include:

1. the use of fertiliser and agrichemicals in a manner that results in chemicals being transported past the root zone into the sub-soil, and eventually into groundwater
2. the application of water in a manner that flushes contaminants through into groundwater
3. waste management practices, including the use of on-site landfills and offal pits for the storage and disposal, including decomposition of unwanted vegetation, of containers, and other materials
4. the transport, storage and use of hazardous substances as part of the rural production activities.

The approach taken is to manage individual components while providing for the continuation of the existing lawfully established rural activities and new rural production activities which must also avoid or mitigate their potential adverse effects on groundwater quality.

Some land uses that may have an adverse effect on groundwater quality, including parts of the urban area of Christchurch, Christchurch International Airport, mineral extraction or excavation, and other regionally significant activities (e.g. state highways), are already well-established in Zones 1A, 1B, 1C and 1D. While these land uses may continue in these areas, the policies require that they must be, to the extent practicable, undertaken in a way that ensures that their effects do not compromise the groundwater quality in an adverse manner.

### **Urban**

Intensification and development for urban purposes includes all the activities associated with a change in land use from rural to urban, or the intensification of current urban activities. These activities will include; residential, recreational, commercial, industrial, community and educational activities, together with the associated infrastructure. Potential adverse effects from such activities to groundwater quality are in the form of inappropriate waste disposal practices, accidental spillage, and increased amounts of wastes such as sewage and stormwater to be managed. Many of these risks are cumulative, arising from dispersed discharges.

It is recognised that some intensification of, in particular, residential and some industrial activities are provided for within the City of Christchurch District Plan and Selwyn District Plan and Canterbury Regional Policy Statement. Generally, these plans only enable a level of intensification that is appropriate within the rural environment or within recognised Urban Limits. In order to protect groundwater quality, the potential causes of adverse effects of any further growth are managed by the objectives, policies and rules. The presence of existing or lawfully authorised urban activities is provided for as Zone 1A.

### **Mineral Excavation**

Mineral extraction activities (for gravel) give rise to three primary potential adverse effects to groundwater quality, being:

1. the reduction in the protective layer of soils above groundwater providing a pathway for contaminants entering groundwater, both during the time of mineral extraction and after the extraction activities have occurred
2. the deposition of contaminants onto or into land as part of the mineral extraction activities, for example through the handling of fuel and from machinery

3. the deposition of contaminants into land as part of any re-instatement activity.

A recent Environment Court case has held that all those aspects are capable of being sustainably managed but only through a carefully assessed resource consent process with appropriate conditions.

Currently there are a number of mineral extraction activities occurring within the area of high intrinsic hydrogeological vulnerability. The City of Christchurch District Plan provides for quarry activities predominantly through zoning areas 'Rural Quarry'. The Selwyn District Plan contains two designations providing for mineral extraction.

It is anticipated that as sources of material reduce within the existing areas, there will be pressure for new areas of mineral extraction to be established outside of Zone 1B. While mineral extraction activities outside of Zone 1B are to be generally avoided, guidance is provided for proposals in locations where it can be clearly demonstrated through location, topography, soil structure, hydrology and the adoption of mitigation measures that these will not result in significant adverse effects on groundwater quality.

It is recognised that mineral extraction activities provide the opportunity to establish long-term land uses following re-establishment that pose very low risk to groundwater quality. If this occurs, it is a long-term benefit that may result from mineral extraction activities.

### **Airport**

The presence of the Christchurch International Airport within the highly vulnerable groundwater zone means that there is already a significant potential risk of groundwater contamination from day-to-day operations involving hazardous substances. The overall judgement is that those airport related activities identified in the City of Christchurch District Plan (Volume 3, Part 8, Special Purposes (Airport) Zone, Rule 3.3.3 Activities within Airport Zone), or undertaken by the requiring authority in accordance with the Airport Purposes designation, are to be provided for in recognition of the regional significance of the Airport.

Careful management is required to achieve a sustainable expansion to existing aviation related activities or new such activities establishing within Zone 1C which may otherwise result in an increased adverse effects to groundwater quality, including from inappropriate waste disposal, increased potential for accidental spills or leakage, and increased amounts of waste and contaminants via sewerage and stormwater systems. For sewerage and stormwater systems, it is appropriate to ensure that such treatment systems are designed, constructed and maintained in accordance with best management practices.

## Designations

Within the highly vulnerable groundwater zone there are areas of land which are subject to designations in the City of Christchurch District Plan or Proposed Selwyn District Plan. Requiring authorities have established activities that are recognised as being of regional significance. These consist of Christchurch Prison, the Ministry of Defence Rifle range, and that part of the state highway network not located within Zone 1A. These activities have existed for a significant period of time and are likely to continue for the foreseeable future and in respect of the latter at least are likely to expand.

Adverse effects to groundwater quality arising from intensification of existing activities, and introduction of new activities, including from the use of hazardous substances, accidental spills and chronic leakage of hazardous substances, and through the management of sewage and stormwater require careful management. However, the overall judgement is that designations are to be provided for in recognition of their regional significance, and that the increase in potential adverse effects requires management through the adoption of best management practice measures (e.g. measures could include bunding, stopvalves, audited management procedures, etc). For stormwater and sewerage systems, it is appropriate to ensure that such treatment systems are designed, constructed and maintained in accordance with best management practices.

## Overall Approach

In recognition of the wider purpose of the Resource Management Act, including the social, economic, environmental and cultural aspirations of the Christchurch and Canterbury communities, the level of control appropriate to achieve Objective WQL4 must be determined by forming an overall judgement in relation to these competing values. The judgement made for Zone 1 and Zones 1A, 1B, 1C and 1D is:

1. The adverse effects of activities that currently exist, and can be reasonably expected to continue, are able to continue provided the potential for contamination of groundwater is mitigated by the implementation where appropriate of **all practicable management measures**. In this context "all practicable management measures" means mitigation measures or practices that can reasonably be established while retaining the overall viability of the activity.
2. The adverse effects of activities that are provided for in the City of Christchurch District Plan, Proposed Selwyn District Plan or Canterbury Regional Policy Statement, but yet to occur, must adopt practices that ensure the effects provide for the protection of groundwater quality and all best management practice measures to protect groundwater quality are put in place. In this context "**best management practice measures**" means those mitigation measures or practices that are appropriate and would be expected to be implemented as part of an environmentally responsible activity in order to avoid the potential for groundwater contamination..
3. The adverse effects of some other activities can only be sustainably managed if the potential for groundwater contamination is avoided.

Within Zone 2, the approach to the control of activities is different. The policy contains two different management regimes depending on hydrogeological characteristics at the site of the proposal. If adequate protection is provided as a result of the existence of a permanent upwards hydraulic groundwater pressure gradient and a confining layer of at least three metres thickness, then provided this protection is not compromised by the proposal, reduced control is acceptable. However, in the event these hydrogeological features do not exist at the site, or will be compromised by the effects of the proposal, then in recognition of the largely established urban land use patterns, the management approach is the same as for existing lawfully established activities in Zone 1.

Within Zone 1, Zones 1A, 1B, 1C and 1D, and Zone 2, adverse effects are to be determined at the boundary of the property within which the activity is occurring. This provides scope for activities to have short-term adverse effects on groundwater within a property, provided that at the property

boundary these effects are no longer present. It is anticipated that this will enable the discharge of contaminants onto land that then enter groundwater, or into groundwater, which decay at a rapid rate, such as some microbiological contaminants.

Within Zone 3, the hydrogeological characteristics of a significant confining layer over groundwater and the permanent upwards hydraulic groundwater pressure, affords a high degree of natural protection of groundwater quality. Provided this protection is not compromised, the potential adverse effects of activities do not pose a risk to groundwater quality.<sup>40</sup>

## Methods

The methods used or to be used to implement Policies WQL13 to WQL2019<sup>41</sup> are:

### Method WQL13(a) Advocacy

Environment Canterbury will, in consultation with other interested organisations, advocate to authorities responsible for community drinking water supplies to implement and promote measures leading to a greater awareness the influence of activities in this area and the need to protect water quality.

### Method WQL13(b) Information and promotion

Environment Canterbury will work with local authorities, landholders, community or industrial groups, industry groups (e.g. Horticulture New Zealand and Federated Farmers)<sup>42</sup> to develop and disseminate information:

- (a) in relation to legally established existing activities, the practicable management measures that can be implemented to minimise the adverse effects on groundwater
- (b) in relation to new activities committed to in the district plans, best management practice measures to avoid adverse effects on groundwater
- (c) on the vulnerability of the Christchurch Groundwater Protection Zone to contamination.

### Method WQL13(c) Community Drinking Water Supply Catchment Risk Assessments

Environment Canterbury may assist registered drinking water suppliers ~~water supply authorities~~<sup>43</sup> to undertake a risk assessment of their drinking water sources by making available water quality data and information on land use activities collected by Environment Canterbury where this is available.

### Method WQL13(d) Response to complaints and enquiries

Environment Canterbury will:

- (a) provide a 24-hour capability to respond to any complaints or incidents about activities that adversely Christchurch groundwater.
- (b) maintain a database to record the details of any complaints or incidents about activities that adversely affect Christchurch groundwater, and the response by Environment Canterbury.

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<sup>40</sup> WQLV6.1

<sup>41</sup> WQLV6.27

<sup>42</sup> WQLV6.27

<sup>43</sup> WQLV6.27

### **Method WQL13(e) Regional Rules**

Environment Canterbury will apply the regional rules in Chapter 4 and Chapter 5 to implement these policies.

### **Method WQL13(f) Resource consents**

Resource consents may be required to undertake activities that adversely affect the quality of Christchurch groundwater.

If a resource consent application is granted, conditions on a resource consent may require, among other matters:

- (a) a financial contribution as set out in section 4.9 of this Plan,<sup>44</sup> be made by the consent holder to mitigate or remedy the adverse effects on groundwater quality; or
- (b) a bond be imposed on the consent holder to ensure compliance with conditions on a resource consent.

### **Method WQL13(g) Regional Policy Statement**

Environment Canterbury will consider a change to the Canterbury Regional Policy Statement defining limits to urban growth over the high vulnerability portion of the Christchurch Groundwater System if the Environment Court's decisions on Proposed Change 1 warrant that approach.

### **Method WQL13(h) Compliance monitoring and enforcement**

Environment Canterbury will monitor and enforce compliance with the conditions of permitted activities and of any resource consent it has granted. Environment Canterbury may apply for enforcement orders, issue abatement notices and infringement notices, and use other enforcement mechanisms in Part 12 of the RMA, to enforce the rules of Chapter 4, or a breach of resource consent conditions.

An enforcement order or abatement notice can require a person to do something that is necessary in order to avoid, remedy, or mitigate any actual or likely adverse effect on the environment caused, by, or on behalf of that person.

### **Method WQL13(i) Land managed by public agencies, including Environment Canterbury**

- (1) When public agencies are considering the acquisition, sale and management of land, Environment Canterbury will encourage those agencies to acquire, manage, or ensure the management of that, land in a manner consistent with the protection of groundwater quality.
- (2) Environment Canterbury will prepare a strategy for land it owns or administers that incorporates best management practices to achieve the objectives and implement the policies of this Plan. Environment Canterbury will implement these practices to manage this land in the Christchurch Groundwater Protection Zone.

### **Method WQL13(j) Territorial authorities**

Territorial authorities shall, in the preparation, variation, change or review of their district plans, and the exercise of their functions under Resource Management Act 1991, make provision as appropriate in any particular set of circumstances for the prevention, avoidance or mitigation of adverse effects on

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<sup>44</sup> WQLV6.27

Christchurch groundwater quality by, in Christchurch Groundwater Protection Zone 1, and <sup>45</sup>Sub-Zones 1A, 1B, 1C and 1D, managing:

1. any potential adverse effects on groundwater quality arising from density of subdivision and development
2. any potential adverse effects on groundwater quality arising from the type of land uses that may be established
3. the storage and/or use of hazardous substances as defined as a territorial authority responsibility in the Canterbury Regional Policy Statement.

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<sup>45</sup> WQLV6.1

Where rule applies	Rule No.	Activity type	Description	Activity Status	Page No.
In Christchurch Groundwater Protection <sup>46</sup> Sub-Zone 1A, Sub-Zone 1B Sub-Zone 1C or Sub-Zone 1D, except where a discharge to surface water or onto land adjacent to a surface water body is controlled by the Waimakariri River Regional Plan.	WQL 55	Land Use/ Discharge	Use of land for mineral extraction, use of a specified hazardous substances, or the discharge of stormwater in Christchurch Groundwater Protection Sub-Zones 1A, 1B, 1C or 1D — discretionary activity	Discretionary	
In Christchurch Groundwater Protection, Zone 1, Sub-Zone 1C or Sub-Zone 1D	WQL 63	Land Use	The use including storage of a specified hazardous substance in Christchurch Groundwater Protection Zone 1, or Sub-Zones 1C or 1D	Prohibited	
In Christchurch Groundwater Protection Zone 1	WQL 64	Land Use	Use of land within Christchurch Groundwater Protection Zone 1	Non-complying	
In Christchurch Groundwater Protection Zone 1	WQL 65	Land Use	Use of land (hazardous substances) within Christchurch Groundwater Protection Zone 1	Prohibited	
In Christchurch Groundwater Protection Sub-Zone 1A or Sub-Zone 1B	WQL66	Land use	Use of land (hazardous substances) within the Christchurch Groundwater Protection Sub-Zone 1A or Sub-Zone 1B	Prohibited	

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<sup>46</sup> WQLV6.1

The following rules apply to activities within Christchurch Groundwater Protection Zones 1, 1A, 1B, 1C, 1D, 2 and 3 as shown on Map Volume Part 1 Planning Maps, or adjacent to those Zones and the effects of which activities may impact upon groundwater quality within those Zones.

## Rule WQL5 Discharge of stormwater containing contaminants onto or into land - permitted activity

Activity	Conditions	Cross-reference
<p>The discharge of stormwater containing contaminants onto or into land where contaminants may enter groundwater;</p> <p>is -</p> <ul style="list-style-type: none"> <li>(a) a <b>permitted activity</b> if a discharge complies with all of the conditions of this Rule;</li> <li>(b) a <b>discretionary activity</b> if a discharge does not comply with any of conditions 1 to 9 of this Rule, in which case a resource consent under Rule WQL 57 is required.</li> <li>(c) a <b>discretionary activity</b> if a discharge does not comply with condition 10 of this Rule, in which case a resource consent under Rule WQL 55 or Rule WQL 57 is required.<sup>47</sup></li> </ul> <p>For the purposes of this rule:</p> <ol style="list-style-type: none"> <li>1. "stormwater management area" means: <ul style="list-style-type: none"> <li>(a) a settlement; or</li> <li>(b) a watershed catchment of a river named on New Zealand Map Series 260 1:50,000 scale, or a tributary of that river upstream of the confluence of the tributary and any other river where 30 percent or more of the catchment is identified in a district plan for residential, commercial or industrial activities, or any combination of these activities;</li> </ul> </li> <li>2. "settlement" means an existing or proposed collection of residences or workplaces, or any combination of these</li> </ol>	<ol style="list-style-type: none"> <li>1. There is no pipeline network available for the collection of stormwater. For the purpose of this condition, "available" means: <ul style="list-style-type: none"> <li>(a) a stormwater network system passes within 30 metres of the property boundary; and</li> <li>(b) the stormwater can flow into the network under gravity; and</li> <li>(c) the network operator will accept the discharge.</li> </ul> </li> <li>2. The stormwater from a roof may be discharged onto or into land via a subsurface drainage system located in the soil layer provided: <ul style="list-style-type: none"> <li>(a) the system is designed to prevent the entry of surface runoff into the stormwater system;</li> <li>(b) there is no runoff or percolation of water onto any neighbouring property except where the written approval of the current landowner of that property has been obtained;</li> <li>(c) the total roof area of the building does not exceed 400 square metres and the building is not located in a stormwater management area; or</li> <li>(d) the total roof area of the building does not exceed 50 square metres and the building is located in a stormwater management area.</li> </ul> </li> <li>3. The discharge shall not be from a site where an activity listed in Schedule WQL3 is occurring.</li> <li>4. There shall be no discharge from a network servicing a stormwater management area after Regional Rule WQL 7 becomes operative.</li> <li>5. The discharge shall not be from a stormwater collection system established after the date of notification of this rule which collects stormwater from: <ul style="list-style-type: none"> <li>(a) an area greater than 500 square metres within Zone BP in Map Volume Part 1 Planning Maps.</li> <li>(b) an area greater than two hectares elsewhere in the region.</li> </ul> </li> <li>6. Except where the discharge meets Condition (2), the discharge shall not occur over an unconfined or semi-confined aquifer where the highest groundwater level, which can reasonably be expected at the point of discharge based upon relevant and available groundwater data, is less than two metres below the land surface.</li> <li>7. The discharge of stormwater from a road, vehicle parking areas, any impermeable surfaces, or a</li> </ol>	<p><b>Policies</b></p> <p>WQL7 WQL8 WQL12 WQL13 WQL14 WQL15 WQL16 WQL17 WQL18 WQL21</p> <p><sup>49</sup></p>

<sup>47</sup> WQLV6.32

<sup>48</sup> WQLV6.32

<sup>49</sup> WQLV6.1

<p>activities, with a population of 200 or more people. This includes any proposed settlement or extension to an existing settlement.</p>	<p>stormwater collection system, onto or into land over an unconfined or semi-confined aquifer, where the highest groundwater level, which can reasonably be expected at the point of discharge based upon relevant and available groundwater data, is deeper than two metres but less than 30 metres from the ground surface, shall be via an infiltration system:</p> <p>(a) with a minimum thickness of infiltration media calculated using the following formula;</p> $D = \frac{240}{A \times R}$ <p>Where: A = infiltration surface area (square metres),  D = depth of infiltration media (metres), and  R = oil retention capacity of the media (litres per cubic metre); and</p> <p>(b) with a minimum separation distance of one metre between the base of the infiltration media (D) and the highest groundwater level expected at that site.</p> <p>8. A stormwater collection system which collects runoff from a road in a drain or swale before the stormwater is discharged down a soak hole that is:</p> <p>(b) installed or replaced after this rule becomes operative; and</p> <p>(c) the soak hole is located over in an unconfined or semi-confined aquifer, where the highest groundwater level, which can reasonably be expected at the point of discharge based upon relevant and available groundwater data, is less than 30 metres from the ground surface; shall have a grassed section at least 20 metres in length with a minimum topsoil depth of 150 millimetres immediately before each soak hole.</p> <p>9. Except where the discharge meets Condition (2), the discharge shall not occur in a Community Drinking Water Supply Protection Zone for a well listed in Schedule WQL2.</p> <p>10. <del>Except as provided for in Condition 2, there shall be no discharge in the area identified as Christchurch Groundwater Protection Zone 1, or Sub-Zones 1B or 1D as shown on Map Volume Part 4 Planning Maps.</del><sup>48</sup></p>	
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<p><b>For information only: For the purposes of Condition 7, typical values of R:</b></p>	
stone/coarse gravel	5
gravel/coarse sand	8
coarse/medium sand	15
medium/fine sand	
fine sand/silt	40

## Rule WQL7 Discharge of stormwater containing contaminants onto or into land or into a river, lake or artificial watercourse from a stormwater management area- controlled activity

Activity	Conditions	Matters for Control	Cross reference
<p>The discharge of stormwater:</p> <ul style="list-style-type: none"> <li>▪ onto or into land; or</li> <li>▪ into a river, lake or artificial watercourse;</li> </ul> <p>from a stormwater management area;</p> <p>is –</p> <ol style="list-style-type: none"> <li>1. a <b>controlled activity</b> if the discharge complies with all of the conditions of this Rule;</li> <li>2. a <b>discretionary activity</b> if the discharge does not comply with any one or more of Conditions 1 to 3 of this Rule, in which case a resource consent under either Rules WQL 56 or WQL 57 is required;</li> <li>3. a <b>discretionary activity</b> if the discharge does not comply with Condition 4 of this Rule, in which case a resource consent under Rule WQL 55 is required;</li> <li>4. a <b>non-complying activity</b> if the discharge does not comply with conditions 5 or 6 of this Rule, in which case a resource consent under Rule WQL 60 is required.</li> </ol> <p>For the purposes of this rule:</p> <p>(i) “stormwater management area” means:</p> <ol style="list-style-type: none"> <li>(1) a settlement; or</li> <li>(2) a watershed catchment of a river named on New Zealand Map Series 260 1:50,000 scale, or a tributary of that river upstream of the confluence of the tributary and any other river where 30 percent or more of the catchment is identified in a district plan for residential, commercial or industrial activities, or any combination of these activities;</li> </ol> <p>(ii) “settlement” means an existing or proposed collection of</p>	<ol style="list-style-type: none"> <li>1. The area which is being serviced by the stormwater network shall be included in an integrated catchment management plan, which has been prepared in accordance with Section 4.7.3.2 of this Chapter, and any discharge shall comply the requirements of that plan.</li> <li>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 Zone of Non-Compliance, meet the water quality standards for the receiving water as set out in Schedule WQL1.</li> <li>3. A discharge to a river, lake or an artificial watercourse water shall not:             <ol style="list-style-type: none"> <li>(a) have a maximum total suspended sediment concentration of more than 125 percent of the maximum total suspended sediment concentration that occurred from the catchment before the land became a stormwater management area; or</li> <li>(b) 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 (one in five year event).</li> </ol> </li> <li>4. There shall be no discharge in the areas identified as Christchurch Groundwater Protection Sub-Zones 1, 1A, 1B, 1C, 1D or 2 on Map Volume - Part 1 Planning Maps.</li> <li>5. Where the discharge is to a river or a lake within any of the following areas:             <ol style="list-style-type: none"> <li>(a) within one kilometre upstream on a river, or within one kilometre on a lake, from an intake for a community drinking water supply listed in Schedule WQL2; or</li> <li>(b) a significant spawning reach for salmon listed in</li> </ol> </li> </ol>	<p>Environment Canterbury has reserved control over the following matters in imposing any conditions:</p> <ol style="list-style-type: none"> <li>1. Rate and volume of discharge and the changes to the flow regime of a river, flood frequency, including flooding of land or dwellings, erosion of river bank and channels.</li> <li>2. Concentration of contaminants and adverse effects, including cumulative effects on the receiving water quality of surface and groundwater, aquatic ecosystems, Ngāi Tahu values and other existing uses of the water, including takes and discharges.</li> <li>3. Measures to:             <ol style="list-style-type: none"> <li>(a) avoid or minimise the entry of contaminants into stormwater; or</li> <li>(b) reduce the volume and concentration of contaminants in the discharge; or</li> <li>(c) minimise the volume of water in the discharge; or</li> <li>(d) ensure volume and rate of discharge do not exceed:                 <ol style="list-style-type: none"> <li>(i) the capability of the soil and subsoil layers at the site to reduce contaminant concentrations in the</li> </ol> </li> </ol> </li> </ol>	<p><b>Policies</b></p> <p>WQL1</p> <p>WQL2</p> <p>WQL 6</p> <p>WQL 8</p> <p>WQL12</p> <p>WQL13</p> <p>WQL14</p> <p>WQL15</p> <p>WQL16</p> <p>WQL18</p> <p>WQL19</p> <p>WQL20</p> <p>WQL21</p> <p>51</p>

<sup>51</sup> WQLV6.1

<p>residences or workplaces, or any combination of these activities, with a population of 200 or more people. This includes any proposed settlement or extension to an existing settlement.</p>	<p>Schedule WQN14; the discharge shall meet the water quality standards for the receiving water as set out in Schedule WQL1 at the point of discharge.</p> <p>6. The discharge shall not occur within a Community Drinking Water Supply Protection Zone for a well listed in Schedule WQL2.</p>	<p>discharge;</p> <p>(ii) the infiltration capacity of the soil and subsoil layers at the site.</p> <p>(e) avoid the accumulation of toxic or persistent contaminants in the soil or subsoil layers.</p> <p>4. Implementation of the integrated catchment management plan</p> <p>5. Ensuring that the water quality standards for the receiving water will be observed out side of the Zone of Non-Compliance</p> <p>6. The monitoring of the activity and its effects</p> <p>7. The requirement for financial contributions, or bonds.</p> <p>8. The duration of any consent granted.</p> <p>9. The frequency and reasons to review consent conditions, including changes to the scale and intensity of activities</p>	
<p><b>Information to be provided</b></p> <p>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.</p>		<p><b>Service</b></p> <p>In accordance with section 94D(3) RMA 1991, notice of an application for a resource consent required by this rule does not need to be served on those persons identified under Section 94(1) of that Act.</p>	

## Rule WQL8 Discharge of contaminants onto or into land from an individual on-site sewage and wastewater treatment and land application system - permitted activity

Activity	Conditions	Cross-reference
<p>The discharge of contaminants onto or into land from an individual on-site sewage and wastewater treatment and land application system including effluent from a commercial dog kennel or cattery:</p> <p>(a) which exists at the date of notification of this rule, or</p> <p>(b) for which consent under the Building Act 1991 has been issued or an application has been accepted; or</p> <p>(c) for which consent under the Building Act 1991 is applied for and issued after the date of notification of this rule;</p> <p>is –</p> <p>1. a <b>permitted activity</b> if the discharge:</p> <p>(a) exists at the date of notification of this rule and the discharge complies with Conditions 1 to 8 of this Rule, or</p> <p>(b) for which consent under the Building Act 1991 has been issued or an application has been accepted and the discharge complies with Conditions 1 to 8 of this Rule; or</p> <p>(c) is from a building for which consent under the Building Act 1991 is applied for and issued after the date of notification of this rule and the discharge complies with all of the conditions of this rule.</p> <p>2. a <b>restricted discretionary activity</b> if the discharge does not comply with any one or more of Conditions 2, 3, 6, 7, 14 to 21, or 23 of this Rule, in which case a resource consent under Rule WQL 9 is required;</p> <p>3. a <b>discretionary activity</b> if the discharge does not comply with any one or more of Conditions 1, 5, and 9 to 12 of this Rule, in which case a resource consent under Rule WQL 57 is required;</p>	<ol style="list-style-type: none"> <li>1. The discharge shall only comprise: <ol style="list-style-type: none"> <li>(a) domestic sewage effluent; or</li> <li>(b) animal effluent or washdown water from a commercial dog kennel or a cattery.</li> </ol> </li> <li>2. The maximum volume of the discharge from an individual system shall not exceed two cubic metres per day.</li> <li>3. The sum of all the discharges on a property shall not exceed: <ol style="list-style-type: none"> <li>(a) three cubic metres per day on a property of up to eight hectares; or</li> <li>(b) four cubic metres per day on a property of between eight and forty hectares; or</li> <li>(c) six cubic metres per day on a property of between forty and 200 hectares; or</li> <li>(d) ten cubic metres per day on a property of more than 200 hectares.</li> </ol> </li> <li>4. The discharge shall not result in effluent or washdown water flowing, seeping, or ponding on the surface of the ground.</li> <li>5. There is no sewerage pipeline network available to collect the discharge. A connection shall be made to a sewerage pipeline network within six months of a network becoming available. For the purpose of this condition, “available” means: <ol style="list-style-type: none"> <li>(a) a sewerage pipeline network system passes within 30 metres of the property boundary; and</li> <li>(b) the network operator will accept the discharge.</li> </ol> </li> <li>6. A discharge that existed prior to notification of this rule is authorised under this rule provided an effluent filter shall be fitted in accordance with Condition 16 by the third anniversary of the date this rule becomes operative.</li> <li>7. When there is a change to the nature or volume of the discharge, or any modification to the system, as a result of: <ol style="list-style-type: none"> <li>(a) an alteration of a building that requires authorisation under the Building Act 1991; or</li> <li>(b) the connection to the system of a new or replacement building, or relocated building; or</li> <li>(c) any alteration to the existing system, excluding routine maintenance of the system or fitting an effluent filter in accordance with Condition 6;</li> </ol>                     the discharge shall comply with Conditions 9 to 21 inclusive of this rule.                 </li> <li>8. Where the discharge occurs in a Community Drinking Water Supply Protection Zone for a well listed in Schedule WQL2, or within the Christchurch Groundwater Protection Zone 1, or Sub-Zones 1A, 1B, 1C or</li> </ol>	<p><b>Policies</b></p> <p>WQL 2</p> <p>WQL6</p> <p>WQL7</p> <p>WQL8</p> <p>WQL12</p> <p>WQL13</p> <p>WQL14</p> <p>WQL15</p> <p>WQL16</p> <p>WQL17</p> <p>WQL18</p> <p>WQL19</p> <p>WQL20</p> <p>WQL24</p> <p>54</p>

<sup>53</sup> WQLV6.1

<sup>54</sup> WQLV6.1

<p>4. a <b>non-complying activity</b> if the discharge does not comply with any one or more of Conditions 4, 8 or 22 of this Rule, in which case a resource consent under Rule WQL 64 is required;</p> <p>5. a <b>prohibited activity</b> if the discharge does not comply with Condition 13 of this Rule, in which case no resource consent will be granted under Rule WQL 15.</p>	<p>1D, or Zone 2 the discharge shall comply with Conditions 10 to 21 of this rule:</p> <p>(a) by the fifth anniversary of the date this rule becomes operative; or</p> <p>(b) when there is a change to the nature or volume of the discharge or any modification to the system under Condition 7.</p> <p>9. The discharge shall not occur:</p> <p>(a) within 20 metres of a river, lake, artificial watercourse, or the Coastal marine area; or</p> <p>(b) at an elevation higher than 1000 metres above sea level; or</p> <p>(c) on land with an average slope greater than 20 degrees; or</p> <p>(d) on land:</p> <p>(i) that is likely to be flooded from a river or lake in an event with an Annual Exceedance Probability of two percent (1 in 50 year event) or more; or</p> <p>(ii) where water is likely to pond in a rainfall event with an Annual Exceedance Probability of two percent (1 in 50 year event) or more; or</p> <p>(e) within 20 metres of the boundary of a wetland:</p> <p>(i) listed in <i>Schedule WTL 1: Moderate and higher significance wetlands</i>; or</p> <p>(ii) any other wetland unless the taking, use, damming or diversion of water is permitted under Rule WTL2 or Rule WTL3.</p> <p>10. The discharge shall not occur where the land is located over:</p> <p>(a) an unconfined or semi-confined aquifer, where the highest groundwater level, which can reasonably be expected at the point of discharge based upon relevant and available groundwater data, is less than six metres from the ground surface; or</p> <p>(b) the Coastal Confined Gravel Aquifer System, and there is:</p> <p>(i) less than two metres of undisturbed material between the point of discharge and the Aquifer 1; or</p> <p>(ii) less than two metres of unsaturated sediment above any water table overlying Aquifer 1.</p> <p>11. Separation distances shall be maintained:</p> <p>(a) between a well and a discharge system that occurs outside of a Community Drinking Water Supply Protection Zone, as specified in Part A of Schedule WQL6 ; or</p> <p>(b) between discharge systems, as specified in Part B of Schedule WQL6 .</p> <p>12. The minimum separation distance between the discharge and a property boundary shall be:</p> <p>(a) 50 metres to the down gradient boundary in the direction of groundwater flow at the site; and</p> <p>(b) 30 metres to any other property boundary.</p> <p>13. There shall be no discharge of sewage effluent directly to surface water or directly into groundwater.</p> <p>14. The land application system shall consist of either:</p> <p>(a) a treatment bed or beds:</p> <p>(i) with media of at least 600 millimetres thick; and,</p> <p>(ii) of which the media shall be sand with a grain size between 0.3 millimetres and 1.0 millimetre with a uniformity coefficient of 4, and at the time of construction, contain no clay, limestone or organic material; and</p>	
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- (iii) to which the discharge is pumped, or is dosed in fixed quantities, so that the effluent is applied to the treatment bed or beds evenly at a rate of not more than 50 millimetres per day; or
  - (b) a pressure compensating drip irrigation system through which the discharge is applied evenly, and at a rate of not more than five millimetres per day; or
  - (c) in-situ soil to which the discharge is applied evenly and at a rate which shall not exceed the value for the type of discharge system and soil type in Table 4.2A1, Table 4.2A2, Table 4.2A3, or Table 4.2A4 in the Australian/New Zealand Standard 1547:2000 2005<sup>53</sup> *On-site domestic- wastewater management*.
15. Where the land application system consists of a treatment bed or beds or in-situ soil, as specified in Condition 14(a) or 14(c), there shall be sufficient additional land available on the property to allow a replacement land application system to be installed.
  16. The effluent shall pass through a proprietary effluent filter before discharge to the land application system.
  17. A copy of the design plan of the treatment and land application system or soakage hole shall be submitted to Environment Canterbury at least twenty working days prior to the installation of the system.
  18. When the construction of the treatment and land application system or soakage hole is completed:
    - (a) the work shall be certified by a suitably qualified and competent person as having been carried out in accordance with the design plan; and
    - (b) a copy of the certificate shall be forwarded to Environment Canterbury within twenty working days following completion of the work.
  19. The treatment and land application system shall be operated and maintained in accordance with the system's design specification for maintenance.
  20. The primary treatment tank or chamber shall:
    - (a) have an access point or points for inspecting and maintaining the effluent filter, monitoring the accumulation of sludge and desludging the tank or chamber. The access point or points shall be accessible for these purposes at all times; and
    - (b) be inspected at least once a year and the depth of accumulated sludge in the primary treatment tank or chamber measured; and
    - (c) be desludged when the accumulated scum and sludge occupy more than two thirds of the volume of the tank or chamber.
  21. The following information shall be recorded, and a copy of these records made available to Environment Canterbury upon request:
    - (a) maintenance of the treatment and land application system, including inspection, desludging or remedial work; and
    - (b) date works are undertaken and the name of the company and person undertaking the work.
  22. The discharge shall not occur within a Community Drinking Water Supply Protection Zone for a well listed in Schedule WQL2.
  23. The discharge may occur via a soakage hole provided:
    - (a) the discharge is from a system for which Building Consent was issued after the date of notification of this rule; and

	<p>(b) the discharge is located within Zone SM as shown on Map Volume Part 1- Planning Maps; and</p> <p>(c) the discharge also complies with Conditions 1 to 5, 9, 11, 13, 17, 18, 20, 21, and 22, of this rule but does not need to comply any other condition of this rule;</p> <p>(d) the effluent shall pass through a proprietary effluent filter before discharge; and</p> <p>(e) the depth of the soakage hole does not exceed three metres.</p>	
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## Rule WQL12 Discharge of domestic sewage sludge into land – controlled activity

Activity	Conditions	Matters for Control	Cross reference
<p>The discharge of domestic sewage sludge into land; is –</p> <ol style="list-style-type: none"> <li>a <b>controlled activity</b> if the discharge is complies with all of the conditions of this Rule; or</li> <li>a <b>discretionary activity</b> if the discharge does not comply with any one or more of the conditions of this Rule, excluding Condition 2(d)(i), in which case a resource consent under Rule WQL 67 is required;</li> <li>a <b>non-complying activity</b> if the discharge does not comply with Condition 2(d)(i) of this Rule, in which case a resource consent under Rule WQL 64 is required.</li> </ol>	<ol style="list-style-type: none"> <li>The discharge shall only comprise sewage sludge from individual on-site sewage effluent and waste water systems.</li> <li>The discharge of sewage tank sludge shall not occur: <ol style="list-style-type: none"> <li>within 50 metres of the edge of a river, lake, artificial water course, or the Coastal marine area; or</li> <li>within 50 metres of the boundary of a wetland: <ol style="list-style-type: none"> <li>listed in <i>Schedule WTL1: Moderate and higher significance wetlands</i>; or</li> <li>any other wetland unless the taking, use, damming or diversion of water is permitted under Rule WTL2 or Rule WTL3; or</li> </ol> </li> <li>on land: <ol style="list-style-type: none"> <li>that is likely to be flooded from a river or lake in an event with an Annual Exceedance Probability of 10 percent (1 in 10 year event) or more ; or</li> <li>where water is likely to pond in a rainfall event with an Annual Exceedance Probability of 10 percent (1 in 10 year event) or more; or</li> </ol> </li> <li>Within: <ol style="list-style-type: none"> <li>a Community Drinking Water Supply Protection Zone for a well listed in Schedule WQL2, or</li> <li>the Christchurch Groundwater Protection Zone 1, or Sub-Zones 1A, 1B, 1C, or 1D, or Zone 2; or</li> </ol> </li> </ol> </li> </ol>	<p>Environment Canterbury has reserved control over the following matters in imposing any conditions:</p> <ol style="list-style-type: none"> <li>location, depth, volume and frequency of the discharge;</li> <li>adverse effects on water quality and aquatic ecosystems, and sources of drinking water;</li> <li>management and restoration of the site where the discharge occurs;</li> <li>monitoring of the activity and its effects;</li> <li>the duration of the consent; and</li> <li>review of resource consent conditions.</li> </ol>	<p><b>Policies</b></p> <p>WQL2 WQL6 WQL8 WQL12 WQL13 WQL14 WQL15 WQL16 WQL17 WQL18 WQL19 WQL20 WQL24</p> <p>56</p>
<p><b>Information to be provided</b></p> <p>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.</p>		<p><b>Service</b></p> <p>In accordance with section 94D(3), RMA 1991, notice of an application</p>	

<sup>56</sup> WQLV6.1

	<p>(e) within any area identified in a proposed or operative district plan for residential or business purposes; or</p> <p>(f) within the separation distances, specified in Part A of Schedule WQL6 , between a well and a discharge that occurs outside of a Community Drinking Water Supply Protection Zone; or</p> <p>(g) within 50 metres of any property boundary in the down gradient direction of groundwater flow or within 30 metres of any other property boundary.</p> <p>(h) on an archaeological site, or site registered with the New Zealand Historic Places Trust unless the written approval of the Trust has been obtained.</p> <p>3. The discharge shall not occur where the land is located over an unconfined or semi-confined aquifer, where the highest groundwater level, which can reasonably be expected at the point of discharge based upon relevant and available groundwater data, is less than six metres from the ground surface.</p>	<p>for a resource consent required by this rule does not need to be served on those persons identified under Section 94(1) of that Act.</p>	

**Rule WQL16 Discharge of an agrichemical into or over water in a surface water body, or agrichemical washwater onto land - permitted activity**

Activity	Conditions	Cross reference
<p>The discharge of:</p> <ul style="list-style-type: none"> <li>(a) an agrichemical into or over water in a surface water body or onto land where it may enter water in a surface water body or into groundwater within the Christchurch Groundwater Protection Zones; or</li> <li>(b) wash water from the rinsing or cleaning of an agrichemical container and equipment onto land where it may enter a water body;</li> </ul> <p>is –</p> <ul style="list-style-type: none"> <li>- a <b>permitted activity</b> if the discharge complies with the relevant conditions of this Rule;</li> <li>- a <b>discretionary activity</b> if the discharge does not comply with any one or more of the conditions of this Rule, excluding any one or more of Conditions 2(d), 3(b) or 3(c) in which case a resource consent under Rule WQL 56 or WQL 57 is required;</li> <li>- a <b>non-complying activity</b> if the discharge does not comply with any one or more of Conditions 2(d), 3(b) or 3(c) of this Rule, in which case a resource consent under Rule WQL 60 or WQL64 is required.</li> </ul>	<ol style="list-style-type: none"> <li>1. There shall be no discharge of an agrichemical:               <ol style="list-style-type: none"> <li>(a) into a surface water body as a result of direct application or spray drift, or onto land where the agrichemical may enter the water body via surface runoff, except for those agrichemicals authorised for discharge over or into water under Conditions 3 and 4 of this rule; or</li> <li>(b) onto land where the agrichemical may enter a bore;</li> <li>(c) onto the bed of a river, except for those agrichemicals authorised for discharge onto land in the bed of a river under Condition 4 of this rule.</li> </ol> </li> <li>2. Where the discharge is onto vegetation that is over water or the vegetation emerges from water, the following shall apply:               <ol style="list-style-type: none"> <li>(a) the discharge shall only be of:                   <ol style="list-style-type: none"> <li>(i) glyphosate and associated surfactants with an aquatic toxicity measured as the 96 hour LC<sub>50</sub> of less than 10 grams per cubic metre; or</li> <li>(ii) diquat;</li> </ol> </li> <li>(b) the area over which the discharge occurs shall not exceed half a hectare in any river or lake or exceed 25 percent of the surface area of any lake which ever is the lesser;</li> <li>(c) the discharge shall not occur within 250 metres of a water supply intake that is not an intake for a community drinking water supply;</li> <li>(d) the discharge shall not occur within one kilometre of an intake on a lake or a river for a community drinking water supply listed in Schedule WQL2.</li> </ol> </li> <li>3. Where the discharge is into or onto water, the following shall apply:               <ol style="list-style-type: none"> <li>(a) the active ingredient in the agrichemical shall only be diquat;</li> <li>(b) the person undertaking the discharge shall notify, at least five working days, but not earlier than 20 working days, before commencing the discharge:                   <ol style="list-style-type: none"> <li>(i) every person authorised to take water within one kilometre of the proposed discharge; and</li> </ol> </li> </ol> </li> </ol>	<p><b>Policies</b></p> <ul style="list-style-type: none"> <li>WQL2</li> <li>WQL3</li> <li>WQL4</li> <li>WQL7</li> <li>WQL8</li> <li>WQL12</li> <li>WQL13</li> <li>WQL13</li> <li>WQL14</li> <li>WQL15</li> <li>WQL16</li> <li>WQL17</li> <li>WQL18</li> <li>WQL19</li> <li>WQL20</li> <li>WQL21</li> </ul> <p>60</p>

<sup>59</sup> WQLV6.42

<sup>60</sup> WQLV6.1

	<ul style="list-style-type: none"> <li>(ii) the community of the intended date and location of the discharge through a Public Notice in a newspaper circulated within the locality where the discharge will occur;</li> </ul>	
	<ul style="list-style-type: none"> <li>(c) the discharge shall not occur within: <ul style="list-style-type: none"> <li>(i) areas of protected waters of the Ahuriri River Water Conservation Order; or</li> <li>(ii) bodies of water defined in the Rakaia River Water Conservation Order; and</li> </ul> </li> <li>(d) the area over which the discharge occurs shall not exceed half a hectare in any river or lake, or exceed 25 percent of the surface area of any lake, whichever is the lesser.</li> </ul>	
	<p>4. Where the discharge is onto land in the bed of a river:</p> <ul style="list-style-type: none"> <li>(a) the discharge shall not be into surface water;</li> <li>(b) only the following compounds shall be used: sodium monofluoroacetate, pindone, glyphosate and associated surfactants with an aquatic toxicity measured as the 96 hour LC<sub>50</sub> of less than 10 grams per cubic metre;</li> <li>(c) the application of these agrichemicals by aircraft shall not occur between the first day of August and the last day of November in any year; and</li> <li>(d) Environment Canterbury shall be notified of the intended time and location of the discharge at least two working days prior to the discharge occurring.</li> </ul> <p>5. The agrichemical shall be registered in New Zealand at the time of application under the Hazardous Substance and New Organisms Act 1996, or the Agricultural Compounds and Veterinary Medicines Act 1997, and be suitable for controlling the target organism. The agrichemical shall be applied in a manner that does not exceed the rate or concentration or contravene any other requirement specified in the manufacturer's instructions and be undertaken in accordance with Section 5 of the "Agrichemical User's Code of Practice" (New Zealand Standard 8409:2004 <del>8409:1999</del>).</p> <p>6. A discharge of agrichemical into or over water shall be carried out by a person who holds a current GROWSAFE® Registered Applicator's Certificate issued by the New Zealand Agrichemical Education Trust in accordance with New Zealand Standard 8409:2004.</p> <p>7. Where the discharge of an agrichemical is by other than hand held methods, the following information shall be recorded and the records maintained for 12 months following the discharge, and these records shall be made available to Environment Canterbury upon request:</p> <ul style="list-style-type: none"> <li>(a) the target pest;</li> <li>(b) type of agrichemical, volume and concentration;</li> <li>(c) location and area over which discharge occurs;</li> <li>(d) date, time and method of discharge; and</li> <li>(e) wind speed and direction at time of discharge.</li> </ul> <p>8. Where an aircraft is used to apply an agrichemical:</p> <ul style="list-style-type: none"> <li>(a) the aircraft shall be guided by a satellite navigation system, and the pilot of the aircraft shall be competent in the use of the system;</li> <li>(b) the discharge shall be carried out by a person who holds a GROWSAFE® Pilots' Agrichemical Rating Certificate of Qualification; and</li> <li>(c) the record of the area flown shall be retained for a period of one year following the flight. A copy of the record shall be made available to Environment Canterbury upon request.</li> </ul>	

	<p>9. <u>No mixing or diluting of an agrichemical shall take place within the Christchurch Groundwater Protection Zone 1, or Sub-Zones 1A, 1B, 1C or 1D, or Zone 2, or within ten metres of the edge of a river, lake, or an artificial water course, bore, or on land containing a subsurface drainage system, unless the mixing takes place over an impervious surface that will contain any spillage.</u></p> <p><u>No mixing or diluting of an agrichemical shall take place:</u></p> <p><u>(a) Within the Christchurch Groundwater protection Zones 1, 1A, 1B, 1C, 1D or 2, or within a Community Drinking Water Supply Protection Zone for a well listed in Schedule WQL2 unless:</u></p> <ul style="list-style-type: none"> <li><u>i. The mixing/dilution takes place within a sealed, banded system that would contain at least 110% of the largest single spray tank to be filled; or</u></li> <li><u>ii. The mixing/dilution is for a hand-held application technique or method.</u></li> </ul> <p><u>(b) Within 5 metres of surface water;</u></p> <p><u>(c) Within 10 metres of a bore;</u></p> <p><u>(d) Within 5 to 10 metres of surface water unless:</u></p> <ul style="list-style-type: none"> <li><u>i. The location where the mixing or dilution occurs is sloping away from the surface water;</u> <u>or</u></li> <li><u>ii. The mixing/dilution takes place within a sealed, banded system that would contain at least 110% of the largest single spray tank to be filled; or</u></li> <li><u>iii. The mixing/dilution is for a hand-held application technique or method.</u></li> </ul> <p><u>If the mixing/dilution water 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.<sup>59</sup></u></p> <p>10. <u>Contaminated water from the rinsing and cleaning of containers and equipment shall not be discharged into surface water or onto land where the discharge may enter surface water or groundwater in the area of the Christchurch Groundwater Protection Zone 1, or Sub-Zones 1A, 1B, 1C or 1D or Zone 2, or within a Community Drinking Water Supply Protection Zone for a well listed in Schedule WQL2.</u></p>	

## Rule WQL23 Discharge of dead animal matter or refuse into production land - permitted activity

Activity	Conditions	Cross reference
<p>The discharge into production land of:</p> <ul style="list-style-type: none"> <li>(a) dead animal matter or plant matter; or</li> <li>(b) refuse;</li> </ul> <p>where a contaminant may enter water;</p> <p>is -</p> <ol style="list-style-type: none"> <li>1. a <b>permitted activity</b> if the discharge is: <ul style="list-style-type: none"> <li>(a) dead animal matter or plant matter and complies with Condition 1 and Conditions 3 to &amp; 9 of this Rule; or</li> <li>(b) refuse and complies with Conditions 2 to &amp; 9 of this Rule;</li> </ul> </li> <li>2. a <b>discretionary activity</b> if the discharge does not comply with any one or more of the conditions of this Rule, excluding Condition 5(d), in which case a resource consent under Rule WQL 59 is required;</li> <li>3. a <b>non-complying activity</b> if the discharge does not comply with Condition 5(d) of this Rule, in which case a resource consent under Rule WQL 62 is required.</li> </ol>	<ol style="list-style-type: none"> <li>1. The discharge of dead animal matter or plant matter into production land shall meet the following: <ul style="list-style-type: none"> <li>(a) the discharge shall be into a pit of a volume less than 30 cubic metres; and</li> <li>(b) surface runoff shall not enter the pit; and</li> <li>(c) animals shall be prevented from gaining access to the contents of the pit; and</li> <li>(d) only dead animal or plant matter or soil shall be placed into the pit; and</li> <li>(e) no calcium carbonate (agricultural lime) shall be added to a pit.</li> </ul> </li> <li>2. The discharge of refuse into land shall meet the following: <ul style="list-style-type: none"> <li>(a) the discharge shall be into a pit and the refuse shall only be derived from households or farming activities carried out on the same property where the pit is located; and</li> <li>(b) dead animal matter may be placed in a refuse pit if the source of the dead animal matter is the same property where the pit is located and the farming activity on the property shall not involve intensive livestock production or factory farming; and</li> <li>(c) no liquid petroleum products, industrial solvents, or agrichemicals shall be discharged into a refuse pit; and</li> <li>(d) agrichemical containers that have been cleaned and triple rinsed in accordance with the procedure in Appendix WQL2 may be discharged into land in a refuse pit.</li> </ul> </li> <li>3. 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.</li> <li>4. There shall be no more than two pits for any discharge per hectare of land within a period of two consecutive years on any property that overlies an unconfined or semi-confined aquifer.</li> <li>5. The discharge shall not occur: <ul style="list-style-type: none"> <li>(a) within 50 metres of the edge of a river or lake, artificial water course or the Coastal marine area; or</li> <li>(b) within 50 metres of the boundary of a wetland; <ul style="list-style-type: none"> <li>(i) listed in <i>Schedule WTL 1: Moderate and higher significance wetlands</i>; or</li> <li>(ii) any other wetland unless the taking, use, damming or diversion of water is permitted under Rule WTL2 or Rule WTL3;</li> </ul> </li> <li>(c) on or into land: <ul style="list-style-type: none"> <li>(i) that is likely to be flooded from a river or lake in an event with an Annual Exceedance</li> </ul> </li> </ul> </li> </ol>	<p><b>Policies</b></p> <p>WQL7 WQL8 WQL12 WQL13 WQL14 WQL16 WQL17 WQL18 WQL19 WQL20 WQL21</p> <p><small>63</small></p>

<sup>62</sup> WQLV6.44

<sup>63</sup> WQLV6.1

	<p>Probability of 20 percent ( 1 in 5 year event) or more; or</p> <p>(ii) where water is likely to pond in a rainfall event with an Annual Exceedance Probability of 20 percent (1 in 5 year event) or more;</p> <p>(d) within a Community Drinking Water Supply Protection Zone for a well listed in Schedule WQL2;</p> <p>(e) within the separation distance in Part A of Schedule WQL6 between the discharge and a well; and</p> <p>(f) within 50 metres, in the down-gradient direction of groundwater flow, of a property boundary and 30 metres of any other property boundary.</p> <p>6. 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.</p> <p>7. 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.</p> <p>8. The following information shall be recorded, and a copy of the records shall be made available to Environment Canterbury upon request:</p> <p>(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</p> <p>(b) the period the pit has been or was in use.</p> <p>9. Within the Christchurch Groundwater Protection Zone 1, Sub-Zones 1A, 1B, 1C or 1D or Zone 2 any discharge shall be limited to an existing discharge that was <del>authorised</del> <u>lawfully established</u><sup>62</sup> at the time this rule becomes operative.</p>	
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### Rule WQL24 Discharge of solid animal effluent, vegetative material containing animal effluent or vegetative material from an industrial or trade process onto production land - permitted activity

Activity	Conditions	Cross-reference
<p>The discharge onto production land of:</p> <p>(a) straw, sawdust or other vegetative material containing animal effluent, solid animal, or poultry effluent; or</p> <p>(b) vegetative material from an industrial or trade process,</p>	<p>1. The material discharged shall be in a solid or semi-solid state.</p> <p>2. The discharge shall not result in the accumulation of toxic or persistent contaminants in the soil beyond concentrations that occur naturally in the land where the discharge occurs.</p> <p>3. The material shall not be discharged onto the same area of production land more frequently than once</p>	<p><b>Policy</b></p> <p>WQL7</p> <p>WQL12</p> <p>WQL13</p>

<sup>65</sup> WQLV6.1

<sup>66</sup> WQLV6.1

<p>excluding a sewage treatment process; where a contaminant may enter water; is –</p> <ol style="list-style-type: none"> <li>1. <b>permitted activity</b> if the discharge complies with all of the conditions of this Rule;</li> <li>2. a <b>discretionary activity</b> if the discharge does not comply with any one or more of the conditions of this Rule, excluding Condition 8, in which case a resource consent under Rule WQL 57 is required.</li> <li>3. a <b>non-complying activity</b> if the discharge does not comply with Condition 8 of this Rule, in which case a resource consent under Rule WQL 64 is required.</li> </ol>	<p>in any consecutive six month period.</p> <ol style="list-style-type: none"> <li>4. The material shall be spread onto land as evenly as is practicable.</li> <li>5. The material shall not be discharged onto land within: <ol style="list-style-type: none"> <li>(a) 40 metres of a lake; or</li> <li>(b) 20 metres of a bore; or</li> <li>(c) 10 metres of the edge of a permanently flowing river or stockwater race, unless the material is worked into the ground immediately after discharge and the activity complies with Rule WQL 33.</li> </ol> </li> <li>6. The material shall not be discharged onto land where the soil moisture exceeds field capacity.</li> <li>7. Within the Christchurch Groundwater Protection Zone 1, or Sub-Zones 1A, 1B, 1C or 1D or Zone 2, any discharge shall be limited to an existing discharge that was <del>authorised</del> <u>lawfully established</u><sup>65</sup> at the time this rule becomes operative.</li> <li>8. Within a Community Drinking Water Supply Protection Zone for a well listed in Schedule WQL2;</li> </ol>	<p>WQL14 WQL16 WQL17 WQL18 WQL19 WQL20 WQL24 66</p>

## Rule WQL26 Discharge of animal effluent or water containing animal effluent or other contaminants onto land - controlled activity

Activity	Conditions	Matters for Control	Cross reference														
<p>The discharge of animal effluent or water containing animal effluent or other contaminants, onto land from an animal - effluent collection and storage system:</p> <p>is -</p> <ol style="list-style-type: none"> <li>1. a <b>controlled activity</b> if the discharge complies with all of the conditions of this Rule;</li> <li>2. a <b>restricted discretionary activity</b> if the discharge does not comply with any one or more of Conditions 2, 5 or 6 of this Rule, in which case a resource consent <del>under Rule WQL 27</del> is required;</li> <li>3. a <b>discretionary activity</b> if the discharge does not comply with any one or more of Conditions 1, 3, excluding 3(a), Condition 4, or Condition 7 of this Rule, in which case a resource consent <del>under Rule WQL 57</del> is required;</li> <li>4. a <b>non-complying activity</b> if the discharge does not comply with Condition 8 of this Rule, in which case a resource consent <del>under Rule WQL 64</del> is required;</li> <li>5. a <b>prohibited activity</b> if the discharge does not comply with Condition 3(a) of this Rule, in which case no resource consent will be granted <del>under Rule WQL 28</del>.</li> </ol> <div style="border: 1px solid black; padding: 5px;"> <p><b>Rule Table WQL 26: Maximum application depths of the discharge onto land</b></p> <table border="1"> <thead> <tr> <th>Soil Type</th> <th>Maximum application depth (millimetres)</th> </tr> </thead> <tbody> <tr> <td>Sand</td> <td>15</td> </tr> <tr> <td>Loamy sand</td> <td>18</td> </tr> <tr> <td>Sandy loam</td> <td>22</td> </tr> <tr> <td>Fine sandy loam</td> <td>24</td> </tr> <tr> <td>Silt loam</td> <td>24</td> </tr> <tr> <td>Clay loam</td> <td>18</td> </tr> </tbody> </table> </div>	Soil Type	Maximum application depth (millimetres)	Sand	15	Loamy sand	18	Sandy loam	22	Fine sandy loam	24	Silt loam	24	Clay loam	18	<ol style="list-style-type: none"> <li>1. The discharge shall be via a spray or dripper distribution system, and all associated tanks, pipes, sumps, and channels shall be sealed to prevent leakage onto or into the land.</li> <li>2. The application depth, including any irrigation water applied with the discharge or within 24 hours before or after the discharge, shall not exceed the application depth in Rule Table WQL26 for the soil type which predominates on the land where the discharge occurs.</li> <li>3. The discharge shall not result in any contaminants leaking or flowing:             <ol style="list-style-type: none"> <li>(a) into a river or a lake; or</li> <li>(b) onto land within ten metres of the boundary of a wetland:                 <ol style="list-style-type: none"> <li>(i) listed in <i>Schedule WTL1: Moderate and higher significance wetlands</i>; or</li> <li>(ii) any other wetland unless the taking, use, damming or diversion of water is not permitted under Rule WTL2 or Rule WTL3; or</li> </ol> </li> <li>(c) into a bore or onto land with 20 metres of a bore; or</li> <li>(d) onto an archaeological site registered with the New Zealand Archaeological Association, or a site registered with the New Zealand Historic Places Trust unless the written approval of the Trust has been obtained; or</li> <li>(e) onto any formed public road; or</li> <li>(f) onto any neighbouring property, except where the written approval of the current landowner of that property has been obtained.</li> </ol> </li> <li>4. There shall be no discharge onto frozen ground, or snow-covered ground. For the purposes of this rule:             <ol style="list-style-type: none"> <li>(a) frozen ground means the earth temperature at five centimetres soil depth is less than zero degrees Celsius for a period of 12 hours or longer in the</li> </ol> </li> </ol>	<p>Environment Canterbury has reserved control over the following matters in imposing any conditions:</p> <ol style="list-style-type: none"> <li>1. The potential impacts of effluent, or other contaminants in the effluent including cleaning agents, hazardous substances, or animal remedies on:             <ul style="list-style-type: none"> <li>▪ soil quality;</li> <li>▪ human or stock health;</li> <li>▪ surface water quality;</li> <li>▪ ground water quality; or</li> <li>▪ sources of community drinking water;</li> </ul> <p>from both the mass of contaminants leached and the concentration of contaminants in soil drainage water;</p> </li> <li>2. Measures to avoid any adverse effects on water quality, including separation distances and riparian management;</li> <li>3. The design, construction, location, operation and maintenance of the effluent collection and discharge system;</li> <li>4. The capacity of the collection system to store effluent in the event of:             <ul style="list-style-type: none"> <li>▪ a system failure; and</li> <li>▪ during periods when the ground conditions are unsuitable for the discharge.</li> </ul> </li> <li>5. The area of land over which the discharge occurs under current and</li> </ol>	<p><b>Policies</b></p> <p><del>WQL2</del></p> <p><del>WQL6</del></p> <p><del>WQL8</del></p> <p><del>WQL12</del></p> <p><del>WQL13</del></p> <p><del>WQL14</del></p> <p><del>WQL16</del></p> <p><del>WQL17</del></p> <p><del>WQL18</del></p> <p><del>WQL19</del></p> <p><del>WQL20</del></p> <p><del>WQL24</del></p> <p>68</p>
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Sand	15																
Loamy sand	18																
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Fine sandy loam	24																
Silt loam	24																
Clay loam	18																

	<p>preceding 24 hours;</p> <p>(b) snow-covered ground means 80 percent of the discharge area is covered in snow with an average depth of ten centimetres for more than 48 hours.</p>	<p>anticipated herd sizes.</p>	
<p align="center"><b>Information to be provided</b></p> <p>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.</p>	<p>5. There shall be no pools of effluent on the land surface three hours after the discharge occurs.</p>	<p>6. Measures to ensure the volume and rate of discharge do not exceed:</p> <ul style="list-style-type: none"> <li>▪ the capability of the soil and subsoil layers at the site to reduce contaminant concentrations in the discharge; and</li> <li>▪ the infiltration capacity of the soil and subsoil layers at the site.</li> </ul>	
	<p>6. The nitrogen application rate for cattle, pig or other animal effluent shall not exceed a total nitrogen loading rate of 200 kilograms of nitrogen per hectare per year; and the rate of application of effluent shall not exceed 100 kilograms of nitrogen per hectare per year within any consecutive three month period.</p> <p>7. The discharge shall not occur within the Christchurch Groundwater Protection Zone 1, or Sub-Zones 1A, 1B, 1C or 1D or Zone 2, as shown on Map Volume Part 1- Planning Maps.</p> <p>8. The discharge shall not occur within a Community Drinking Water Supply Protection Zone for a well listed in Schedule WQL2.</p>	<p>7. The timing, volume, rate and location of effluent application to land.</p> <p>8. Records of the discharge.</p> <p>9. Review of resource consent conditions</p> <p>10. The monitoring of the activity and its effects.</p> <p>11. The duration of the consent</p> <p>12. Financial contributions</p> <p><b>Service</b></p> <p>In accordance with section 94D(3) RMA 1991, notice of an application for a resource consent required by this rule does not need to be served on those persons identified under Section 94(1) of that Act.</p>	

<sup>68</sup> WQLV6.1

<sup>70</sup> WQLV6.1

**Rule WQL27 — Discharge of animal effluent or water containing animal effluent or other contaminants onto land that does not comply with certain conditions in Regional Rule WQL 26- restricted discretionary activity**

Activity	Conditions	Restriction of Discretion	Cross reference
<p>The discharge of animal effluent or water containing animal effluent and other contaminants, onto land from an animal effluent collection and storage system: is—</p> <ol style="list-style-type: none"> <li>a <b>restricted discretionary activity</b> if the discharge does not comply with any one or more of Conditions 2, 5, 6, or 7 of Rule WQL 26, but does comply with all of the conditions of Rule WQL27;</li> <li>a <b>discretionary activity</b> if the discharge does not comply with any one or more of Conditions 1 to 3, excluding 1(a) of Rule WQL27 in which case a resource consent under Rule WQL 57 is required;</li> <li>a <b>non-complying activity</b> if the discharge does not comply with Condition 4 of Rule WQL27, in which case a resource consent under Rule WQL 61 is required;</li> <li>a <b>prohibited activity</b> if the discharge does not comply with Condition 1(a) of Rule WQL27, in which case no resource consent will be granted under Rule WQL 28.</li> </ol>	<ol style="list-style-type: none"> <li>The discharge shall not result in any contaminants leaking or flowing: <ol style="list-style-type: none"> <li>into a river or a lake; or</li> <li>onto land within ten metres of the boundary of a wetland: <ol style="list-style-type: none"> <li>listed in <i>Schedule WTL1: Moderate and higher significance wetlands</i>; or</li> <li>any other wetland unless the taking, use, damming or diversion of water is permitted under Rule WTL2 or Rule WTL3; or</li> </ol> </li> <li>into a bore or onto land with 20 metres of a bore; or</li> <li>onto an archaeological site registered with the New Zealand Archaeological Association, or onto a site registered with the New Zealand Historic Places Trust unless the written approval of the Trust has been obtained; or</li> <li>onto a formed public road; or</li> <li>onto a neighbouring property, except where the written approval of the current landowner of that property has been obtained.</li> </ol> </li> <li>There shall be no discharge onto frozen ground, or snow-covered ground. For the purposes of this rule: <ol style="list-style-type: none"> <li>frozen ground means the earth temperature at five centimetres soil depth is less than zero degrees Celsius for a period of 12 hours or longer in the preceding 24 hours;</li> <li>snow-covered ground means 80 percent of the discharge area is covered in snow with an average depth of ten centimetres for more than 48 hours.</li> </ol> </li> <li>The discharge shall not occur within the Christchurch Groundwater Protection Zone 1, or Sub-Zones 1A, 1B, 1C or 1D or Zone 2, as shown on Map Volume Part 1- Planning Maps.</li> <li>The discharge shall not occur within a Community Drinking</li> </ol>	<p>Environment Canterbury has restricted its discretion to the following matters:</p> <ol style="list-style-type: none"> <li>The timing, frequency and application rate of the discharge and any additional irrigation water.</li> <li>The potential impacts of effluent, or other contaminants in the effluent including cleaning agents, hazardous substances, or animal remedies on: <ol style="list-style-type: none"> <li>soil quality;</li> <li>human and stock health</li> <li>surface water quality;</li> <li>ground water quality;</li> <li>sources of community drinking water</li> </ol>                     from both the mass of contaminants leached and the concentration of contaminants in soil drainage water.                 </li> <li>Measures to avoid any adverse effects on water quality, including separation distances and riparian management.</li> <li>Measures to ensure the volume and rate of discharge do not exceed: <ol style="list-style-type: none"> <li>capability of the soil and subsoil layers at the site to reduce contaminant concentrations in the discharge;</li> <li>infiltration capacity of the soil and subsoil layers at the site.</li> </ol> </li> <li>The design, construction, location, operation and maintenance of the effluent collection discharge system.</li> <li>The capacity of the collection system</li> </ol>	<p><b>Policies</b></p> <p>WQL2 WQL6 WQL8 WQL12 WQL13 WQL14 WQL16 WQL17 WQL18 WQL19 WQL20 WQL24 70</p>
<p><b>Where rule applies</b></p> <p>This rule does not apply to all areas/ situations in the Canterbury region — see Table WQL 7: Index of rules</p>			
<p><b>Information to be provided</b></p> <p>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.</p>			

	<p>Water Supply Protection Zone for a well listed in Schedule WQL2.</p>	<p>to store effluent in the event of a system failure, or unsuitable ground conditions.</p> <ol style="list-style-type: none"> <li>7. The area of land over which the discharge occurs under current and anticipated herd sizes.</li> <li>8. Review of resource consent conditions</li> <li>9. Records of the discharge</li> <li>10. The monitoring of the activity and its effects.</li> <li>11. Review of the resource consent conditions</li> <li>12. The duration of the consent</li> <li>13. Financial contributions</li> </ol>	
<p><b>Cross reference:</b> This rule contributes to the implementation of Policies WQL2, WQL6, WQL8, WQL12, WQL13, WQL14, WQL16, WQL17, WQL18, WQL19, WQL20, WQL21<sup>74</sup></p>		<p><b>Notification and service</b></p> <p>In accordance with section 94D(2) RMA 1991, an application for resource consent required by this rule does not need to be notified, and in accordance with Section 94(3) RMA 1991, notice of such an application does not need to be served on those persons identified under Section 94(1) of that Act.</p>	

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<sup>71</sup> WQLV6.1

<sup>72</sup> WQLV6.1

**Rule WQL29 Use of land for storing human sewage effluent or animal effluent, organic waste, or stockpiling fermenting or decaying organic matter - permitted activity**

Activity	Conditions	Cross reference
<p>The use of land to:</p> <ul style="list-style-type: none"> <li>(a) store human sewage effluent or animal effluent; or</li> <li>(b) store organic waste from an industrial or trade process; or</li> <li>(c) stockpile fermenting or decaying organic matter;</li> </ul> <p>is -</p> <ul style="list-style-type: none"> <li>1. a <b>permitted activity</b> if such use complies with all of the conditions of this Rule;</li> <li>2. a <b>restricted discretionary activity</b> if such use does not comply with any one or more of Conditions 3, 4, or 5 of this Rule, in which case a resource consent under Rule WQL 30 is required;</li> <li>3. a <b>discretionary activity</b> if such use does not comply with any one or more of Conditions 1, 2(a), 2(b), 2(c), 2(d), or 2(f) of this Rule, in which case a resource consent under Rule WQL 59 is required;</li> <li>4. a <b>non-complying activity</b> if such use does not comply with Condition 2(e) of this Rule, in which case a resource consent under Rule WQL 62 is required.</li> </ul>	<ul style="list-style-type: none"> <li>1. The total volume of effluent or organic waste stored on a property shall not exceed 100 cubic metres.</li> <li>2. An effluent or waste storage facility, or any stockpile of fermenting or decaying organic matter with a volume greater than five cubic metres, shall not be sited: <ul style="list-style-type: none"> <li>(a) within 50 metres of the edge of any river, lake, or the Coastal marine area; or</li> <li>(b) within 50 metres of the boundary of a wetland: <ul style="list-style-type: none"> <li>(i) listed in <i>Schedule WTL 1: Moderate and higher significance wetlands</i>; or</li> <li>(ii) any other wetland unless the taking, use, damming or diversion of water is permitted under Rule WTL2 or Rule WTL3; or</li> </ul> </li> <li>(c) on land: <ul style="list-style-type: none"> <li>(i) that is likely to be flooded from a river or lake in an event with an Annual Exceedance Probability of one percent ( 1 in 100 year event) or more; or</li> <li>(ii) where water is likely to pond in a rainfall event with an Annual Exceedance Probability of 10 percent (1 in 10 year event) or more; or</li> </ul> </li> <li>(d) where the separation distances to bores specified in Part A of Schedule WQL6 cannot be met; or</li> <li>(e) within a Community Drinking Water Supply Protection Zone for a well listed in Schedule WQL2; or</li> <li>(f) within Christchurch Groundwater Protection Zone 1, or Sub-Zones 1A, 1B, 1C, 1D or 2 as shown on the Map Volume Part 1- Planning Maps.</li> </ul> </li> <li>3. The seepage rate from the floor or sides of any effluent or waste storage facility shall not exceed 10<sup>-8</sup> millimetres per second. All associated tanks, pipes, sumps, and channels shall be sealed to prevent leakage onto or into the land.</li> <li>4. The seepage rate into the land beneath the stock pile of more than five cubic metres of fermenting or decaying organic matter shall not exceed 10<sup>-8</sup> millimetres per second. This condition does not apply where: <ul style="list-style-type: none"> <li>(a) the maximum moisture content of the organic matter is less than 75 percent at all times; or</li> <li>(b) the 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</li> </ul> </li> </ul>	<p><b>Policies</b></p> <p>WQL2 WQL7 WQL8 WQL12 WQL13 WQL14 WQL16 WQL17 WQL18 WQL19 WQL20 WQL21</p> <p>73</p>
	<ul style="list-style-type: none"> <li>(c) the stockpile is located on land over an unconfined or semi-confined aquifer, there shall be at least three metres between the base of the stockpile and the highest groundwater level, which can reasonably be expected at the site based upon relevant and available groundwater data.</li> </ul>	

<sup>73</sup> WQLV6.1

	<p>5. An effluent or waste storage facility from which the effluent or waste is discharged onto land shall have a minimum capacity sufficient to store:</p> <p>(a) at least the maximum volume of effluent or waste produced in any consecutive three day period; and</p> <p>(b) the volume of stormwater run-off from any collection area draining into the facility from a rainstorm event with an Annual Exceedance Probability of 20 percent ( a one in five year event).</p>	

**Rule WQL30 — Use of land for storing human sewage effluent or animal effluent, organic waste or stockpiling fermenting or decaying organic matter that does not comply with certain conditions of Regional Rule WQL 29 - restricted discretionary activity**

Activity	Conditions	Restriction of Discretion	Cross reference
<p>The use of land to:</p> <p>1. store human sewage effluent or animal effluent; or</p> <p>2. store organic waste from industrial or trade processes; or</p> <p>3. stockpile fermenting or decaying organic matter;</p> <p>is—</p> <p>(a) a <b>restricted discretionary activity</b> if such use does not comply with any one or more of Conditions 3, 4, or 5, of Rule WQL29, but does comply with all of the conditions of Rule WQL30;</p> <p>(b) a <b>discretionary activity</b> if such use does not comply with any one or more of Conditions 1, 2(a), 2(b), 2(c), 2(d), or 2(f) of Rule WQL30, in which case a resource consent under Rule WQL59 is required;</p> <p>(c) a <b>non-complying activity</b> if such use does not comply with Condition 2(e) of Rule WQL30, in which case a resource consent under Rule WQL 62 is required.</p>	<p>1. The volume of effluent or organic waste stored on a property shall not exceed 100 cubic metres; or</p> <p>2. An effluent or waste storage pond or other facility used to store effluent or waste, and any stockpile of fermenting or decaying organic matter greater than five cubic metres shall not be sited:</p> <p>(a) within 50 metres from the edge of any river, lake, or the Coastal marine area; or</p> <p>(b) within 50 metres of the boundary of a wetland:</p> <p>(i) listed in <i>Schedule WTL1: Moderate and higher significance wetlands</i>; or</p> <p>(ii) any other wetland unless the taking, use, damming or diversion of water is permitted under Rule WTL2 or Rule WTL3; or</p> <p>(c) on land:</p> <p>(i) that is likely to be flooded from a river or lake in an event with an Annual Exceedance Probability</p>	<p>Environment Canterbury has restricted its discretion to the following matters:</p> <p>1. Measures to prevent or minimise the entry of contaminants into land including leakage or overflow from the facility as a result of a natural event or system failure.</p> <p>2. The design including capacity of the facility, construction, location, operation and maintenance of the storage facilities.</p> <p>3. The monitoring of the activity and its effects.</p> <p>4. Review of the resource consent conditions</p> <p>5. The duration of the consent</p> <p>6. Financial contributions or bonds</p>	<p><b>Policies</b></p> <p>WQL2</p> <p>WQL8</p> <p>WQL12</p> <p>WQL13</p> <p>WQL14</p> <p>WQL16</p> <p>WQL17</p> <p>WQL18</p> <p>WQL19</p> <p>WQL20</p> <p>WQL24</p> <p><sup>75</sup></p>

<sup>75</sup> WQLV6.1

<p style="text-align: center;"><b>Where rule applies</b></p> <p>This rule applies everywhere in the Canterbury region, excluding the Coastal marine area</p>	<p>of one percent ( 1 in 100 year event) or more; or (ii) where water is likely to pond in a rainfall event with an Annual Exceedance Probability of 10 percent (1 in 10 year event) or more); or</p>		
<p style="text-align: center;"><b>Information to be provided</b></p> <p>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.</p>	<p>(d) where the separation distances to bores specified in Part A of Schedule WQL6 cannot be met; 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.</p>	<p style="text-align: center;"><b>Notification and service</b></p> <p>In accordance with section 94D(2) RMA 1991, an application for resource consent required by this rule does not need to be notified, and in accordance with Section 94(3) RMA 1991, notice of such an application does not need to be served on those persons identified under Section 94(1) of that Act.</p>	
<p><b>Cross reference:</b> This rule contributes to the implementation of Policies WQL2, WQL8, WQL12, WQL13, WQL14, WQL16, WQL17, WQL18, WQL19, WQL20, WQL21<sup>76</sup></p>			

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## Rule WQL31 Discharge of a contaminant onto or into land from an industrial or trade process, excluding a sewage treatment process, –permitted activity

Activity	Conditions	Cross-reference
<p>The discharge of a contaminant onto or into land from an industrial or trade process, excluding a sewage treatment process;</p> <p>is –</p> <ol style="list-style-type: none"> <li>1. a <b>permitted activity</b> if the discharge complies with all of the conditions of this Rule;</li> <li>2. a <b>discretionary activity</b> if the discharge does not comply with any one or more of the Conditions 1 to 7, excluding Condition 6(e), in which case a resource consent under Rule WQL 57 is required;.</li> <li>3. a <b>non-complying activity</b> if the discharge does not comply with Condition 6(e) of this Rule, in which case a resource consent under Rule WQL 64 is required.</li> </ol>	<ol style="list-style-type: none"> <li>1. The volume of the discharge shall not exceed ten cubic metres per day.</li> <li>2. The discharge shall not result in the accumulation of toxic or persistent contaminants in the soil beyond concentrations that occur naturally in the land where the discharge occurs.</li> <li>3. The discharge shall be by either:               <ol style="list-style-type: none"> <li>(a) spray irrigation at a rate not exceeding ten millimetres per day; or</li> <li>(b) subsurface irrigation system at a rate not exceeding five millimetres per day.</li> </ol> </li> <li>4. The discharge shall not result in any overflow or runoff into any river, lake or artificial water course.</li> <li>5. The discharge shall not result in pools of contaminants on the ground surface.</li> <li>6. The discharge shall not occur:               <ol style="list-style-type: none"> <li>(a) onto or into land over an unconfined or semi-confined aquifer, where the highest expected groundwater level, which can reasonably be expected at the site based upon relevant and available groundwater data, is less than six metres below the ground surface; or</li> </ol> </li> </ol>	<p><b>Policies</b></p> <p>WQL7 WQL8 WQL12 WQL13 WQL14 WQL16 WQL17 WQL18 WQL19 WQL20 WQL21<sup>78</sup></p>

<sup>76</sup> WQLV6.1

<sup>77</sup> WQLV6.1

	<p>(b) on land:</p> <p>(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 five year event) or more; or</p> <p>(ii) where water is likely to pond in a rainfall event with an Annual Exceedance Probability of 20 percent (1 in 5 year event) or more; or</p> <p>(c) within the separation distances to bores specified in Part A of Schedule WQL6;</p> <p>(d) within the Christchurch Groundwater Protection Zone 1A, 1B, 1C or 1D; and including existing land parcels which overlap within Zone 1 and Zone 2</p> <p>(e) within a Community Drinking Water Supply Protection Zone for a well listed in Schedule WQL2, or within the Christchurch Groundwater Protection Zone 1, or <del>Sub-Zone 2</del>; or</p> <p>(f) onto or into an archaeological site registered with the New Zealand Archaeological Association, or on a site registered with the New Zealand Historic Places Trust, unless the written approval of the Trust has been obtained.</p>	
	<p>7. A record of the following shall be maintained and made available to Environment Canterbury on request:</p> <p>(a) contaminants likely to be present in the discharge;</p> <p>(b) the location of discharge; and</p> <p>(c) the volume, frequency and duration of each discharge.</p>	

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<sup>78</sup> WQLV6.1

<sup>80</sup> WQLV6.1

## Rule WQL36 Use and maintenance of a groundwater bore or water infiltration gallery - permitted activity

Activity	Conditions	Cross reference
<p>The use of land to use and maintain a bore or water infiltration gallery for the purpose of the taking, investigation or monitoring of groundwater;</p> <p>is -</p> <ol style="list-style-type: none"> <li>1. a <b>permitted activity</b> if such use complies with all of the conditions of this Rule;</li> <li>2. a <b>discretionary activity</b> if such use does not comply with any one or more of conditions of this Rule, in which case a resource consent under Rule WQL 59 is required.</li> </ol> <p>For the purposes of this rule, use in relation to a bore means any use, including maintenance of the structure. This rule does not authorise the taking or use of water.</p>	<ol style="list-style-type: none"> <li>1. The site shall have sufficient open surroundings to avoid the accumulation of hazardous gases in the vicinity of the bore site, and allow access for maintenance, testing or decommissioning of the bore and monitoring of groundwater.</li> <li>2. All equipment used for the operation and maintenance of the bore or water infiltration gallery shall be kept clean to prevent the entry of contaminants to groundwater.</li> <li>3. The bore headworks shall be maintained, and the annular space between the bore casing and the hole, shall be sealed from the surface, to:             <ol style="list-style-type: none"> <li>(a) prevent the entry of contaminants; and</li> <li>(b) control subsurface pressures; and</li> <li>(c) prevent movement of the casing at all times until the bore is decommissioned.</li> </ol> </li> <li>4. The water infiltration gallery shall be sealed to prevent the entry of contaminants to groundwater.</li> <li>5. If a bore is temporarily open, a suitable cap shall be fitted to prevent the entry of any material or surface water into the bore.</li> <li>6. When a bore is not in use, it shall be capped to prevent the entry of contaminants down the bore or artesian water flowing from the bore.</li> <li>7. All joints, valves, sockets, bungs, taps and gauges used in the headworks shall be able to withstand the pressure and temperature of the bore under all conditions.</li> <li>8. A device shall be installed within the pump outlet plumbing or within the mainline to prevent the backflow of water or contaminants into the bore.</li> <li>9. A tap shall be fitted on the outlet side of the bore discharge main and maintained in good operating condition to enable a sample of the bore water to be collected.</li> <li>10. An access point to allow the measurement of the depth to groundwater, or a device that measures the depth to groundwater shall be installed and maintained on the bore headworks to enable the measurement of the depth to groundwater.</li> <li>11. A bore located within:             <ol style="list-style-type: none"> <li>(a) a Community Drinking Water Supply Protection Zone for a well listed in Schedule WQL2, or</li> <li>(b) Christchurch Groundwater Protection Zone 1, or Sub-Zones 1A, 1B, 1C, or 1D, Zone 2, or Zone 3 as shown on the Map Volume Part 1- Planning Maps, or</li> <li>(c) on a site where an activity listed in Schedule WQL3 is occurring; shall demonstrate compliance with Conditions 1 to 10 of this rule by:                 <ol style="list-style-type: none"> <li>(i) the third anniversary of the date this rule becomes operative; or</li> <li>(ii) when application to take water from the bore under Rules WQN 13, WQN14, WQN16 or Rules WQN19 to WQN23 is received by Environment Canterbury, whichever occurs earlier.</li> </ol> </li> </ol> </li> </ol>	<p><b>Policies</b></p> <p>WQL 10</p> <p>WQL12</p> <p>WQL13</p> <p>WQL14</p> <p>WQL17</p> <p>WQL18</p> <p>WQL19</p> <p>WQL20</p> <p>WQL24</p> <p>80</p>

	<p>12. Any other bore, not located in an area specified in Condition 11 shall demonstrate compliance with Conditions 1 to 10 of this rule when an application to take water from the bore under Rules WQN13, WQN14, WQN16, or Rules WQN19 to WQN23 is received by Environment Canterbury. For the purpose of Conditions 11 and 12, to demonstrate compliance with Conditions 1 to 10, a report prepared by an appropriately qualified person shall be submitted to Environment Canterbury.</p>	

### Rule WQL40 Excavation of land in the Coastal Confined Gravel Aquifer System, or over an unconfined or semi-confined aquifer – restricted discretionary activity

Activity	Conditions	Restriction of Discretion	Cross reference
<p>The use of land to excavate land:</p> <p>(a) more than 100 cubic metres of material at a particular location in any 12 month period from land over an unconfined or semi-confined aquifer;</p> <p>(i) where and the depth of excavation:</p> <p>(1) exceeds five metres; or</p> <p>(2) is deeper than the highest groundwater level which can reasonably be expected to occur at the site, based upon the relevant and available groundwater data; and</p> <p>(3) where the volume of material excavated exceeds 100 cubic metres within any consecutive 12 month period; or</p> <p>(b) within material from land over the Coastal Confined Gravel Aquifer System, where there is less than one metre of undisturbed sediment material between the base of the excavation and Aquifer 1;</p> <p>is –</p> <p>(c) a restricted discretionary activity if such use exceeds</p>	<p>1. The use of land shall not occur within:</p> <p>(a) 100 metres of the edge of any permanently or intermittently flowing river, lake; or</p> <p>(b) 100 metres of the boundary of a wetland:</p> <p>(i) listed in <i>Schedule WTL1: Moderate and higher significance wetlands</i>; or</p> <p>(ii) any other wetland unless the taking, use, damming or diversion of water is permitted under Rule WTL2 or Rule WTL3; or</p> <p>(c) a Community Drinking Water Supply Protection Zone for a well listed in Schedule WQL2, or</p> <p>(d) Christchurch Groundwater Protection Sub-Zone 1, 1A,,1C,</p>	<p>Environment Canterbury has restricted its discretion to the following matters:</p> <p>1. The location, extent, and depth of the excavation.</p> <p>2. Measures to avoid, remedy or mitigate any adverse effects of the activity on:</p> <p>(a) water quality;</p> <p>(b) other users of the water resource;</p> <p>(c) a site of significance to Ngāi Tahu;</p> <p>(d) an archaeological site or a site registered with the New Zealand Historic Places Trust.</p> <p>3. Measures to avoid, remedy or mitigate any adverse effects of the excavation on adjacent landowners.</p> <p>4. Measures to prevent contaminants entering groundwater via the excavation of the land, including:</p> <p>(a) restrictions on the storage and use of hazardous substances,</p> <p>(b) the management of stormwater;</p>	<p><b>Policies</b></p> <p>WQL 10</p> <p>WQL12</p> <p>WQL13</p> <p>WQL14</p> <p>WQL18</p> <p>84</p>

<sup>82</sup> WQLV6.130

<sup>83</sup> WQLV6.59

<p>the criteria (a) and (b) above but complies with all of the conditions of this Rule; or if such use exceeds the criteria (a) and (b) above but comprises the servicing, upgrade or repair of any existing network utility.</p> <p>(d) a <b>discretionary activity</b> if such use is within Christchurch Groundwater Protection Zone 1B or complies with conditions 1(a), (b), (c), under Rule WQL55 is required.</p> <p>(e) a <b>non-complying activity</b> if, with the exception of condition 4(a), such use does not comply with any one or more of the Conditions 1(a), (b), (c) or (d) of this Rule, in which case a resource consent under Rule WQL 62 is required.<sup>82</sup></p> <p>For the purposes of this rule, excavation of land does not include:</p> <ul style="list-style-type: none"> <li>the drilling or disturbance of land to construct or maintain a bore.</li> </ul>	<p>1D or Zone 2, as shown on the Map Volume Part 1- Planning Maps.</p> <p>(e) <del>Christchurch Groundwater Protection Zone 1, Sub-Zone 1A, 4C or 1D as shown on the Map Volume Part 1- Planning Maps.</del></p>	<p>(c) preventing leakage into groundwater;</p> <p>(d) decommissioning of bores; or</p> <p>(e) monitoring.</p> <p>5. Measures needed to rehabilitate the site during excavation and<sup>83</sup> following the completion of the excavation.</p> <p>6. The requirement for financial contributions, or bonds.</p> <p>7. The duration of the land use consent.</p> <p>8. Review of consent conditions.</p>	
		<p><b>Notification and service</b></p> <p>In accordance with section 94D(2) RMA 1991, an application for resource consent required by this rule does not need to be notified, and in accordance with Section 94(3) RMA 1991, notice of such an application does not need to be served on those persons identified under Section 94(1) of that Act.</p>	
<p><b>Information to be provided</b></p> <p>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.</p>			

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**Rule WQL42 — Use, including storage or removal of an underground container used for a specified hazardous substance - permitted activity**

Activity	Conditions	Cross-reference
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<sup>84</sup> WQLV6.1

<sup>86</sup> WQLV6.76, WQLV6.79, WQLV6.80, WQLV6.133, WQLV6.134, WQLV6.135, WQLV6.136, WQLV6.137, WQLV6.138, WQLV6.139

<p>The use of land for the use or removal of a container, or part of any container, located in or under land that is, or has been, used to store any of the following substances:</p> <ul style="list-style-type: none"> <li>(a) petroleum hydrocarbons, including those for cooling purposes, but excluding liquefied petroleum gas;</li> <li>(b) chlorinated hydrocarbons;</li> <li>(c) agrichemicals;</li> <li>(d) timber preservatives; or</li> <li>(e) any other substance containing, arsenic, cadmium, chromium, cyanide, lead, mercury, nickel, or selenium;</li> </ul> <p>where that substance is a hazardous substance and is classified under the Hazardous Substances and New Organisms Act 1996 with an ecotoxicity classification of 9.1A, or 9.1B, or 9.1C;</p> <p>is—</p> <ol style="list-style-type: none"> <li>1. a <b>permitted activity</b> if such use complies with all of the conditions of this Rule;</li> <li>2. a <b>controlled activity</b> if such use; <ul style="list-style-type: none"> <li>(a) does not comply with any one or more of the conditions of this Rule</li> </ul> in which case a resource consent under Rule WQL 44 is required;</li> </ol>	<ol style="list-style-type: none"> <li>1. The alteration of a container is limited to the repair or replacement of, or part of, any pipe, tap, valve, hose or other fitting that is attached to the container.</li> <li>2. (a) If any inventory control undertaken in accordance with Section 13.2.4.2 of the 'Controls for Stationary Containers for Hazardous Liquids and Gases' (February 2004), shows a discrepancy of greater than 0.5 percent of product, Environment Canterbury shall be notified within two working days. If requested, a copy of the most recent stock reconciliation shall be provided to Environment Canterbury within five working days. <ul style="list-style-type: none"> <li>(b) Within Christchurch Groundwater Protection Zones 1, or Sub-Zones 1A, 1B, 1C or 1D, if a discrepancy is identified as a result of condition 2(a), the container shall immediately be tested to detect any leakage of contaminants. The results of the leakage test shall be forwarded to Environment Canterbury within two working days of the results becoming available.</li> </ul> </li> <li>3. The container shall be tested to detect any leakage of contaminants within two years of this rule being notified and thereafter, or if the container is located within Christchurch Groundwater Protection Zone 1, Sub-Zones 1A, 1B, 1C or 1D, within one year of the rule being operative and thereafter; <ul style="list-style-type: none"> <li>(a) a container located in: <ul style="list-style-type: none"> <li>(i) the Christchurch Groundwater Protection Zone 2 as shown on the Map Volume Part 1- Planning Maps; or</li> <li>(ii) a Community Drinking Water Supply Protection Zone for a well listed in Schedule WQL2;</li> </ul> shall be tested at not less than two yearly intervals; and</li> <li>(b) a container located in the Christchurch Groundwater Protection Zone 1, Sub-Zones 1A, 1B, 1C or 1D as shown on the Map Volume Part 1 — Planning Maps shall be tested at a minimum frequency of not less than once every 12 months; and</li> <li>(c) any other container shall be tested at not less than five yearly intervals.</li> </ul> </li> <li>4. If a leak is detected: <ul style="list-style-type: none"> <li>(i) Environment Canterbury shall be notified immediately; and</li> <li>(ii) the results of the leakage test shall be forwarded to Environment Canterbury as soon as the results become available.</li> </ul> </li> <li>5. Where any container located in or under land is to be demolished or removed, Environment Canterbury shall be advised in writing at least ten working days prior to the commencement of the work. This advice shall include: <ul style="list-style-type: none"> <li>(a) the capacity of the container;</li> <li>(b) the type of hazardous substance that has been stored in the container;</li> <li>(c) the legal description of the land and the location of the container on the site;</li> <li>(d) the name and address of the person responsible for the demolition or removal of the container;</li> <li>(e) the date and approximate time the container is to be removed;</li> <li>(f) the reason for the removal or demolition of the container;</li> <li>(g) the destination and proposed use of the removed container; and</li> <li>(h) any process for cleaning or decontaminating the container, and the disposal of any residue from this process.</li> </ul> </li> </ol>	<p><b>Policies</b></p> <p>WQL2</p> <p>WQL8</p> <p>WQL12</p> <p>WQL13</p> <p>WQL14</p> <p>WQL15</p> <p>WQL16</p> <p>WQL18</p> <p>WQL19</p> <p>WQL20</p> <p>WQL21</p>
<p>For the purposes of this rule, a container includes any associated pipes or pipeline.</p>		
<p style="text-align: center;"><b>Where rule applies</b></p> <p>This rule applies everywhere in the Canterbury region, excluding the Coastal marine area</p>		

	<p>6. Where a container in or under land is demolished or removed and has been used for the storage of:</p> <p>(a) petroleum hydrocarbons, an investigation of the site shall be undertaken in accordance with Section 4 of <i>Contaminated Land Management Guidelines No. 1: Reporting on Contaminated Sites in New Zealand</i> (Ministry for the Environment, 2003);</p> <p>If there is evidence of hydrocarbon contamination of groundwater, or hydrocarbon concentrations in soil exceed Tier 1 soil acceptance criteria in Module 4 of the <i>Guidelines for Assessing and Managing Petroleum Hydrocarbon Contaminated Sites in New Zealand</i> (Ministry for the Environment, 1999), either:</p> <p>(i) a site assessment to establish Tier 2 site specific acceptance criteria shall be undertaken in accordance with Module 6 of the <i>Guidelines for Assessing and Managing Petroleum Hydrocarbon Contaminated Sites in New Zealand</i>, (Ministry for the Environment, 1999), and reported in accordance with the <i>Contaminated Land Management Guidelines No. 1: Reporting on Contaminated Sites in New Zealand</i> (Ministry for the Environment, 2003); or,</p> <p>(ii) a Remedial Action Plan shall be prepared in accordance with Section 2.3 of the <i>Contaminated Land Management Guidelines No. 1: Reporting on Contaminated Sites in New Zealand</i>, (Ministry for the Environment, 2003) and implemented; and</p> <p>(b) an other hazardous substance to which this rule applies, an investigation of the site shall be undertaken and reported on in accordance with Section 2.2 of the <i>Contaminated Land Management Guidelines No. 1: Reporting on Contaminated Sites in New Zealand</i> (Ministry for the Environment 2003);</p> <p>7. Where an investigation, site assessment or Remedial Action Plan is undertaken in accordance with Condition 6(a) or 6(b):</p> <p>(a) the investigation shall be completed within three months from the date the container was demolished or removed; or</p> <p>(b) where a site assessment is undertaken, it shall be completed within six months from the date the container was demolished or removed; or</p> <p>(c) where a Remedial Action Plan is undertaken, a site validation report shall be prepared in accordance with Section 2.4 of the <i>Contaminated Land Management Guidelines No. 1: Reporting on Contaminated Sites in New Zealand</i> (Ministry for the Environment, 2003);</p> <p>8. A copy of any report prepared in accordance with Condition 7 shall be forwarded to Environment Canterbury within three working days of the report being completed.</p>	
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**For information only**

The use and storage of a hazardous substance must also comply with other relevant controls under the Hazardous Substances and New Organisms Act 1996 including but not limited to “*Controls for Stationary Containers for Hazardous Liquids and Gases*”, February 2004 and the Hazardous Substances (Emergency Management) Regulations 2004<sup>86</sup>

**Rule WQL43 Use, including storage in an above ground container of a specified hazardous substance - permitted activity**

Activity	Conditions	Cross reference
<p>The use of land to use or store in an above ground container, any of the following substances:</p> <ul style="list-style-type: none"> <li>(a) petroleum hydrocarbons including those for cooling purposes but excluding liquefied petroleum gas;</li> <li>(b) chlorinated hydrocarbons;</li> <li>(c) agrichemicals;</li> <li>(d) timber preservatives; or</li> <li>(e) any other substance containing arsenic, cadmium, chromium, cyanide, lead, mercury, nickel, or selenium;</li> </ul> <p>where that substance is a hazardous substance and is classified under the Hazardous Substances and New Organisms Act 1996 with an ecotoxicity classification of 9.1A, or 9.1B, or 9.1C;</p> <p>is—</p> <ol style="list-style-type: none"> <li>1. a <b>permitted activity</b> if such use complies with all of the conditions of this Rule;</li> <li>2. a <b>controlled activity</b> if such use; does not comply with any one or more of the conditions of this Rule, in which case a resource consent under Rule WQL 44 is required;</li> </ol> <p>For the purposes of this rule:</p> <ul style="list-style-type: none"> <li>(a) a container includes any associated pipes or pipeline;</li> <li>(b) a portable container means a container that is fixed to a vehicle or can be towed by a vehicle but does not comprise part of the fuel system of the vehicle.</li> </ul>	<ol style="list-style-type: none"> <li>1. Where the aggregate quantity of the hazardous substances on a site is less than the quantity specified in Schedule 4 of the Hazardous Substances (Emergency Management) Regulations 2001, the hazardous substances shall be stored: <ul style="list-style-type: none"> <li>(a) on an impervious surface and under cover; and</li> <li>(b) at least 10 metres from: <ul style="list-style-type: none"> <li>(i) the edge of a permanently or intermittently flowing river;</li> <li>(ii) the edge of a lake;</li> <li>(iii) a bore; or</li> <li>(iv) the boundary of a wetland; <ul style="list-style-type: none"> <li>(1) listed in <i>Schedule WTL1: Moderate and higher significance wetlands</i>; or</li> <li>(2) any other wetland the taking, use, damming or diversion of water is permitted under Rule WTL2 or Rule WTL3.</li> </ul> </li> </ul> </li> </ul> </li> <li>2. Where the aggregate quantity of the hazardous substances on a site is greater than, but less than five times, the quantity specified in Schedule 4 of the Hazardous Substances (Emergency Management) Regulations 2001; <ul style="list-style-type: none"> <li>(a) the person in charge of the site shall: <ul style="list-style-type: none"> <li>(i) maintain a current inventory of all hazardous substances including the quantities of each hazardous substance stored on the site, and a copy of the inventory shall be made available to Environment Canterbury or emergency services upon request;</li> <li>(ii) store the hazardous substances in a containment facility which complies with the Hazardous Substances (Emergency Management) Regulations 2001, and the facility is designed, constructed and managed to prevent: <ul style="list-style-type: none"> <li>(1) the escape of hazardous substances or contaminated water from the facility; and</li> <li>(2) stormwater runoff entering the facility.</li> </ul> </li> <li>(iii) on the site at all times, have measures to prevent spills entering land or stormwater. The measures shall include: <ul style="list-style-type: none"> <li>(1) spill kits equipped to contain or absorb the spilled hazardous substance;</li> <li>(2) signs to identify the location of spill kits;</li> <li>(3) procedures that are to be undertaken to contain, remove and dispose of the spilled hazardous substance; and</li> <li>(4) locating the spill containment equipment close to the hazardous substance and use areas at all times; and</li> </ul> </li> <li>(iv) ensure that an area, where a hazardous substance is used, is constructed from impervious materials that are resistant to chemical attack from the substance handled or stored there; and</li> <li>(v) prepare a site drainage plan that identifies all sewer and stormwater pipes on the site, including entry points</li> </ul> </li> </ul> </li> </ol>	<p><b>Policies</b></p> <p>WQL2 WQL8 WQL12 WQL13 WQL14 WQL15 WQL16 WQL18 WQL19 WQL20 WQL21</p>

	<p>to these pipes and the final discharge points for the stormwater system; and</p> <p><del>(b) the hazardous substances shall not be used:</del></p> <p><del>(i) within 20 metres of:</del></p> <p><del>(1) the edge of a permanently or intermittently flowing river or a lake;</del></p> <p><del>(2) a bore used for a purpose other than a community drinking water supply; or</del></p> <p><del>(3) a wetland listed in Schedule WTLA, or where the taking, use, damming or diversion of water is not permitted under Rule WTL2 or Rule WTL3; or</del></p> <p><del>(ii) on land:</del></p> <p><del>(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;</del></p> <p><del>(2) where water is likely to pond in a rainfall event with an Annual Exceedance Probability of five percent (one in twenty year event) or more;</del></p> <p><del>(3) within a Community Drinking Water Supply Protection Zone for a well listed in Schedule WQL2; or</del></p> <p><del>(4) 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, or within 50 metres of a permanently or intermittently flowing river or a lake.</del></p>	
<p><b>Where rule applies</b></p> <p>This rule applies everywhere in the Canterbury region, excluding the Coastal marine area</p>		
	<p><del>3. The aggregate quantity of the hazardous substances on a site in Christchurch Groundwater Protection Zone 1 or Sub-Zones 1A, 1B, 1C or 1D, as shown on the Map Volume Part 1 Planning Maps,</del></p> <p><del>(a) shall not exceed the quantity specified in Schedule 4 of the Hazardous Substances (Emergency Management) Regulations 2001.</del></p> <p><del>Unless:</del></p> <p><del>(b) the hazardous facility is existing, legally established or authorised before 1 August 2007 and the aggregate volume or quantity of hazardous substances used or stored is not increased;</del></p> <p><del>4. Conditions 2(a)(iv) and 2(a)(v) do not apply to the storage and handling of agrichemicals provided they are stored and handled in accordance with the "Agrichemical User's Code of Practice" (New Zealand Standard 8409:1999, New Zealand Agrichemical Education Trust).</del></p> <p><del>5. Where a hazardous substance is stored in a portable container, or portable containers, that have a n aggregate quantity equal to or exceeding 1,000 litres or 1000 kilograms:</del></p> <p><del>(a) equipment that is suitable to contain or absorb any spill or leakage of the hazardous substance from a container shall be located with the container at all times; and:</del></p> <p><del>(b) no container shall be located within 50 metres of:</del></p> <p><del>(i) the edge of a permanently or intermittently flowing river;</del></p> <p><del>(ii) the edge of a lake;</del></p> <p><del>(iii) a bore used to supply drinking water; or</del></p> <p><del>(iv) a wetland listed in Schedule WTLA; and</del></p> <p><del>6. In the Christchurch Ground Water Protection Zone 1, or Sub-Zones 1A, 1B, 1C or 1D, or Zone 2, any refuelling shall occur over an area constructed of impervious materials.</del></p>	

For information only

The use and storage of a hazardous substance must also comply with other relevant controls under the Hazardous Substances and New Organisms Act 1996 including but not limited to "Controls for Stationary Containers for Hazardous Liquids and Gases", February 2004 and the Hazardous Substances (Emergency Management) Regulations 2004.<sup>87</sup>

## Rule WQL44 — Use, including storage, of a specified hazardous substance— controlled activity

Activity	Conditions	Matters for Control	Cross reference
<p>Except where it is a <b>permitted activity</b> under Rule WQL 42 or Rule WQL 43, the use of land to use, including store in a container or transport through a pipe any of the following substances:</p> <ul style="list-style-type: none"> <li>(i) petroleum hydrocarbon products, including those for cooling purposes, but excluding liquefied petroleum gas;</li> <li>(ii) chlorinated hydrocarbons;</li> <li>(iii) agrichemicals;</li> <li>(iv) timber preservatives; or</li> <li>(v) any other substance containing, arsenic, cadmium, chromium, cyanide, lead, mercury, nickel, or selenium;</li> </ul> <p>where that substance is a hazardous substance and is classified under the Hazardous Substances and New Organisms Act 1993 with an ecotoxicity classification of 9.1A, or 9.1B, or 9.1C;</p> <p>is—</p> <ol style="list-style-type: none"> <li>1. a <b>controlled activity</b> if such use complies with all of the conditions of this Rule;</li> <li>2. a <b>discretionary activity</b> if such use: <ul style="list-style-type: none"> <li>(a) does not comply with any one or more of Conditions 4 to 13 of this Rule, in which case a resource consent under Rule WQL 59 is required; or</li> <li>(b) does not comply with Condition 2 of this Rule and</li> </ul> </li> </ol>	<ol style="list-style-type: none"> <li>1. The hazardous substance shall not be used: <ol style="list-style-type: none"> <li>(a) within 20 metres of: <ol style="list-style-type: none"> <li>(i) the edge of a permanently or intermittently flowing river;</li> <li>(ii) the edge of a lake;</li> <li>(iii) a bore used to supply drinking water, or</li> <li>(iv) a wetland: <ol style="list-style-type: none"> <li>(1) listed in <i>Schedule WTL1: Moderate and higher significance wetlands</i>; or</li> <li>(2) any other wetland unless the taking, use, damming or diversion of water is permitted under Rule WTL2 or Rule WTL3; or</li> </ol> </li> </ol> </li> <li>(b) on land: <ol style="list-style-type: none"> <li>(i) that is likely to be flooded from a river or lake in an event with an Annual Exceedance Probability of five percent (1 in twenty year event) or more;</li> <li>(ii) where water is likely to pond in a rainfall event with an Annual Exceedance Probability of five percent (1 in twenty year event) or more; or</li> </ol> </li> <li>(c) within a Community Drinking Water Supply Protection Zone for a well listed in <i>Schedule WQL2</i>; or</li> <li>(d) within 100 metres of an active fault that has a recurrence period of less than 10,000 years, and the land is: <ol style="list-style-type: none"> <li>(i) over an unconfined or semi-confined aquifer; or</li> <li>(ii) within 50 metres of a permanently or intermittently flowing river or a lake.</li> </ol> </li> </ol> </li> <li>2. Any hazardous facility located in Christchurch Groundwater</li> </ol>	<p>Environment Canterbury has reserved control over the following matters in imposing any conditions:</p> <ol style="list-style-type: none"> <li>1. Measures to avoid: <ol style="list-style-type: none"> <li>(a) the entry of contaminants into groundwater, surface fresh or coastal water, and supplies of drinking water, aquatic ecosystems; and</li> <li>(b) adverse effects on the current and future uses of the water resource, as a result of chronic leakage, spillage, or a release as a result of a catastrophic natural event.</li> </ol> </li> <li>2. Measures to prevent and contain spills or leaks, including site design and drainage, waste management, and leak detection.</li> <li>3. Investigation, remediation and reporting of contamination of land and water where underground storage containers are removed</li> <li>4. Maintenance of the system including containment measures.</li> <li>5. The requirement for financial contributions, or bonds.</li> <li>6. The monitoring of the activity and</li> </ol>	<p><b>Policies</b></p> <p>WQL2 WQL 8 WQL12 WQL13 WQL14 WQL15 WQL16 WQL18 WQL19 WQL20 WQL21</p>

<sup>87</sup> WQLV6.76, WQLV6.79, WQLV6.80, WQLV6.133, WQLV6.134, WQLV6.135, WQLV6.136, WQLV6.137, WQLV6.138, WQLV6.139

<p>is located in Christchurch Groundwater Protection Zones 1, in which case a resource consent under Rule WQL 59 is required;</p> <p>(c) does not comply with Condition 2 of this Rule and is located in Christchurch Groundwater Protection Sub-Zones 1A, 1B, 1C or 1D in which case a resource consent under Rule WQL 55 is required;</p> <p>(d) does not comply with Condition 3 of this Rule and is located in Christchurch Groundwater Protection Sub-Zone 1A, in which case a resource consent under Rule WQL 55 is required, unless Rule WQL66 applies;</p> <p>(e) does not comply with Condition 3 of this Rule and is located in Christchurch Groundwater Protection Sub-Zone 1C and the activity is:</p> <p>(i) carried out by the requiring authority in accordance with a designation in the Christchurch City Council City Plan; or</p> <p>(ii) carried out in accordance with Christchurch District Plan (Volume 3, Part 8, Special Purposes (Airport) Zone, Rule 3.3.3 Activities within Airport Zone</p> <p>in which case a resource consent under Rule WQL 55 is required; or</p> <p>(f) does not comply with Condition 3 of this Rule, is located in Christchurch Groundwater Protection Sub-Zone 1D and the activity is carried out by the requiring authority in accordance with a designation in the Christchurch City Council City Plan or Proposed Selwyn District Plan, in which case a resource consent under Rule WQL 55 is required; or</p> <p>3. a non-complying activity if such use:</p> <p>(a) does not comply with any one or more of Condition 1 of this Rule; or</p> <p>(b) does not comply with Condition 2-3 of this Rule and is located in Christchurch Groundwater Protection Sub-Zone 1B in which case, unless Rule WQL66 applies, a resource consent under Rule WQL 62 is required;</p>	<p>Protection Zone 1, or Sub-Zones 1A, 1B, 1C or 1D as shown on the Map Volume Part 1- Planning Maps is existing and legally established or authorised before 1 August 2007.</p> <p>3. For:</p> <p>(a) an extension to an existing hazardous facility that is legally established or authorised before 1 August 2007, or</p> <p>(b) a new hazardous facility.</p> <p>located in Christchurch Groundwater Protection Zone 1 or Sub-Zones 1A, 1B, 1C or 1D, as shown on the Map Volume Part 1- Planning Maps, the aggregate quantity of the hazardous substances on a site shall not exceed the quantity specified in Schedule 4 of the Hazardous Substances (Emergency Management) Regulations 2001.</p> <p>4. The erection, reconstruction, placement, alteration, or extension of an underground container shall comply with Schedule WQL5.</p> <p>5. Where a container, or pipework made of steel or with screwed or flanged joints, is located in or under the ground, the container and pipework shall be leak tested at least every five years following installation.</p> <p>6. For all other containers in or under the land, the whole system shall be leak tested 10 years after installation, and thereafter at least every five years.</p> <p>7. Notwithstanding Conditions 4 or 5, a container that has been:</p> <p>(a) installed underground for a total period longer than 20 years, or for the life of the manufacturer's warranty period for the container, whichever is the lesser; and</p> <p>(b) is removed and subsequently re-installed with associated pipe work in or under land;</p> <p>shall be leak tested every five years after the date of re-installation.</p> <p>8. The record of the results of any leak testing shall be maintained on site and made available to Environment Canterbury upon request.</p> <p>9. If any leak is detected Environment Canterbury shall be notified immediately.</p> <p>10. Where a hazardous substances is stored in an underground container, the person in charge of the site shall:</p> <p>(a) establish and maintain an inventory control system for the hazardous substance in the container;</p> <p>(b) undertake a monthly review of cumulative variances between the quantities of sales, use, receipts and stock on-</p>	<p>its effects.</p> <p>7. The duration of the land use consent.</p> <p>8. Review of resource consent conditions.</p> <p><b>Service</b></p> <p>In accordance with section 94D(3) RMA 1991, notice of an application for a resource consent required by this rule does not need to be served on those persons identified under Section 94(1) of that Act.</p>
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<p>4. a <b>prohibited activity</b> if such use:</p> <p>(a) does not comply with Condition 3 of this Rule and the use is located within Christchurch Groundwater Protection Zone 1; or</p> <p>(b) does not comply with Condition 3 of this Rule and is located in Christchurch Groundwater Protection Sub-Zone 1C and the activity is:</p> <p>(i) not carried out by the requiring authority in accordance with a designation in the Christchurch City Council City Plan; or</p> <p>(ii) not carried out in accordance with Christchurch District Plan (Volume 3, Part 8, Special Purposes (Airport) Zone, Rule 3.3.3 Activities within Airport Zone</p> <p>(c) does not comply with Condition 3 of this Rule, is located in Christchurch Groundwater Sub-Zone 4D and the activity is not carried out by the requiring authority in accordance with a designation in the Christchurch City Council City Plan or Proposed Selwyn District Plan;</p> <p>in which case no resource consent will be granted under Rule WQL 63 or Rule WQL65.</p> <p>For the purposes of this rule:</p> <p>(i) a container includes any associated pipes or pipeline;</p> <p>(ii) a portable container means a container that is fixed to a vehicle or can be towed by a vehicle but does not comprise part of the fuel system of the vehicle.</p>	<p>hand; and</p> <p>(c) when a container is refilled, undertake a stock reconciliation no less frequently than each time the container is re-filled.</p> <p>11. If the reconciliation or the monthly review of cumulative variances in accordance with Condition 9 shows a discrepancy of greater than 0.5 percent of product throughput for the period, Environment Canterbury shall be notified within two working days. If requested, a copy of the most recent certification and stock reconciliation shall be provided to Environment Canterbury within five working days.</p> <p>12. Where hazardous substances on the site are used above the ground the person in charge of the site shall:</p> <p>(a) maintain a current inventory of all hazardous substances including the quantities of each hazardous substance stored on the site, and a copy of the inventory made available to Environment Canterbury or emergency services upon request; and</p> <p>(b) store the hazardous substances in a containment facility which complies with Hazardous Substances (Emergency Management) Regulations 2001, and is designed, constructed and managed to prevent:</p> <p>(i) the escape of hazardous substances or contaminated water from the facility; and</p> <p>(ii) stormwater runoff entering the facility.</p> <p>13. 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.</p>		
<p><b>Where rule applies</b></p> <p>This rule applies everywhere in the Canterbury region, excluding the Coastal marine area</p>			

<p align="center"><b>Information to be provided</b></p>			
<p>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.</p>			

**For information only**

The use and storage of a hazardous substance must also comply with other relevant controls under the Hazardous Substances and New Organisms Act 1996 including but not limited to "Controls for Stationary Containers for Hazardous Liquids and Gases", February 2004 and the Hazardous Substances (Emergency Management) Regulations 2004

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<sup>88</sup> WQLV6.76, WQLV6.79, WQLV6.80, WQLV6.133, WQLV6.134, WQLV6.135, WQLV6.136, WQLV6.137, WQLV6.138, WQLV6.139

## Rule WQLZZ Decommissioning of an underground container that has stored a specified hazardous substance

Activity	Conditions
<p><u>The use of land to decommission a container located in or under land that is, or has been, used to store a specified hazardous substance is –</u></p> <ol style="list-style-type: none"> <li>1. <u>a permitted activity if such use complies with all of the conditions of this Rule;</u></li> <li>2. <u>a discretionary activity if such use does not comply with any one or more of the conditions of this Rule.</u></li> </ol> <p>For the purposes of this Rule:</p> <ol style="list-style-type: none"> <li>i) <u>a specified hazardous substance is any:</u> <ol style="list-style-type: none"> <li>(a) <u>petroleum hydrocarbon, including those used for cooling purposes, but excluding liquefied petroleum gas;</u></li> <li>(b) <u>chlorinated hydrocarbon;</u></li> <li>(c) <u>pesticide;</u></li> <li>(d) <u>timber preservative; or</u></li> <li>(e) <u>substance containing any one or more of the following; arsenic, cadmium, chromium, cyanide, lead, mercury, nickel or selenium.</u></li> </ol> </li> <li>ii) <u>a container means any tank, vessel, equipment, device or other facility, and includes any associated pipes or pipeline;</u></li> </ol> <p>For the purposes of this rule:</p> <p><b>Decommission</b> means to:</p> <ol style="list-style-type: none"> <li>(a) <u>remove a container; or</u></li> <li>(b) <u>permanently disable a container from its use to store a specified hazardous substance.</u></li> </ol>	<ol style="list-style-type: none"> <li>1. <u>Environment Canterbury shall be notified in writing at least ten working days prior to the commencement of the decommissioning with the following information:</u> <ol style="list-style-type: none"> <li>(a) <u>the capacity of the container;</u></li> <li>(b) <u>the type of specified hazardous substance that is or has been stored in the container;</u></li> <li>(c) <u>the legal description of the land and the location of the container on the site;</u></li> <li>(d) <u>the name and address of the person undertaking the decommissioning of the container;</u></li> <li>(e) <u>the proposed method of decommissioning;</u></li> <li>(f) <u>the date and approximate time the container is to be decommissioned;</u></li> <li>(g) <u>the reason for the decommissioning of the container;</u></li> <li>(h) <u>the destination or proposed use of the decommissioned container;</u></li> <li>(i) <u>the process for cleaning or decontaminating the container, and the disposal of any residue from this process;</u></li> <li>(j) <u>the destination of any contaminated soil, water or other material removed during the decommissioning process and</u></li> <li>(k) <u>the proposed method of backfilling and/or repairing disturbed land as a result of the decommissioning and a description of any backfill materials to be used.</u></li> </ol> </li> <li>2. <u>Where a container has been used to store:</u> <ol style="list-style-type: none"> <li>(a) <u>petroleum hydrocarbons, an investigation of the site shall be undertaken in accordance with Section 4 of <i>Contaminated Land Management Guidelines No. 1: Reporting on Contaminated Sites in New Zealand (Ministry for the Environment, 2003)</i>. If there is evidence of hydrocarbon contamination of groundwater, or hydrocarbon concentrations in soil exceed Tier 1 soil acceptance criteria in Module 4 of the <i>Guidelines for Assessing and Managing Petroleum Hydrocarbon Contaminated Sites in New Zealand (Ministry for the Environment, 1999)</i>, then either:</u> <ol style="list-style-type: none"> <li>(i) <u>a site assessment to establish Tier 2 site specific acceptance criteria shall be undertaken in accordance with Module 6 of the <i>Guidelines for Assessing and Managing Petroleum Hydrocarbon Contaminated Sites in New Zealand (Ministry for the Environment, 1999)</i>, and reported in accordance with the <i>Contaminated Land Management Guidelines No. 1: Reporting on Contaminated Sites in New Zealand (Ministry for the Environment, 2003)</i>; or</u></li> <li>(ii) <u>a Remedial Action Plan shall be prepared in accordance with Section 2.3 of the <i>Contaminated Land Management Guidelines No. 1: Reporting on Contaminated Sites in New Zealand (Ministry for the Environment, 2003)</i> and the Plan implemented.</u></li> </ol> </li> <li>(b) <u>a specified hazardous substance other than petroleum hydrocarbons, an investigation of the site shall be undertaken and reported on in accordance with Section 2.2 of the <i>Contaminated Land Management Guidelines No. 1: Reporting on Contaminated Sites in New Zealand (Ministry for the Environment, 2003)</i>.</u></li> </ol> </li> </ol>

	<p>3. <u>Where an investigation, site assessment or Remedial Action Plan is undertaken in accordance with Condition 2:</u></p> <p>(a) <u>the investigation shall be completed within three months from the date the container was decommissioned;</u></p> <p>(b) <u>the site assessment shall be completed within six months from the date the container was decommissioned;</u></p> <p>(c) <u>where a Remedial Action Plan is implemented, a site validation report shall be prepared in accordance with Section 2.4 of the <i>Contaminated Land Management Guidelines No.1: Reporting on Contaminated Sites in New Zealand (Ministry for the Environment, 2003)</i>.</u></p> <p>4. <u>A copy of any report or plan prepared in accordance with Conditions 2 or 3 shall be forwarded to Environment Canterbury within one month of the report being completed.</u></p>

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<sup>90</sup> WQLV6.76, WQLV6.79, WQLV6.80, WQLV6.133, WQLV6.134, WQLV6.135, WQLV6.136, WQLV6.137, WQLV6.138, WQLV6.139

## Rule WQLYY Use of land to store a specified hazardous substance

Activity	Conditions
<p>The use of land to store or to use a specified hazardous substance in or on land is:</p> <p>1. <b>a permitted activity</b> if it complies with Conditions 1 to 5 inclusive, or with Condition 6, or 7, or 9.</p> <p>2. <b>a restricted discretionary activity</b> if it:</p> <p>(a) complies with Condition 8;</p> <p>(b) the storage is not located within Christchurch Groundwater Protection Zones 1, 1A, 1B, 1C, 1D, or 2, and it:</p> <p>(i) Complies with Condition 1 but does not comply with any of Conditions 2 to 5 inclusive; or</p> <p>(ii) Does not comply with Condition 9.</p> <p>3. <b>a discretionary activity</b> if it: does not comply as a permitted or restricted discretionary activity, but is not a non-complying or prohibited activity, and is located within Christchurch Groundwater Protection Zones 1A, 1B, 1C or 1D; and including existing land parcels which overlap within Zone 1 and Zone 2.</p> <p>4. <b>a non-complying activity</b> if it does not comply as a permitted, restricted discretionary or discretionary activity, or, it is recognised as nationally or regionally significant infrastructure as defined in the Regional Policy Statement, but it is not a prohibited activity</p> <p>5. <b>a prohibited activity</b> if:</p> <p>(a) it does not comply with Condition 6(a); or</p> <p>(b) the storage is not a permitted, restricted discretionary, discretionary, or non-complying</p>	<p style="text-align: center;"><b><u>Existing Storage or Use</u></b></p> <p>1. The storage can be demonstrated to the satisfaction of the consent authority as being lawfully established before the operative date of this rule and similarly the maximum quantity stored has not increased since that date.</p> <p>2. Stock reconciliation of a specified hazardous substance shall be undertaken at regular intervals. 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 100 litres or 0.5 percent, whichever is the smaller, Environment Canterbury shall be notified:</p> <p>(i) immediately, if the container is located within a Community Drinking Water Supply Protection Zone for a well listed in Schedule WQL2, or within Christchurch Groundwater Protection Zones 1, 1A, 1B, 1C, 1D, or 2 ; or</p> <p>(ii) within two working days if the discrepancy occurs over three consecutive measurements for a container located in any other area.</p> <p>3. A container located on or over the land surface shall be visually inspected for leakage at least once per month.</p> <p>4. If requested, a copy of a stock reconciliation record or inspection records or the most recent certification of a container shall be provided to Environment Canterbury within five working days.</p> <p>5. A container located in or under land shall not be altered except for the repair or replacement of pipes, taps, valves, hoses or other fittings that are attached to the container.</p> <p style="text-align: center;"><b><u>New Storage or Use – Small Quantities</u></b></p> <p>6. Where the aggregate quantity of specified hazardous substances on a site is less than or equal to Threshold 1 of Schedule WQLZZ, the substances:</p> <p>(a) shall not be stored on bare land within 10 metres from a lawfully established bore, a wetland boundary, or water in a river or lake; and</p> <p>(b) shall be stored under cover on an impervious surface.</p> <p style="text-align: center;"><b><u>New Storage or Use – Medium Quantities</u></b></p> <p>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 WQLZZ, the storage:</p>

<p><u>activity and it is located within a Community Drinking Water Supply Protection Zone for a bore listed in Schedule WQL2.</u></p>	
<p>For the purposes of this Rule:</p> <p>i) <b>a specified hazardous substance</b> is any:</p> <p>(a) <u>petroleum hydrocarbon, including those used for cooling purposes, but excluding liquefied petroleum gas;</u></p> <p>(b) <u>chlorinated hydrocarbon;</u></p> <p>(c) <u>pesticide;</u></p> <p>(d) <u>timber preservative; or</u></p> <p>(e) <u>substance containing any one or more of: arsenic, cadmium, chromium, cyanide, lead, mercury, nickel or selenium.</u></p> <p>ii) <b>a container</b> means any tank, vessel, equipment, device or other facility whether in, on, under, or over the land, and includes any associated pipes or pipeline but does not include the fuel system used to power a vehicle or machine.</p> <p>iii) <b>a portable container</b> means one or more containers of petrol or diesel used for refuelling and the container(s) is fixed to a vehicle, towed by a vehicle or transported by a helicopter, but does not comprise part of the fuel system required to power a vehicle or machine.</p> <p>iv) <b>stock reconciliation</b> means to measure the quantity of a specified substance in accordance with a code of practice approved under the Hazardous Substances and New Organisms Act 1996.</p>	<p>(a) <u>shall comply with Conditions 2 to 5 of this rule; and</u></p> <p>(b) <u>the person in charge of the site shall:</u></p> <p>(i) <u>maintain a current inventory of specified hazardous substances on the site including the maximum quantities of each substance stored, and provide a copy of the inventory to Environment Canterbury or emergency services upon request; and</u></p> <p>(ii) <u>store or use the substances in a facility which is designed, constructed and managed to:</u></p> <p>(1) <u>prevent the escape of substances or contaminated water; and</u></p> <p>(2) <u>prevent stormwater runoff entering the facility; and contain a leak or spill and allow the leaked or spilled substance to either be collected or lawfully disposed of; and</u></p> <p>(iii) <u>have spill kits to contain or absorb the spilled substance located close to the substance storage and use areas at all times, and train staff to manage spilled substances; and</u></p> <p>(c) <u>the substances shall not be stored or used:</u></p> <p>(i) <u>within 20 metres of: a lawfully established bore used for a purpose other than a community drinking water supply, a wetland boundary, or water in a river or lake; or</u></p> <p>(ii) <u>on land:</u></p> <p>(1) <u>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;</u></p> <p>(2) <u>where water is known to pond for at least two hours in a rainfall event, on average, at least once in every five years;</u></p> <p>(3) <u>within a Community Drinking Water Supply Protection Zone for a bore listed in Schedule WQL2; or</u></p> <p>(4) <u>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, or within 50 metres of a permanently or intermittently flowing river or a lake.</u></p>

	<p>(d) <u>The erection, reconstruction, placement, alteration, or extension of a container located in or under land, shall comply with Schedule WQL5.</u></p> <p>(e) <u>Where a container is above the land surface but the associated pipe work is in or under the land the pipe work shall comply with the relevant provisions of Clause (d) to (g) inclusive of Schedule WQL5</u></p>
	<p style="text-align: center;"><b><u>New Storage or Uses – Large Quantities</u></b></p> <p>8. <u>Where the aggregate quantity of the specified hazardous substances stored or used on a site is more than Threshold 2 of Schedule WQLZZ, the substances shall not be stored or used:</u></p> <p>(a) <u>within 20 metres of a lawfully established bore, the bed of a river or lake or a wetland boundary; or</u></p> <p>(b) <u>within a Community Drinking Water Supply Protection Zone for a bore listed in Schedule WQL2; or</u></p> <p>(c) <u>within Christchurch Groundwater Protection Zones 1, 1A, 1B, 1C, 1D or 2; or</u></p> <p>(d) <u>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; or</u></p> <p>(e) <u>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.</u></p> <p style="text-align: center;"><b><u>Portable Containers</u></b></p> <p>9. <u>A portable container shall comply with the following:</u></p> <p>(a) <u>the aggregate quantity of petrol and diesel stored on a site in a portable container shall not exceed 2,000 litres; and</u></p> <p>(b) <u>a container shall be located in an area or structure that will contain a leak or spill of the substance and will allow the spilled substance to be collected ; and</u></p> <p>(c) <u>equipment that is suitable to absorb any leak or spill of the substance shall be located with a container at all times, and have staff trained to manage spilled substances; and</u></p> <p>(d) <u>if the aggregate quantity of specified hazardous substances stored on a site in portable containers exceeds 200 litres, the containers shall not be located within 50 metres of a lawfully established bore, a wetland boundary, or water in a river or lake; and</u></p> <p>(e) <u>a portable container shall not remain on a site for a continuous period of more than 90 days.</u></p>

## 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 fresh or coastal water, and supplies of drinking water, 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 financial contributions, or bonds.
6. The monitoring of the activity and its effects.
7. The duration of the land use consent.
8. Review of resource consent conditions.

### For information only

1. The use and storage of a hazardous substance, including stock reconciliation procedures, must also comply with the Hazardous Substances and New Organisms Act 1996 and any regulations or codes of practice approved under that Act
2. This rule does not authorise the discharge of a specified hazardous substance.<sup>90</sup>

## Rule WQL48 Use of land for a new cemetery or an extension to an existing cemetery - permitted activity

Activity	Conditions	Cross reference
<p>The use of land to:</p> <ul style="list-style-type: none"> <li>(a) establish a new cemetery, or</li> <li>(b) increase the area of land used for burials in an existing cemetery;</li> </ul> <p>is -</p> <ul style="list-style-type: none"> <li>1. a <b>permitted activity</b> if such use complies with all of the conditions of this Rule;</li> <li>2. a <b>discretionary activity</b> if such use does not comply with any one or more of the conditions 1(a) to 1(d) or condition 1(f) of this Rule, in which case a resource consent under Rule WQL 59 is required<sup>91</sup>;</li> <li>3. a <b>non-complying activity</b> if such use does not comply with Condition 1(e) of this Rule, in which case a resource consent under Rule WQL 60 is required<sup>92</sup>;</li> </ul>	<ul style="list-style-type: none"> <li>1. The cemetery or an extension shall not be located: <ul style="list-style-type: none"> <li>(a) over an unconfined or semi-confined aquifer where the highest groundwater level which can reasonably be expected to occur at the site, based upon the relevant and available groundwater data is less than six metres below the ground surface;</li> <li>(b) within 50 metres of the edge of a river, an artificial water course, or a lake;</li> <li>(c) on land that is likely to be flooded from a river or lake in an event with an Annual Exceedance Probability of one percent ( 1 in 100 year event) or more;</li> <li>(d) where the separation distances specified in Part A of Schedule WQL6 between a bore and the closest part of the cemetery that occurs outside of a Community Drinking Water Supply Protection Zone, cannot be met;</li> <li>(e) on land in a Community Drinking Water Supply Protection Zone for a well listed in Schedule WQL2; or</li> <li>(f) on land in the-Christchurch Groundwater Protection Zone 1, or Sub-Zones 1A, 1B, 1C, or 1D, or Zone 2 as shown in the Map Volume Part 1- Planning Maps.</li> </ul> </li> </ul>	<p><b>Policies</b></p> <p>WQL8 WQL12 WQL13 WQL14<sup>93</sup></p>

### For information only

This rule does not authorise the disturbance of any archaeological site registered with the New Zealand Archaeological Association, or a site registered with the New Zealand Historic Places Trust.

<sup>91</sup> WQLV6.1

<sup>92</sup> WQLV6.1

<sup>93</sup> WQLV6.1

<sup>95</sup> WQLV6.1

**Rule WQL51 Discharge of municipal solid waste refuse or treated hazardous waste to land - discretionary activity**

Activity	Conditions	Discretion	Cross reference
<p>Except where it is a <b>permitted activity</b> under Rule WQL 23; the discharge of municipal solid waste or treated hazardous waste, and contaminants from these wastes, into land:</p> <p>is –</p> <ol style="list-style-type: none"> <li>1. a <b>discretionary activity</b> if the discharge complies with Conditions 1 and 2, or Condition 3 of this Rule;</li> <li>2. a <b>non-complying activity</b> if the discharge does not comply with any one or more of Conditions 1(a) and 2, or Condition 3 of this Rule, in which case a resource consent is required;</li> </ol> <p>a <b>prohibited activity</b> if the discharge does not comply with any one or more of Conditions 1(b), or 1(c) of this Rule, in which case no resource consent will be granted.</p>	<ol style="list-style-type: none"> <li>1. 1. There shall be no discharge into land:               <ol style="list-style-type: none"> <li>(a) in the Coastal Confined Gravel Aquifer System including the Christchurch Groundwater Protection Zone 3 as shown on the Map Volume Part 1- Planning Maps;</li> <li>(b) in the Christchurch Groundwater Protection Zone 1, or Sub-Zone 1A, 1B, 1C or 1D or Zone 2, as shown on the Map Volume Part 1- Planning Maps; or</li> <li>(c) in a Community Drinking Water Supply Protection Zone for a well listed in Schedule WQL2.</li> </ol> </li> <li>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 <i>Landfill Guidelines</i> (2000) published by Centre for Advanced Engineering, University of Canterbury.</li> <li>3. The discharge of cleanfill is in accordance with any appropriate cleanfill bylaws in force and is not within a Community Drinking Water Supply Protection Zone for a well listed in Schedule WQL2.</li> </ol>	<p>Unlimited</p>	<p><b>Policies</b></p> <p>WQL6 WQL8 WQL12<sup>95</sup></p>
<p><b>Information to be provided</b></p> <p>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.</p>			

**Rule WQL52 Discharge of municipal solid waste refuse or treated hazardous waste to land in certain areas - prohibited activity**

Activity		Cross reference
<p>Except where it is:</p> <ul style="list-style-type: none"> <li>(a) a <b>permitted activity</b> under Rule WQL 23; or</li> <li>(b) a <b>discretionary activity</b> under Rule WQL 54;</li> </ul> <p>the discharge of municipal solid waste or treated hazardous waste, and contaminants from these wastes, into land where the land is located in:</p> <ol style="list-style-type: none"> <li>1. the Coastal Confined Gravel Aquifer System as shown on the Map Volume Part 1- Planning Maps; or</li> <li>2. the Christchurch Groundwater Protection Zone 1, or Sub-Zones 1A, 1B, 1C, or 1D, or Zone 2 as shown on the Map Volume Part 1- Planning Maps; or</li> <li>3. a Community Drinking Water Supply Protection Zone for a well listed in Schedule WQL2; or</li> <li>4. the bed of a river overlying an unconfined or semi-confined aquifer; or</li> <li>5. the margin or bed of a lake;</li> </ol> <p>is a <b>prohibited activity</b> for which no resource consent will be granted.</p>		<p><b>Policies</b></p> <ul style="list-style-type: none"> <li>WQL8</li> <li>WQL12</li> <li>WQL13</li> <li>WQL14</li> </ul>
<p style="text-align: center;"><b>Where rule applies</b></p> <p>This rule applies everywhere in the Canterbury region, excluding the Coastal marine area</p>		

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<sup>97</sup> WQLV6.1

**Rule WQL55 Use of land for mineral extraction, use of a specified hazardous substance, or the discharge of stormwater in <sup>98</sup>Sub-Zones 1A, 1B, 1C or 1D of the Christchurch Groundwater Protection Zone – discretionary activity**

Activity	Conditions	Discretion	Cross reference
<p>(1) Except where it is a <b>permitted activity</b> under Rule WQL 42 or Rule WQL 43 or a <b>controlled activity</b> under Rule WQL 44;</p> <p>(a) in Christchurch Groundwater Protection Sub-Zones 1A, 1B, 1C or 1D as shown on the Map Volume Part 1 – Planning Maps and where a use of land does not comply with Condition 2 of Rule WQL44:</p> <p>(i) the use of land to use, including store in a container or transport through a pipe, any one or more of the following substances:</p> <p>(1) petroleum hydrocarbon products (excluding liquefied petroleum gas);</p> <p>(2) chlorinated hydrocarbons;</p> <p>(3) agrichemicals;</p> <p>(4) timber preservatives; or</p> <p>(5) any other substance containing, arsenic, cadmium, chromium, cyanide, lead, mercury, nickel, or selenium;</p> <p>where that substance is a hazardous substance and is classified under the Hazardous Substances and New Organisms Act 1993 with an ecotoxicity classification of 9.1A, or 9.1B, or 9.1C;</p> <p>or</p> <p>(b) in Christchurch Groundwater Protection Sub-Zones 1A, 1C or 1D as shown on the Map Volume Part 1 – Planning Maps:</p> <p>(i) the use of land to use, including store in a container or transport through a pipe, any one or more of the following substances:</p>	<p>1. A stormwater management plan shall be prepared in accordance with Section 4.7.3.2 of this Chapter, for the following areas:</p> <p>(a) a site, property or area of land in Christchurch Groundwater Protection Sub-Zones 1A, 1B, 1C, or 1D;</p>	<p>Unlimited</p>	<p><b>Policies</b></p> <p>WQL1</p> <p>WQL2</p> <p>WQL6</p> <p>WQL8</p> <p>WQL10</p> <p>WQL12</p> <p>WQL13</p> <p>WQL14</p> <p>WQL15</p> <p>WQL18</p> <p>WQL19</p> <p>WQL20</p> <p>WQL21</p>

<sup>98</sup> WQLV6.1

<p>(1) petroleum hydrocarbon products (excluding liquefied petroleum gas);</p> <p>(2) chlorinated hydrocarbons;</p> <p>(3) agrichemicals;</p> <p>(4) timber preservatives, or</p> <p>(5) any other substance containing, arsenic, cadmium, chromium, cyanide, lead, mercury, nickel, or selenium:</p> <p>where that substance is a hazardous substance and is classified under the Hazardous Substances and New Organisms Act 1993 with an ecotoxicity classification of 9.1A, or 9.1B, or 9.1C;</p> <p>or</p> <p>(2) Except where it is a <b>permitted</b> under Rule WQL5 or <b>controlled activity</b> under Rules WQL7, the discharge of stormwater onto or into land in Christchurch Groundwater Protection Sub-Zones 1A, 1B, 1C or 1D as shown on the Map Volume Part 1- Planning Maps;</p> <p>or</p> <p>(3) Where not provided for by Rule WQL40, in Christchurch Groundwater Protection Sub-Zone 1B as shown on the Map Volume Part 1- Planning Maps, the excavation of land for mineral extraction and subsequent use of the land;</p> <p>is—</p> <p>(1) a <b>discretionary activity</b>;</p> <p>(a) for these land uses; or</p> <p>(b) if the discharge complies with all of the conditions of this Rule;</p> <p>(2) a <b>non-complying activity</b>;</p> <p>(a) if located in Christchurch Groundwater Protection Sub-Zone 1B as shown on the Map Volume Part 1- Planning Maps:</p> <p>(i) the use of land to use, including store in a container or transport through a pipe, of any one or more of the following substances:</p> <p>(1) petroleum hydrocarbon products (excluding liquefied petroleum gas);</p> <p>(2) chlorinated hydrocarbons;</p> <p>(3) agrichemicals;</p>			
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<p>(4) timber preservatives, or</p> <p>(5) any other substance containing, arsenic, cadmium, chromium, cyanide, lead, mercury, nickel, or selenium;</p> <p>where that substance is a hazardous substance and is classified under the Hazardous Substances and New Organisms Act 1993 with an ecotoxicity classification of 9.1A, or 9.1B, or 9.1C, in which case a resource consent under Rule WQL 62 is required, unless Rule WQL66 applies.</p> <p>or</p> <p><del>(b) if the discharge or land use does not comply with the conditions of this Rule, in which case a resource consent under Rule WQL 61 or WQL 62 is required.</del></p> <p>or</p> <p><del>(c) if the use of land for mineral extraction is in Christchurch Groundwater Protection Zone 1, or Sub-Zone 1A, 1C or 1D as shown on the Map Volume Part 1 – Planning Maps in which case a resource consent under Rule WQL 62 is required.</del></p> <p>(3) a <b>prohibited activity</b> if located in:</p> <p>(a) Christchurch Groundwater Protection Sub-Zone 1C as shown on the Map Volume Part 1 – Planning Maps and the activity is:</p> <p>(i) not carried out by the requiring authority in accordance with a designation in the Christchurch City Council City Plan; or</p> <p>(ii) not carried out in accordance with Christchurch District Plan (Volume 3, Part 8, Special Purposes (Airport) Zone, Rule 3.3.3 Activities within Airport Zone;</p> <p>and the use of land is to use, including store in a container or transport through a pipe, any of the following substances:</p> <p>(1) petroleum hydrocarbon products, including those for cooling purposes, but excluding liquefied petroleum gas,</p> <p>(2) chlorinated hydrocarbons,</p> <p>(3) agrichemicals,</p> <p>(4) timber preservatives, or</p>			
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<p>(5) <del>any other substance containing, arsenic, cadmium, chromium, cyanide, lead, mercury, nickel, or selenium:</del></p> <p><del>where that substance is a hazardous substance and is classified under the Hazardous Substances and New Organisms Act 1993 with an ecotoxicity classification of 9.1A, or 9.1B, or 9.1C; that does not comply with Condition 3 of Rule WQL 44; and</del></p> <p><del>(b) Christchurch Groundwater Protection Sub-Zone 1D as shown on the Map Volume Part 1- Planning Maps and the activity is not carried out by the requiring authority in accordance with a designation in the Christchurch City Council City Plan or Proposed Selwyn District Plan and the use of land is to use, including store in a container or transport through a pipe, any of the following substances:</del></p> <p><del>(1) petroleum hydrocarbon products, including those for cooling purposes, but excluding liquefied petroleum gas,</del></p> <p><del>(2) chlorinated hydrocarbons,</del></p> <p><del>(3) agrichemicals,</del></p> <p><del>(4) timber preservatives, or</del></p> <p><del>(5) any other substance containing, arsenic, cadmium, chromium, cyanide, lead, mercury, nickel, or selenium:</del></p> <p><del>where that substance is a hazardous substance and is classified under the Hazardous Substances and New Organisms Act 1993 with an ecotoxicity classification of 9.1A, or 9.1B, or 9.1C; that does not comply with Condition 3 of Rule WQL 44 in which case no resource consent will be granted under Rule WQL 63</del></p> <p>For the purposes of this rule, a container includes any associated pipes or pipeline.</p>			
<p style="text-align: center;"><b>Where rule applies</b></p> <p>This rule only applies in Christchurch Groundwater Protection Sub-Zones 1A, 1B, or 1C, or 1D</p>			

<p align="center"><b>Information to be provided</b></p>			
<p>An application for a resource consent under this rule must meet the information requirements set out in Section 4.3.4 and Section 4.7.</p>			

**For information only**  
 The use and storage of hazardous substance containers must also comply with other relevant controls under the Hazardous Substances and New Organisms Act 1996 including but not limited to "*Controls for Stationary Containers for Hazardous Liquids and Gases*", February 2004 and the Hazardous Substances (Emergency Management) Regulations 2004

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<sup>99</sup> WQLV6.32, WQLV6.70

## Rule WQL59 Use of land for certain activities - discretionary activity

Activity	Conditions	Discretion	Cross reference
<p>The following uses of land are discretionary activities, and require a land use consent:</p> <p>1. The use of land which may result in the discharge of nitrate-nitrogen into groundwater in Zone NN or Zone IB shown on the Map Volume Part 1 Planning Maps, except where the use of land is authorised by a resource consent granted under Rule WQL 19, that does not comply with any one or more of the conditions of Rule WQL 18;</p> <p>or</p> <p>2. The use of land for a stock holding pad, stock yards, or a farm raceway used to convey cattle or deer more than twice in any consecutive seven day period, that does not comply with any one or more of the conditions of Rule WQL25;</p> <p>or</p> <p>3. The use of land to:</p> <p>(a) store human or animal effluent; or</p> <p>(b) store organic waste from industrial or trade processes; or</p> <p>(c) stockpile of fermenting or decaying organic matter;</p> <p>that does not comply with any one or more of Conditions 1, 2(a), 2(b), 2(c), 2(d) or 2(f) of Rule WQL29; or</p> <p>that does not comply with any one or more of Conditions 1, 2(a), 2(b), 2(c), 2(d) or 2(f) of Rule WQL30;</p> <p>or</p> <p>...</p> <p>8. The use of land to:</p> <p>(a) use, including store in a container or transport through a pipe, or</p> <p>(b) remove a container that has been used to store;</p> <p>any of the following substances:</p> <p>(i) petroleum hydrocarbon products, including those for cooling purposes, but excluding liquefied petroleum gas;</p> <p>(ii) chlorinated hydrocarbons;</p> <p>(iii) agrichemicals;</p> <p>(iv) timber preservatives; or</p> <p>(v) any other substance containing, arsenic, cadmium, chromium, cyanide, lead, mercury, nickel, or selenium;</p> <p>where that substance is a hazardous substance and is classified under the Hazardous Substances and New Organisms Act 1993 with an ecotoxicity classification of 9.1A, or 9.1B, or 9.1C;</p>	<p>_____</p> <p>_____</p>	<p>Unlimited</p>	<p><b>Policies</b></p> <p>WQL8</p> <p>WQL9</p> <p>WQL10</p> <p>WQL11</p> <p>WQL12</p>

<p>that does not comply with any one or more of the:</p> <ul style="list-style-type: none"> <li>(a) Condition 2 of Rule WQL 44 and is located in Christchurch Groundwater Protection Zone 1 as shown on the Map Volume Part 1 – Planning Maps</li> <li>(b) Conditions 4 to 13 of Rule WQL 44;</li> </ul> <p>or</p> <p>9. The use of land to install, use and maintain a sewerage pipeline network, where the network is:</p> <ul style="list-style-type: none"> <li>(a) owned by a network utility operator; or</li> <li>(b) not owned by network utility operator, but services ten or more buildings;</li> </ul> <p>that does not comply with any one or more of Conditions 2 or 3 of Rule WQL 45;</p> <p>or</p> <p>10. The use of land to:</p> <ul style="list-style-type: none"> <li>(a) establish a new cemetery, or</li> <li>(b) increase the area of land used for burials in an existing cemetery;</li> </ul> <p>that does not comply with any one or more of the conditions 1(a) to 1(d) of Rule WQL 48.</p>			
<b>Where rule applies</b>			
This rule applies everywhere in the Canterbury region, excluding the Coastal marine area			
<b>Information to be provided</b>			
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.			

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<sup>100</sup> WQLV6.1

## Rule WQL62 — Use of land for certain activities - non-complying activity

Activity		Cross reference
<p>The following uses of land are <b>non-complying activities</b>, and require a land use consent:</p> <p>1. The use of land in Zone IB shown on Map Volume Part I Planning maps that may result in:</p> <ul style="list-style-type: none"> <li>(a) contaminants entering groundwater or surface water; or</li> <li>(b) the disturbance of the bed of a permanently flowing river, or lake arising from livestock in the bed or on the margin of a permanently flowing river, or lake; and the use of water for irrigation is authorised under Rule WQN 26; that does not comply with Condition 1 of Rule WQL 19; or</li> </ul> <p>2. The use of land to:</p> <ul style="list-style-type: none"> <li>(a) store human or animal effluent; or</li> <li>(b) store organic waste from industrial or trade processes; or</li> <li>(c) stockpile fermenting or decaying organic matter; that does not comply with Condition 2(e) of Rule WQL29 or that does not comply with Condition 2(e) of Rule WQL30;</li> </ul> <p>or</p> <p>2. The use of land to construct a bore or to excavate land for a water infiltration gallery, for the purpose of taking, investigating, or monitoring groundwater, that does not comply with any one or more of the conditions of Rule WQL38;</p> <p>or</p> <p>3. The use of land to drill, construct, use, maintain, or decommission a well or bore for the purpose of hydrocarbon exploration or production that does not comply with any one or more of the conditions of Rule WQL39;</p> <p>or</p> <p>4. The use of land to excavate land:</p> <ul style="list-style-type: none"> <li>(a) over an unconfined or semi-confined aquifer: <ul style="list-style-type: none"> <li>(i) where the depth of excavation: <ul style="list-style-type: none"> <li>1. exceeds five metres; or</li> <li>2. is deeper than the highest groundwater level which can reasonably be expected to occur at the site, based upon the relevant and available groundwater data; and</li> </ul> </li> <li>(ii) where the volume of material excavated exceeds 100 cubic metres within any consecutive 12 month period; or</li> </ul> </li> <li>(b) within the Coastal Confined Gravel Aquifer System, where there is less than one metre of undisturbed sediment beneath the base of the excavation and Aquifer 1;</li> </ul> <p>that does not comply with any one or more of the conditions of Rule WQL40.</p> <p>or</p> <p>5. The use of land to use, including store in a container or transport through a pipe, any of the following substances:</p>		<p><b>Policies</b></p> <p>WQL2</p> <p>WQL4</p> <p>WQL 6</p> <p>WQL 7</p> <p>WQL8</p> <p>WQL9</p> <p>WQL12</p> <p>WQL13</p> <p>WQL14</p> <p>WQL15</p> <p>WQL16</p> <p>WQL17</p> <p>WQL18</p> <p>WQL19</p> <p>WQL20</p> <p>WQL24</p>

- (i) petroleum hydrocarbon products , including those for cooling purposes, but excluding liquefied petroleum gas,
- (ii) chlorinated hydrocarbons,
- (iii) agrichemicals,
- (iv) timber preservatives, or
- (v) any other substance containing, arsenic, cadmium, chromium, cyanide, lead, mercury, nickel, or selenium:

where that substance is a hazardous substance and is classified under the Hazardous Substances and New Organisms Act 1993 with an ecotoxicity classification of 9.1A, or 9.1B, or 9.1C; that does not comply with Condition 1 of Rule WQL 44; or

~~or~~

6. The use of land to construct, use and maintain a sewerage pipeline network:

- (a) owned by a network utility operator; or
- (b) not owned by network utility operator, but servicing ten or more buildings;

that does not comply with Condition 1 of Rule WQL 45.

6. The use of land for mineral extraction in Christchurch Groundwater Protection Zone 1 or Sub-Zones 1A, 1C or 1D as shown on the Map Volume Part 1 – Planning Maps.

7. The use of land in Christchurch Groundwater Protection Sub-Zone 1A as shown on the Map Volume Part 1 – Planning Maps to use, including store in a container or transport through a pipe, any of the following substances:

- (i) petroleum hydrocarbon products , including those for cooling purposes, but excluding liquefied petroleum gas,
- (ii) chlorinated hydrocarbons,
- (iii) agrichemicals,
- (iv) timber preservatives, or
- (v) any other substance containing, arsenic, cadmium, chromium, cyanide, lead, mercury, nickel, or selenium:

where that substance is a hazardous substance and is classified under the Hazardous Substances and New Organisms Act 1993 with an ecotoxicity classification of 9.1A, or 9.1B, or 9.1C;

that does not comply with the condition 1 of Rule WQL 55, unless prohibited by Rule WQL66

8. The use of land in Christchurch Groundwater Protection Sub-Zone 1B as shown on the Map Volume Part 1 – Planning Maps to use, including store in a container or transport through a pipe, any of the following substances:

- (i) petroleum hydrocarbon products , including those for cooling purposes, but excluding liquefied petroleum gas,
- (ii) chlorinated hydrocarbons,
- (iii) agrichemicals,
- (iv) timber preservatives, or
- (v) any other substance containing, arsenic, cadmium, chromium, cyanide, lead, mercury, nickel, or selenium:

where that substance is a hazardous substance and is classified under the Hazardous Substances and New Organisms Act 1993 with an ecotoxicity classification of 9.1A, or 9.1B, or 9.1C;

that does not comply with Condition 3 of Rule WQL 44, unless prohibited by Rule WQL66

<b>Where rule applies</b>		
This rule does not apply to all areas/ situations in the Canterbury region — see Table WQL 7: Index of rules		
<b>Information to be provided</b>		
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.		

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<sup>101</sup> WQLV6.1, WQLV6.75

**Rule WQL63 The use including storage of a specified hazardous substance in Christchurch Groundwater Protection Zone 1 and Sub-Zones 1C and 1D - prohibited activity**

Activity		Cross-reference
<p>Except where it:</p> <p><del>is:</del></p> <ol style="list-style-type: none"> <li>1. a <b>permitted activity</b> under Rule WQL 42 or Rule WQL 43;</li> <li>2. a <b>controlled activity</b> under Rule WQL 44;</li> <li>3. a <b>discretionary activity</b> under Rule 55 or Rule WQL59;</li> <li>4. a <b>non-complying activity</b> under Rule WQL 60;</li> </ol> <p>which are located in</p> <p>(a) Christchurch Groundwater Protection Zone 1 as shown on the Map Volume Part 1- Planning Maps:  the use of land, which had not commenced at the date of notification of this rule, to use, including store in a container or transport through a pipe any one or more of the following substances:</p> <ol style="list-style-type: none"> <li>(i) petroleum hydrocarbon products (excluding liquefied petroleum gas);</li> <li>(ii) chlorinated hydrocarbons,</li> <li>(iii) agrichemicals,</li> <li>(iv) timber preservatives, or</li> <li>(v) any other substance containing, arsenic, cadmium, chromium, cyanide, lead, mercury, nickel, or selenium:</li> </ol> <p><del>where that substance is a hazardous substance and is classified under the Hazardous Substances and New Organisms Act 1993 with an ecotoxicity classification of 9.1A, or 9.1B, or 9.1C and the aggregate quantity of all hazardous substances on a site will exceed the quantities specified in Schedule 4 of the Hazardous Substances (Emergency Management) Regulations 2004; or</del></p> <p>(b) Christchurch Groundwater Protection Sub-Zone 1C as shown on the Map Volume Part 1- Planning Maps and the activity is:</p> <ol style="list-style-type: none"> <li>(i) not carried out by the requiring authority in accordance with a designation in the Christchurch City Council City Plan; or</li> </ol>		<p><b>Policies</b></p> <p>WQL2  WQL8  WQL10  WQL12  WQL13  WQL14  WQL15  WQL16  WQL17  WQL18  WQL19  WQL20  WQL21</p>

(ii) ~~not carried out in accordance with Christchurch District Plan (Volume 3, Part 8, Special Purposes (Airport) Zone, Rule 3.3.3 Activities within Airport Zone;~~

~~and the use of land is to use, including store in a container or transport through a pipe, any of the following substances:~~

- ~~(i) petroleum hydrocarbon products, including those for cooling purposes, but excluding liquefied petroleum gas,~~
- ~~(ii) chlorinated hydrocarbons,~~
- ~~(iii) agrichemicals,~~
- ~~(iv) timber preservatives, or~~
- ~~(v) any other substance containing, arsenic, cadmium, chromium, cyanide, lead, mercury, nickel, or selenium:~~

~~where that substance is a hazardous substance and is classified under the Hazardous Substances and New Organisms Act 1993 with an ecotoxicity classification of 9.1A, or 9.1B, or 9.1C; that does not comply with Condition 2 of Rule WQL 44~~

(e) ~~Christchurch Groundwater Protection Sub-Zone 1D as shown on the Map Volume Part 1 - Planning Maps and the activity is not carried out by the requiring authority in accordance with a designation in the Christchurch City Council City Plan or Proposed Selwyn District Plan and the use of land is to use, including store in a container or transport through a pipe, any of the following substances:~~

- ~~(i) petroleum hydrocarbon products, including those for cooling purposes, but excluding liquefied petroleum gas,~~
- ~~(ii) chlorinated hydrocarbons,~~
- ~~(iii) agrichemicals,~~
- ~~(iv) timber preservatives, or~~
- ~~(v) any other substance containing, arsenic, cadmium, chromium, cyanide, lead, mercury, nickel, or selenium:~~

~~where that substance is a hazardous substance and is classified under the Hazardous Substances and New Organisms Act 1993 with an ecotoxicity classification of 9.1A, or 9.1B, or 9.1C; that does not comply with Condition 2 of Rule WQL 44~~

and

which at the date of the notification of this rule was not authorised by a resource consent under a regional plan or a district plan;

<p>is— a <b>prohibited activity</b> for which no resource consent will be granted.</p>		
<p style="text-align: center;"><b>Where rule applies</b></p> <p>This Rule applies in Zone 1 of the Christchurch Groundwater Protection Zone, or Sub-Zones 1C and 1D, as shown on Map Volume Part 1 — Planning Maps, excluding Sub-Zone 1A or Sub-Zone 1B or Sub-Zone 1C.</p>		

**For information only**  
The use and storage of hazardous substance containers must also comply with other relevant controls under the Hazardous Substances and New Organisms Act 1996 including but not limited to “Controls for Stationary Containers for Hazardous Liquids and Gases”, February 2004 and the Hazardous Substances (Emergency Management) Regulations 2004

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<sup>102</sup> WQLV6.76

## Rule WQL64 Use of land within the Christchurch Groundwater Protection Zone 1 - non-complying activity

Activity		Cross-reference
<p>The use of land within Christchurch Groundwater Protection Zone 1 after 1 August 2007 that is:</p> <p>(i) not legally established or authorised on or before 1 August 2007; or</p> <p>(ii) not located on a site that exists as of 1 August 2007, or</p> <p>(iii) not located on a separate site that complies with the minimum net site area requirements for subdivision for a controlled activity in the relevant zone within the Selwyn District Plan or City of Christchurch District Plan</p> <p>is a non-complying activity and requires land use consent.</p>		<p>Policies:</p> <p>WQL13</p> <p>WQL14</p> <p>WQL15</p> <p>WQL16</p> <p>WQL17</p>

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## Rule WQL65 Use of land (hazardous substances) within the Christchurch Groundwater Protection Zone 1 - prohibited activity

Activity		Cross-reference
<p>Within Christchurch Groundwater Protection Zone 1 the use of land not legally established or authorised on or before 1 August 2007:</p> <p>1. that is specified within Schedule WQL3, and</p> <p>2. the aggregate quantities of hazardous substances on a site of any one or more of the following substances:</p> <ul style="list-style-type: none"> <li>(i) petroleum hydrocarbon products (excluding liquefied petroleum gas);</li> <li>(ii) chlorinated hydrocarbons;</li> <li>(iii) agrichemicals;</li> <li>(iv) timber preservatives; or</li> <li>(v) any other substance containing, arsenic, cadmium, chromium, cyanide, lead, mercury, nickel, or selenium;</li> </ul> <p>where that substance is a hazardous substance and is classified under the Hazardous Substances and New Organisms Act 1993 with an ecotoxicity classification of 9.1A, or 9.1B, or 9.1C, will exceed the quantities specified in Schedule 4 of the Hazardous Substances (Emergency Management) Regulations 2004;</p>		<p>Policies:</p> <p>WQL13</p> <p>WQL14</p> <p>WQL15</p> <p>WQL16</p> <p>WQL17</p>

103 WQLV6.77

is a prohibited activity.		
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### Rule WQL66 Use of land (hazardous substances) within the Christchurch Groundwater Protection Sub-Zones 1A and 1B - prohibited activity

Activity		Cross-reference
<p>Within Christchurch Groundwater Protection Sub-Zones 1A or 1B, the use of land not legally established on or before 1 August 2007:</p> <p>1. that is specified within Schedule WQL3A, and</p> <p>2. the aggregate quantities of hazardous substances on a site of any one or more of the following substances:</p> <ul style="list-style-type: none"> <li>(i) petroleum hydrocarbon products (excluding liquefied petroleum gas);</li> <li>(ii) chlorinated hydrocarbons;</li> <li>(iii) agrichemicals;</li> <li>(iv) timber preservatives; or</li> <li>(v) any other substance containing, arsenic, cadmium, chromium, cyanide, lead, mercury, nickel, or selenium;</li> </ul> <p>where that substance is a hazardous substance and is classified under the Hazardous Substances and New Organisms Act 1993 with an ecotoxicity classification of 0.1A, or 0.1B, or 0.1C, will exceed the quantities specified in Schedule 4 of the Hazardous Substances (Emergency Management) Regulations 2004;</p> <p>is a prohibited activity.</p>		<p>Policies:</p> <p>WQL13</p> <p>WQL14</p> <p>WQL15</p> <p>WQL16</p> <p>WQL18</p> <p>WQL19</p>

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<sup>104</sup> WQLV6.79

<sup>105</sup> WQLV6.80

## **Explanation of Rules...**

The following explanations provide some background setting to the rules. The rules apply only within the Christchurch Groundwater system, but adverse effects can occur from activities occurring outside of the mapped area comprising Map Volume Part 1 Planning Maps which can affect groundwater quality within that mapped area. The rules apply to any activities of that nature having such adverse effects within the mapped area.

### **Rule WQL5 Discharge of stormwater containing contaminants onto or into land**

Stormwater run-off is likely to contain a wide range of contaminants at varying concentrations, depending upon the source of the run-off. The preferred option for stormwater discharges is via a reticulated network system so the discharge can be managed and treated, if necessary, prior to discharge (Condition 1). However, where there is no network available, the discharge of stormwater run-off from roofs and hard surfaces can, in many circumstances, be discharged into the ground without causing any significant adverse effects on groundwater quality, especially where subsurface material can provide in-situ treatment to reduce concentrations of any contaminants which may be in the stormwater.

The discharge of stormwater from roofs of buildings in areas where there is no stormwater reticulation, such as small settlements or rural areas is not likely to have significant adverse effects on soil or groundwater quality because of the low density of the buildings, and the use of the soil as a treatment system for the discharge. In urban areas, it is recognised that there will be some small isolated buildings where connection to a reticulation system will not be practicable, and the roof stormwater can be discharged into the ground with only minor adverse effects. The rule limits the roof area in urban situations to 50 square metres, so the discharge from large building will not be a permitted activity. Outside of urban areas, the roof area is limited to 400 square metres. Where roof stormwater is discharged into land it is important that surface run-off does not enter the stormwater disposal system as this run-off may contain other contaminants that could affect soil or groundwater quality, or overwhelm the roof stormwater disposal system. The system needs to be designed to ensure that the stormwater soaks into the ground and does not enter a neighbouring property, without that landowner's permission. (Condition 2).

The stormwater run-off from sites where hazardous substances are used, can potentially contain significant concentrations of contaminants such as hydrocarbons and a wide range of organic and inorganic hazardous substances, which if present in groundwater used for water supplies, can create a risk to human health. The discharge of stormwater into land from these areas is not a permitted activity because of these potential adverse effects (Condition 3).

Condition 4 of this rule is intended to support and complement Rule WQL7 which encourages operators of stormwater network systems to develop integrated management plans for stormwater catchments in existing and new urban areas.

The discharge of stormwater run-off into the ground from small scale subdivisions or other areas where there is a stormwater collection system is unlikely to have any significant adverse effects on groundwater quality, however, as the size of the stormwater collection area increases, so does the potential for adverse effects. Discharges from stormwater systems on the Port Hills and Banks Peninsula loess soil slopes can contain high concentrations of suspended sediment, resulting in significant adverse effects on water quality and aquatic ecosystems in both freshwater and marine receiving environments. Therefore, the discharge from new stormwater collection areas, which exceed the thresholds of Condition 5, is not a permitted activity.

In areas where shallow unconfined groundwater level is close to the ground surface, there must be adequate subsurface material available to filter the discharge before it enters groundwater, unless the discharge is authorised from the roof of a small building (Condition 6).

Discharges of stormwater from roads, vehicle parking areas and other impermeable areas can contain hydrocarbons, heavy metals, and sediment. These contaminants can be effectively removed from the stormwater using a filtration system containing media of specified characteristics (Condition 7). Where stormwater run-off from a road is collected in a roadside drain or swale, before being discharged into a soak hole, the run-off should flow over an area of grass and soil of adequate length and depth to enable contaminants to be retained before discharge (Condition 8). Discharges of stormwater into land could potentially have adverse effects on water quality. The risk of this is highest in areas where the groundwater is a source of community drinking water. Therefore, a stormwater discharge into land in a Community Water Supply Protection Zone is not authorised as a permitted activity under this Rule (Condition 9).

~~Condition 10 prevents discharges occurring as a permitted activity in Christchurch Groundwater Protection Zone 1, or Sub-Zones 1B or 1D (but excluding Sub-Zones 1A and 1C), except for roof stormwater discharged in accordance with Condition 2 – discharges in Sub-Zones 1A or 1C are controlled by Rule WQL7. Discharges of stormwater potentially threaten groundwater quality, and including by increasing the risk that contaminants enter the groundwater system.<sup>106</sup>~~

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**Rule WQL7 Discharge of stormwater containing contaminants onto or into land or into a river, lake or artificial watercourse from a stormwater management area**

The management of discharges of stormwater from networks servicing urban catchments has, in the past, not been generally undertaken in a comprehensive way. As a result stormwater management is often fragmented within and across most urban areas of the region. This lack of integration in the management of stormwater means the adverse effects of these discharges taken together may be greater than the adverse effects from discharges which occur under an integrated approach.

The rule seeks to improve the integration of stormwater discharges by making the discharge from an urban catchment or sub-catchment, where a management plan has been developed and implemented, a controlled activity. (Condition 1) The discharge, where it occurs outside “sensitive areas” must meet the water quality standards for the receiving water, outside of the Zone of Non-Compliance, as set out in the Schedule WQL1 (Condition 2). A stormwater discharge to surface water is to be managed to limit the increase in suspended sediment, over pre-development levels in newly developed areas, resulting from the discharge (Condition 3(a)). Condition 3(b) limits the effects on flooding from the discharge. The rate of discharge should not overwhelm the receiving water to minimise effects on both water quality and potential flooding problems, therefore the rate of discharge is limited to 5% of the 1 in 5 year flood event at the point of discharge (Condition 3(b)). Condition 4 prevents the discharge occurring within specific areas of the Christchurch Groundwater Protection Sub-Zone 1, 1A, 1B, 1C, 1D or Sub-Zone 2 as these areas contain existing activities which potentially threaten groundwater quality, and the discharge of stormwater into these areas could increase the risk of adverse effects if contaminants enter the groundwater system. Where stormwater discharges to surface water occur in “sensitive areas” such as community drinking water supply zones, or habitats for fish, the discharge is not to alter the quality of the receiving water (Condition 5)

A discharge in any sensitive areas which would alter the quality of the receiving water is a non-complying activity, and requires resource consent. For such a discharge to be allowed the adverse effects would have to be minor, or the discharge not contrary to the objectives and policies of the Plan. A discharge in the specified zones of the Christchurch Groundwater Protection Sub-Zone 1, 1A, 1B, 1C, 1D or 2 is managed under Rule WQL55<sup>107</sup> a discretionary activity.

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**Rule WQL8 Discharge of contaminants onto or into land from an individual on-site sewage and wastewater treatment and land application system**

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<sup>106</sup> WQLV6.32

<sup>107</sup> WQLV6.70

This rule authorises as a permitted activity discharges into land from individual sewage effluent treatment disposal systems, including commercial catteries and kennels, that exist at the date the rule is publicly notified, provided these meet Conditions 1 to 8 of the rule. Discharges commencing for the first time after the date of notification are a permitted activity, provided the activity meets all of the conditions of the rule.

The purpose of the rule is to ensure that domestic sewage effluent, or effluent from commercial dog kennels or catteries, discharged from systems installed after the rule is notified produce effluent that is adequately treated before it is discharged into land, and that appropriate safe-guards are in place to ensure that the discharges will not threaten water supplies used for drinking. The conditions of the rule reflect the minimum requirements set out in the current Australian/New Zealand Standards for on-site domestic-wastewater systems and management. Effluent from commercial dog kennels or catteries is of a similar nature to domestic effluent, and therefore can and must be treated in the same way as domestic sewage, before discharge into land.

The preferred method of domestic sewage effluent treatment and discharge is through a reticulated pipeline network and community treatment system (Condition 5). Where a sewerage network runs within 30 metres of the boundary of the property and the operator of the network will accept the sewage effluent it is expected that the household will connect to the network. However, many buildings in rural Canterbury are not able to be connected to a municipal or community reticulated sewerage system. There are estimated to be about 30,000 individual domestic on-site sewage effluent treatment and discharge systems in the region. Discharges of sewage effluent into land can have significant adverse effects on groundwater quality, particularly if the effluent has not been adequately treated before discharge and the unconfined groundwater is close to the ground surface. Once in the groundwater contaminants in the sewage, particularly micro-organisms, can travel extensive distances and threaten the quality of groundwater used for drinking.

The effect of discharges on the environment depends on the amount of effluent from any point discharge and the spatial distribution of the discharges. As land becomes more intensively subdivided the concentration of sewage tank discharges increases and the cumulative contamination of unconfined aquifers increases. Where groundwater is in a confined aquifer and/or the soils are not free-draining, the cumulative contamination of surface water bodies increases as a result of runoff from poorly performing sewage tanks and discharge systems. The volume of the discharge from any single system authorised under this rule is limited to two cubic metres per day (Condition 2). This volume could be expected to be produced from a large household (10+ persons). The maximum volume discharged from a property is also limited, but allows for several systems to be installed on larger properties (Condition 3).

The effluent needs to stay beneath the ground to avoid contact with humans, animals or insects who or which may contract or spread disease-causing organisms in the effluent (Condition 4).

In areas where existing sewage effluent discharges may pose a risk of adverse effects to groundwater quality the rule requires that, over the next ten years, improvements to increase the effectiveness of the effluent treatment systems are implemented. Priority areas for these improvements have been identified, with the highest priority being discharges in Community Drinking Water Supply Protection Zones.

Anecdotal evidence suggests that waste treatment systems are not always adequately maintained. It is not practical to require all existing discharges in the region to be upgraded to meet the current national treatment standards. Therefore, all existing discharges are authorised, but there is a requirement for an effluent filter to be fitted to existing sewage tanks within three years of the rule becoming operative. (Condition 6). Filters can readily be fitted to septic tanks and are a simple and cost effective way of improving the effectiveness and increasing the life of the treatment and disposal systems by preventing solids passing from the sewage tank into the treatment and disposal system (Conditions 6 and 18).

Because of the high risk to human health from the transmission of pathogenic organisms through water which has been contaminated with sewage effluent, existing discharges which are located in a Community Drinking Water Supply Protection Zone and within the Christchurch Groundwater

Protection Zone 1, Sub-Zones 1A, 1B, 1C, or 1D, or Zone 2 will be expected to meet the provisions of the rule as they apply to newly installed systems within 5 years of the rule becoming operative (Condition 8). In other areas the risk of disease transmission from sewage discharges is less, but remains a significant potential threat to human health, if the effluent is not effectively treated and discharged.

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### **Rule WQL23 Discharge of dead animal matter or domestic refuse into production land**

The purpose of this rule is to authorise the discharge of dead animal matter into land, in “offal pits”, or the discharge into pits of solid waste refuse, being farm and domestic refuse produced on the farm. It is normal farming practice in New Zealand to dispose of dead animal matter into covered pits where the carcasses decompose. This decomposition process can result in contaminants such as nitrate-nitrogen, micro-organisms, and compounds which could affect the odour, taste or colour of water, entering groundwater. The pits will emit contaminants for periods of weeks, months or years depending upon the size, quantity of material and conditions present in the pits. It is preferable to enhance the decomposition processes in the pit as this will decrease the risk of groundwater contamination.

There are many rural areas that are not served by a household refuse collection system, or are not located within a reasonable distance of a refuse collection or transfer station. Landowners in these areas are expected to dispose of their own waste. This waste disposal can be undertaken with little adverse effect on the environment provided the scale of the activity and the nature of the waste are managed. On small farming properties the rule provides for the offal pit and the waste refuse pit to be combined, provided that there is no intensive livestock or factory farming occurring on the property (Condition 2(b)). Such enterprises would normally produce greater quantities of dead animals than small scale extensive farming.

The rule limits the size and density of offal pits permitted to ensure that the sources of contaminants are restricted and dispersed over a property (Condition 1(a) and Condition 4). Conditions 1(b) and (c) require that the pits are covered and constructed in a way so that risk to public and stock health is minimised, and surface run-off does not enter a pit increasing the adverse effects of contaminants being leached to groundwater, potentially decreasing the rate of decomposition. Only material that will readily decompose can be placed in a pit (Condition 1(d)). Contrary to common belief, the addition of agricultural lime (CaCO<sub>3</sub>) will inhibit the decomposition process, so should not be added to the offal pit (Condition 1(e)).

Once pits are nearly full, the contents need to be covered with soil to prevent animals gaining access, to prevent odour and adverse effects on amenity values (Condition 3).

Offal pits or refuse pits should not be located in areas where they pose a risk of adverse effects to either surface water or groundwater quality or for the users of these resources. This is achieved by ensuring there is adequate separation distances between the pits and bores or surface water bodies, and the pits are not located in areas where the contents could be dispersed by floodwaters or in the vicinity of a bore used for community drinking water (Condition 5). Leachate from the pits does not discharge directly into groundwater and there is adequate depth to groundwater to provide for attenuation of contaminants such as micro-organisms (Conditions 6 and 7). By maintaining these separation distances should ensure contaminants are attenuated, dispersed or diluted in the ground and groundwater without affecting other uses or values of the water.

Recording the location of these pits is necessary for monitoring the conditions of this rule (Condition 8).

Within the vulnerable parts of the groundwater system, being the Christchurch Groundwater Protection Zone 1, Sub-Zones 1A, 1B, 1C, or 1D, or Zone 2 no new or unauthorised offal pits or refuse pits are allowed as of right after the rule becomes operative. (Condition 9). This reflects the level of risk of adverse effects to ground water quality such land uses potentially pose.

#### **Rule WQL24 Discharge of solid animal effluent, vegetative material containing animal effluent or vegetative material from an industrial or trade process onto production land**

The discharge of bedding materials from intensive piggeries or stock holding pads, solid animal or poultry effluent or vegetative matter from wineries or other horticultural facilities onto production land can be an effective method of disposing of this matter. The discharge will, if managed effectively, provide nutrients and organic matter to pasture, at a rate that will be assimilated by the plants and soil, and not result in contaminants from these sources entering groundwater or surface water. The material must be in a solid or semi-solid state (Condition 1) and is therefore unlikely to run-off the land. The material must be suitable for decomposition without persistent or toxic compounds accumulating in the soil (Condition 2). As the waste is applied evenly onto the land surface (Condition 4), and at infrequent intervals (Condition 3), there is greater opportunity for contaminants to be attenuated by natural processes in the soil or absorbed into the soil/plant ecosystem. As a precaution against the material or contaminants being washed into surface water or groundwater, separation distances from a lake or a bore are prescribed in the rule, and also from the edge of a river or water race, unless the material is ploughed or otherwise incorporated into the soil immediately after being discharged (Condition 5). The material should not be applied to saturated land because rates of decomposition will be reduced which may result in odour or contaminants entering water.

Within the vulnerable parts of the groundwater system, being the Christchurch Groundwater Protection Zone 1, Sub-Zones 1A, 1B, 1C or 1D or Zone 2 no new or unauthorised discharges are allowed as of right after 1 August 2007. (Condition 7). This reflects the level of risk of adverse effects to ground water quality the discharge from such land uses potentially pose.

#### **Rule WQL26 Discharge of animal effluent or water containing animal effluent or other contaminants onto land**

Most dairy sheds and indoor intensive pig farming operations must remove the animal effluent and wash-down the facilities to maintain health and hygiene requirements for the animals and animal products. The purpose of the rule is to ensure that animal effluent which is collected, is discharged onto land at a rate, and in a way, which will ensure that the discharge does not exceed the capacity of soil and plant ecosystems, to efficiently assimilate the contaminants in the animal effluent. By applying the effluent at a rate which matches the assimilative capacity of the pasture, the discharge will result in beneficial effects for soil fertility, and crop or pasture growth, while avoiding significant adverse effects on groundwater or surface water quality.

The rule sets conditions that must be complied with for the activity to be considered as a controlled activity. The conditions control the method of application, the depth of application and the rate of discharge of nitrogen to land (Conditions 1, 2, and 6). These factors will determine the area of land required to be available for this discharge on a property. The depth of application takes into account the infiltration capacity of different soil types, so that the effluent will be quickly absorbed into the soil system and does not lie on the ground surface. Effluent which sits on the land surface can either run-off to neighbouring land or water bodies, or create odour problems as soils become anaerobic as a result of prolonged saturation. (Conditions 4 and 5)

The purpose of Condition 2 is to ensure that effluent is not applied to saturated land because the rate of decomposition will be reduced which may result in odour, or contaminants may enter water. A time delay between irrigation and the application of the effluent is to ensure that the soil is not or will not be saturated with irrigation water to allow the effluent sufficient time on the land surface to be absorbed into the soil plant system.

The purpose of Condition 3 is to establish at the outset before the consent application is considered, minimum performance standards for the discharge. These include no runoff into surface water or groundwater and preventing nuisance or public health effects on the public, or on cultural values unless prior approval has been given.

An application for a controlled activity must be granted. In areas of higher risk of adverse effects on water quality or public health, such as in a Community Drinking Water Supply Protection Zone,

Christchurch Groundwater Protection Zone 1, Sub-Zones 1A 1B, 1C or 1D or Zone 2 this discharge will be considered as a discretionary activity. In these situations the risks of adverse effects to water quality and public health must be assessed in each case and, if necessary, Environment Canterbury has the ability to refuse the application if the risks of such adverse effects are considered unacceptable (Conditions 3(c), 7 and 8).

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**Rule WQL27 — Discharge of animal effluent or water containing animal effluent or other contaminants onto land that does not comply with certain conditions of Regional Rule WQL26**

A discharge of animal effluent onto land which does not comply with any one of the conditions of Rule WQL26 that relate to the 'technical' aspects of the discharge, such as depth of application, nitrogen application rate etc. is to be considered as a restricted discretionary activity under Rule WQL27. The rule identifies the conditions the activity must comply with. The purpose of these conditions is to ensure that the discharge will not affect water quality in surface water bodies or groundwater, cause a nuisance or health risk to the public, or those responsible for special interest sites unless prior approval has been given (Condition 1). To reduce the risk of run-off of the effluent or odour problems, the discharge, if it is to be considered as a restricted discretionary activity, must not occur onto frozen or snow covered ground (Condition 2).

Protecting the quality of groundwater, particularly in areas where the groundwater is a source for community drinking water supplies, is an important function of the plan. The discharge of animal effluent onto land in the Christchurch Groundwater Protection Zone 1, Sub-Zones 1A, 1B, 1C or 1D, or Zone 2 is an activity which, in this area, has the potential to significantly affect the quality of water entering the source of Christchurch's drinking water. In these zones the activity is to be considered as a discretionary activity, so that all effects of each activity can be considered on a case-by-case basis.

The risk to groundwater quality from this activity increases with reducing proximity to the water supply source. Therefore, within a Community Drinking Water Supply Protection Zone the discharge will be considered as a non-complying activity, and only allowed if the discharge is in accord with the objectives and policies of the plan, or if adverse effects are minor. When considering a discharge under this rule, the matters for discretion, to which Environment Canterbury is limited in its consideration of an application and imposing of conditions on any consent granted, are identified as the effects on natural resources of the discharge and the measures to be taken to avoid significant adverse effects, the monitoring and recording to be undertaken to ensure compliance with consent conditions and to assess effects on the environment of the discharge.<sup>108</sup>

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**Rule WQL30 — Use of land for storing human sewage effluent or animal effluent, organic waste, or stockpiling fermenting or decaying organic matter that does not comply with certain conditions of Regional Rule WQL29**

When an effluent storage system, or stockpile, does not comply with Conditions 3, 4, or 5 of WQL29 the use of land will be considered as a restricted discretionary activity. The situations when this will occur are; if the leakage rate from the storage facility exceeds that specified, or the land beneath a fermenting stockpile is not sealed and there is an increased risk of contaminants entering groundwater, or animal effluent ponds have less than 3 days storage capacity. The adverse effects on the environment from the leakage of contaminants or the reduced storage capacity will be assessed, and conditions on resource consent imposed to minimise these effects.

When the volume of waste stored exceeds 100 cubic metres, or the storage facility is located in an area where surface or groundwater quality may be vulnerable to the effects of this activity, these effects are to be considered for each situation through a resource consent process for a discretionary activity in the Christchurch Groundwater Protection Zone 1, Sub-Zone 1A, Sub-Zone 1B, Sub-Zone 1C or Sub-Zone 1D. The risk to groundwater quality from the activity is even greater where the activity is

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<sup>108</sup> WQLV6.1

located within a Community Drinking Water Supply Protection Zone for groundwater, therefore in these situations the activity will be assessed as a non-complying activity.<sup>109</sup>

### **Rule WQL31 Discharge of a contaminant onto or into land from an industrial or trade process, excluding a sewage treatment process**

There are numerous premises in Canterbury used for industrial or trade purposes which discharge relatively small volumes of processing waste and wash down water onto or into land. These discharges generally contain only low concentrations of degradable contaminants which are attenuated in the soil, without significant adverse effects on the environment. Under s. 15(1)(d) of the RMA, these discharges would require a resource consent.

This rule permits these small scale discharges, provided the volume discharged is less than 10 cubic metres per day and the discharge is undertaken by either spray or subsurface trickle irrigation at application rates of 10 or 5 millilitres per day, respectively (Conditions 1 and 3). These application rates will ensure that the effluent is absorbed and broken down in the soil. The discharges must not contain contaminants which will persist or accumulate in soil as these may pose a risk to future use of the land (Condition 2). Such discharges are not a permitted activity in areas; where groundwater is close to the ground surface in unconfined or semi-confined aquifers; close to bores; in a Community Drinking Water Supply Protection Zone, Christchurch Groundwater Protection Zone 1, Sub-Zone 1A, Sub-Zone 1B, Sub-Zone 1C, Sub-Zone 1D or Zone 2, because of the risk of adverse effects to groundwater quality or public health (Condition 6). Maintaining records of the type of contaminants in the discharge and the volume, frequency and location of the discharge will enable the activity to be monitored to ensure compliance with the rule (Condition 7).

### **Rule WQL36 Use and maintenance of a groundwater bore or water infiltration gallery**

The purpose of this rule is to ensure that a bore or gallery accessing groundwater is be maintained over its life so that it does not provide a conduit for contaminants at or near the land surface to enter into the groundwater. When an application is made for a resource consent to take water, the applicant will be required to demonstrate that the bore meets the conditions of this rule (Condition 12)

The conditions in the rule are set to ensure that a bore or a gallery that existed at the date of notification of the rule meets certain minimum standards of construction at all times. Backflow of contaminants down a bore can be prevented by ensuring that a prevention device is in place (Condition 8). Groundwater monitoring of both quality and level is undertaken in many cases by using existing groundwater bores, and therefore provision needs to be made to allow these measurements to be carried out (Conditions 9 and 10). The rule requires all groundwater bores existing at the date of notification and located within a Community Drinking Water Supply Protection Zone or within the Christchurch Groundwater Protection Zones 1, 2 and 3, and Sub-Zones 1A, 1B, 1C and 1D or on a site where a hazardous activity listed in Schedule WQL3 is occurring, to have well-head protection measures in place and a backflow prevention device to prevent water or contaminants flowing back down the bore installed within three years of the rule becoming operative, or when an application for a water permit to take water from the bore is made to Environment Canterbury, whichever is sooner (Condition 11). Because of the vulnerability of groundwater to contamination in these source areas for community drinking water supplies and the higher risk from hazardous substances associated with certain activities, these are priority areas for ensuring that bores do not create a pathway for contaminants to enter groundwater. In all other areas bores or galleries will have to demonstrate that they are secure against contaminant entry whenever a water permit to take water from the bore or gallery is made.

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<sup>109</sup> WQLV6.1

#### **Rule WQL40 Excavation of land in the Coastal Confined Gravel Aquifer System or over an unconfined or semi-confined aquifer**

The unconfined or semi-confined aquifers which make up the large portion of the region's high quality groundwater resources are overlain by thin soils and highly permeable gravels. Removal of this overlying material places the groundwater beneath at greater risk of contamination. The risk of adverse effects to groundwater quality will be highest when the excavation exposes the groundwater. The rule does not require a resource consent for excavation in the Coastal Confined Gravel Aquifer System between the Ashley and Rakaia Rivers unless there is less than one metre of undisturbed confining layer overlying Aquifer 1, beneath the excavation. Over a unconfined or semi-confined aquifer, the threshold for the scale of activity requiring resource consent at any particular location is 100 cubic metres per year and the depth of excavation exceeds five metres, or it is below the highest groundwater level at the site. This is to prevent large-scale uncontrolled excavations that may expose groundwater or remove the overlying material. The activity is classified as a restricted discretionary activity unless it is located near a river, lake or wetland of significance, where dewatering as a result of the excavation may affect a surface water body, a community drinking water supply protection zone for groundwater, or land in the Christchurch Groundwater Protection Zones 1 and 2 and Sub-Zones 1A, 1C and 1D except for land that is already zoned in the Christchurch City Plan for quarrying or gravel excavation (Condition 1).

When considering an application under this rule Environment Canterbury has restricted its consideration to matters such as the scale of the activity, measures to avoid adverse effects on water quality, including measures to avoid or mitigate the effects of contaminants entering groundwater.

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#### **Rule WQL42 Use, including storage or removal of an underground storage container used for a specified hazardous substance**

The Canterbury Regional Policy Statement (CRPS) specifically identifies a number of hazardous substances over which Environment Canterbury retains responsibility in respect of the control of the use of land to prevent or mitigate adverse effects on water quality from the storage, use, disposal, or transportation through a pipe. In respect of hazardous substance management, there is overlap between the provisions of the regional plan and the provisions of the Hazardous Substances and New Organisms Act (HSNO).

The storage of hazardous substances, particularly hydrocarbons such as petrol and diesel, frequently occurs in tanks which are fully or partially buried, and in Canterbury, in areas where groundwater is present in unconfined or semi-confined aquifers, or over confined aquifers where the surface confining sediments may be relatively shallow. There may be little natural protection preventing the contents of a leaking tank from entering groundwater. These contaminants are toxic and may persist in groundwater for extended periods, affecting wide areas of aquifers used for drinking water. These substances may significantly affect the drinking quality of water at very low concentrations, either through toxic effects or by making the water unpalatable.

The purpose this rule is to authorise, as a permitted activity, existing underground storage containers for a specified hazardous substance. The container cannot be altered, other than to repair or replace fittings attached to the container (Condition 1). The contents of a container are to be monitored using a specified inventory control method, as a warning system of a possible leak (Condition 2). Should this product monitoring indicate a discrepancy in the inventory, Environment Canterbury is to be notified promptly. A leak procedure needs to be undertaken regularly on an underground container, as this procedure will detect any holes in the container or pipe work (Condition 4). In the airport zone (Christchurch Groundwater Protection Sub-Zone 1C), business zones and mineral extraction zones (Christchurch Groundwater Protection Sub-Zone 1B) there is a relatively high density of existing underground storage tanks. The groundwater in this area is particularly vulnerable to contamination and the consequences of contaminating the groundwater with a hazardous substance could be very serious, the maximum frequency for leak testing of existing tanks is two years. In other areas of the region the risk from a leaking tank is lower, therefore the maximum frequency is five years. The results of a leak test are to be provided to Environment Canterbury (Condition 3).

Underground storage containers that have been in the land for some years may have leaked and product soaked into the surrounding soil or subsurface material or adjacent groundwater. This contamination often only becomes apparent when the container is removed. The intended removal of any underground container used for the storage of a specified hazardous substance must be notified to Environment Canterbury (Condition 5). Conditions 5 and 6 establishes a sequential requirement for the investigation of residual contamination of the land and groundwater, in the vicinity of the container. The investigations must be undertaken in accordance with Ministry for the Environment protocols for investigating contaminated sites. If evidence of contamination exceeding an acceptable level is found, either a site assessment is to be undertaken to establish the specific extent of contamination at the site, or a remedial action plan prepared. Condition 7 sets the period within which the investigation, site assessment or remedial action plan must be implemented. Reports of these actions must be provided to Environment Canterbury. (Condition 8).

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### **Rule WQL43 — Use, including storage in an above ground container of a specified hazardous substance**

The purpose of this rule is to authorise as a permitted activity, subject to conditions, the use of the hazardous substances specified in the CRPS to be controlled by Environment Canterbury. This use includes storage in containers above the ground that are either fixed to the land, or mobile. The rule links with the provisions of the Hazardous Substances and New Organisms Act (HSNO), but sets some additional basic criteria for the storage of hazardous substances in small quantities below the thresholds over which HSNO provisions apply (Condition 1). Establishing these basic criteria for the storage of even small quantities of hazardous substances recognises the vulnerability of groundwater and surface water to contamination with hazardous substances, and the need to prevent escape of even small quantities.

Where the volume of substances stored exceeds the thresholds established under HSNO but is less than five times that volume, the rule authorises the use of the substance provided the person in charge of the site meets requirements for product inventory, containment facilities, measures to prevent spills escaping, including the use of the substances on impervious surfaces, site drainage plans. Because of the risk to surface water or groundwater quality should a substance escape as a result of day to day activities or a natural hazard event, the use of the hazardous substance is not authorised as a permitted activity in areas where water bodies may be at risk, such as close to a river or lake, a bore, or wetland, where the site is likely to be flooded from a river or rainfall, in the unconfined area of the recharge area for Christchurch groundwater, near community water supply sources, or near fault lines (Condition 2). In these areas, the potential effects of the use of the hazardous substance needs to be addressed on a case by case basis through conditions on resource consent as a controlled activity.

The establishment of new facilities that use of large quantities of hazardous substances in the Christchurch Groundwater Protection Zone 1, Sub-Zones 1A, 1B, 1C or 1D are not compatible with protection of groundwater quality in this area. Experience has shown that despite the best precautions hazardous substances will inevitably enter groundwater if these facilities are allowed to be established in these areas. The purpose of Condition 3 is to limit the volume of hazardous substances which can be used in these areas.

While this rule applies to the storage and handling of agrichemicals, it is recognised that in day to day agricultural use situations it will not be practicable to have agrichemicals, stored at all times in constructed containment facilities. Therefore, these requirements are suspended for agrichemicals, so long as these are used in accordance with accepted national guidelines – the Agrichemical User's Code of Practice (Condition 4). This Code of practice contains a number of precautionary requirements to prevent the spillage and use of these hazardous substances which may result in contamination of surface water or groundwater. Therefore, adherence to the Code should provide adequate protection to water quality from the use of these substances.

Hazardous substances that are transported in portable containers of more than 1000 litres, such as towable fuel storage tanks, or timber treatment chemical carboys which remain on a work site for an extended period, pose a risk to water quality from leaks or spills if the substances could enter water.

This is particularly so for the more vulnerable areas of the groundwater system, namely Christchurch Groundwater Protection Zone 1, Sub-Zones 1A, 1B, 1C or 1D, or Zone 2. By using simple precautionary measures, a significant problem may be avoided if a spill is prevented from escaping into water. Therefore, the rule requires that these containers must have equipment suitable to contain or absorb any spill with it at all times, and if it is not moved frequently, the container should be within a temporary bund to contain any spills.

#### **Rule WQL44 — Use, including storage of a specified hazardous substance**

The purpose of this rule is to manage the use of those hazardous substances specified in the CRPS as being under the control of Environment Canterbury, where the use is not a permitted activity under rules WQL40, or WQL41. The rule covers activities such as the installation and use of new underground storage tanks and the removal of a tank or the use of a hazardous substance where the use does not comply with the preceding rules. Such activities will be considered as controlled activities under this rule provided that the activity meets the standards and terms of the rule.

Because of the risk posed to water quality, aquatic ecosystems or public health from a possible leak, spill, or release during a flood, of these substances, and the toxicity of these substances, Condition 1 requires that, where the activity is located on land close to a water body, significant wetland, or bore, or in an area subject to flooding from a river or within area where the groundwater is used for community drinking water supplies, the activity is to be considered as a discretionary activity. The risk of such activities can be assessed in each case, and Environment Canterbury needs to retain the ability to refuse the consent if the risk is not acceptable.

The establishment of new facilities that use of large quantities of hazardous substances in the Christchurch Groundwater Protection Zone 1 or Sub-Zones 1A, 1B, 1C or 1D are not compatible with protection of groundwater quality in this area. Experience has shown that despite the best precautions hazardous substances will inevitably enter groundwater if these facilities are allowed to be established in these areas. The purpose of Condition 2 is to limit the volume of hazardous substances which can be used in these areas.

Schedule WQL5 sets out the minimum industry standards for the construction or alteration of an underground container used to store a specified hazardous substance. These provisions relate to the spill or leak prevention measures required, and the certification of the design, installation and testing of the container. To ensure that the risk of substance spill or leakage from underground containers is minimised they must comply with the requirements set out in the Schedule (Condition 3).

Conditions 4 to 10 and Condition 12 relate to the on-going requirement for inventory reconciliation and leak testing of tanks and associated pipework. Inventory reconciliation and leak testing needs to be undertaken regularly. This will ensure that the tanks remain leak-proof, or will detect any chronic leakages, even in minute quantities.

Where the hazardous substances are used above the ground, Condition 11 requires that the substances are stored in containment facilities to prevent accidental discharge. The size of the containment facility needed depends upon the total amount of substances stored. The greater the quantity stored the greater the risk of accidental discharge. There are requirements under HSNO for secondary containment of hazardous substances and because these requirements are appropriate to provide protection for water and soil resources they are included in this Condition. The design, construction and management of the container must be undertaken to prevent any discharge of the hazardous substances. However measures planned to be implemented in the event of accidental spills of hazardous substances are needed in the event of an accidental spill.<sup>110</sup>

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<sup>110</sup> WQLV6.137

### **Rule WQLZZ Decommissioning of an underground container that has stored a specified hazardous substance**

The removal of an underground container is encouraged through making the activity permitted. Old tanks are more likely to be leaky, and their removal should be standard practice. The conditions only require informing the Council of the removal of a tank and supplying information of environmental sampling to check that there is no contamination of soils or water underlying the site. Even if there is contamination, the conditions acknowledge that cleanup will be necessary and that this needs to be recorded by the Council. It is anticipated that most situations will be permitted activities, and it will only be those where good practice is not undertaken that a resource consent will be required. This provides the Council with a measure of assurance that if there is contamination then it will be properly addressed.

The requirement for notification of details as to end location of decommissioned containers and contaminated materials removed is relevant to ensure they do not merely shift location within the Christchurch Groundwater System. The same applies to the relevance of methods and materials to be used in re-instatement.

### **Rule WQLYY Use of land to store a specified hazardous substance**

The Canterbury Regional Policy Statement (CRPS) specifically identifies a number of hazardous substances over which Environment Canterbury, rather than district councils, retains responsibility in respect of the control of the use of land to prevent or mitigate adverse effects on water quality from the storage, use, disposal, or transportation through a pipe. The Hazardous Substances and New Organisms legislation (HSNO) also applies to hazardous facilities and substances. However, HSNO does not deal with site specific matters; it sets minimum national standards. Consequently it is the responsibility of local authorities under the RMA to determine how the hazardous substances should be controlled in particular locations. Therefore it is appropriate to control the location, use and storage of hazardous substances in areas that are vulnerable to activities on the land surface or where the consequences of contamination significant. Reliance is placed on HSNO to ensure structural integrity and stock reconciliation.

The storage of hazardous substances, particularly hydrocarbons such as petrol and diesel, frequently occurs in tanks which are fully or partially buried. In Canterbury, this is often in areas where groundwater is present in unconfined or semi-confined aquifers, or over confined aquifers where the surface confining sediments may be relatively thin or the upwards groundwater pressure is not always present. In these circumstances, there is little natural protection preventing the contents of a leaking tank from entering groundwater. These contaminants are toxic and may persist in groundwater for considerable time, affecting wide areas of aquifers used for drinking water. Hazardous substances may affect the quality of the drinking water at very low concentrations, causing the water to be unpalatable or unsafe for consumption.

The purpose of the rule is to authorise, as a permitted activity, existing underground storage containers as long as they are not altered other than repaired (conditions 1 and 5). The contents of a container are to be regularly monitored in accordance with HSNO, and if there is any leakage then the Council is to be informed (conditions 2, 3, and 4).

Small quantities of hazardous substances, including portable containers, pose a relatively small risk to vulnerable water sources as long as there is careful siting and appropriate construction, mitigation measures, monitoring and spill containment and cleanup facilities. The rule authorises, as a permitted activity, the storage of such small quantities (conditions 6, 7, and 9). The Schedule WQLZZ sets out the quantity thresholds for different substances that pose relatively small risk of adverse effects.

Large quantities of hazardous substances pose a high risk of adverse effects to vulnerable water sources. Such quantities would be associated with significant storage, such as commercial and industrial enterprises. The Schedule WQLZZ sets out the quantity thresholds, and the Condition 8 identifies those areas where water is at risk from adverse effects. Because of the general high risk of such adverse effects, the rule requires a resource consent as a restricted discretionary activity.

However, in those areas where water is vulnerable, the rule classifies the activity as a non-complying activity.

The activity status for certain areas is in recognition of the significant risk of adverse effects to vulnerable water, e.g. over the unconfined aquifer recharge zone of the Christchurch groundwater system. It is anticipated that locating activities which might cause significant adverse effects in these areas would not obtain consent without extraordinary mitigation measures. However, it is considered that the risk of adverse effects is too great to allow activities in the vicinity of a bore used for public drinking water supply. Except for regionally and nationally significant infrastructure the rule classifies such activities as prohibited.<sup>111</sup>

#### **Rule WQL48 Use of Land for a New Cemetery or an Extension to an Existing Cemetery**

Consistency with Rule WQL12 Condition 3 has been maintained by requiring in condition 1(a) a minimum depth to groundwater of 6m from the land surface.

#### **Rule WQL51 Discharge of municipal solid waste refuse or treated hazardous waste to land**

The operation of an existing landfill or the establishment of a new landfill for solid waste or treated hazardous waste can be undertaken in ways that minimise the adverse effects on the environment. The severity and extent of the effects on water quality will, to a large degree, depend upon the location of the landfill. The purpose of this rule is to signal that the establishment of these landfills may be acceptable, if the landfill is designed and managed in accordance with accepted standards of best practice, and it is not located in areas where groundwater or surface water bodies or sources of community water supplies would have increased long-term risk of adverse effects from leachate from the landfill. These areas include, land where the groundwater is present in either an unconfined or semi-confined aquifer as there is little natural protection of groundwater by surface or subsurface sediments, the Coastal Confined Gravel Aquifer System which supplies most of the drinking water for Christchurch, the Christchurch Groundwater Protection Zone 1, Sub-<sup>112</sup>Zones 1A, 1B, 1C or 1D, or Zone 2 and any other Community Drinking Water Supply Protection Zone. (Condition 1).

The purpose of Condition 2 is to identify the matters that need to be taken into account when designing a landfill.

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#### **Rule WQL52 Discharge of municipal solid waste refuse or treated hazardous waste to land in certain areas**

The discharge of municipal solid waste or treated hazardous waste to land is prohibited in the area of the Coastal Confined Gravel Aquifer System, the Christchurch Groundwater Protection Zone 1, Sub-Zones 1A, 1B, 1C and 1D, or Zone 2 and any other Community Drinking Water Supply Protection Zone, because of the long-term risk to groundwater quality from the presence of a landfill.<sup>113</sup>

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#### **Rule WQL55 Use of land for mineral extraction, use of a specified hazardous substance, or the discharge of stormwater in Christchurch Groundwater Protection Sub-Zones 1A, 1B, 1C or 1D**

The area of land to the west of Christchurch, beneath which the groundwater in the unconfined or semi-confined aquifer flows into the Coastal Confined Gravel Aquifer System, from which Christchurch takes its water supply, is known as the Christchurch Groundwater Protection Zone 1. Activities in this area can have a significant impact on the quality of the water in the area of the Christchurch

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<sup>111</sup> WQLV6.137

<sup>112</sup> WQLV6.1

<sup>113</sup> WQLV6.1

Groundwater Protection Zone 1, and subsequently affect the quality of Christchurch's water supply. There are existing, well-established activities in the Christchurch Groundwater Protection Zone 1 which potentially pose a significant threat to the quality of the groundwater. The excavation of gravel from pits in this area removes the natural protective layer over the groundwater making the groundwater resource more vulnerable to contamination from activities on the land surface in the excavated land, or after excavation has ceased. The existence of the airport and areas of industrial and commercial activities in the Christchurch Groundwater Protection Zone 1 also threaten groundwater quality, particularly from hazardous substances used on these sites, and from stormwater discharges from these sites, which may transport contaminants into groundwater. The purpose of this rule is to ensure that these activities occurring in this area of very vulnerable groundwater only take place if adequate precautionary measures are in place to prevent contamination of groundwater.<sup>114</sup>

**Rule WQL63 — ~~The use including storage of a specified hazardous substance in Christchurch Groundwater Protection Zone 1 and Sub-Zones 1C and 1D~~**

The purpose of the rule is to give effect to Policy WQL 12 which seeks to protect the quality of shallow unconfined groundwater in recharges the confined aquifers from which Christchurch obtains its drinking water. The primary purpose for managing land use activities in Christchurch Groundwater Protection Zone 1, or Sub-Zones 1C or 1D is to safeguard the quality of the drinking water. Some types of land use activities or the consequences of land use activities significantly increase the risk that contaminants will enter groundwater. Where hazardous substances are used, even with the best management practices there is still a significant risk of accidental leakage as result of unintentional discharges or a natural event. Experience from overseas has shown that in areas identified for the protection of community drinking water sources, overseas experience has shown that if land uses, which pose a significant risk to water quality, are allowed in these areas, the water quality will inevitably be affected.<sup>115</sup>

**Rule WQL64 ~~Use of land within the Christchurch Groundwater Protection Zone 1 – non complying activity~~**

The purpose of this rule is to ensure that the use of land does not intensify within the Christchurch Groundwater Protection Zone 1 area beyond current expectations, as set out in the Selwyn District Plan and City of Christchurch District Plan. The respective district plans provide for development at a level and intensity that minimises the risk of groundwater contamination. Intensification of land use over and above that permitted in the respective district plans poses potentially a significant risk to the quality of Christchurch groundwater.

In this rule 'authorised' means activities permitted in the City of Christchurch District Plan or Proposed Selwyn District Plan (whichever is relevant) or subject to a resource consent that has not lapsed.<sup>116</sup>

**Rule WQL65 ~~Use of land (hazardous substances) within the Christchurch Groundwater Protection Zone 1 – prohibited activity~~**

The purpose of this rule is to ensure that certain land uses do not occur within the Christchurch Groundwater Protection Zone 1 which is recognised as being highly vulnerable to the risk of contamination. The identified certain land uses pose a significant and potentially catastrophic risk to the quality of Christchurch groundwater. Such risk cannot be avoided by on-site and off-site management techniques. Consequently, these land use should not be established in the Zone 1 area.<sup>117</sup>

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<sup>114</sup> WQLV6.70

<sup>115</sup> WQLV6.76

<sup>116</sup> WQLV6.77

<sup>117</sup> WQLV6.79

**Rule WQL66 Use of land (hazardous substances) within the Christchurch Groundwater Protection Sub-Zone 1A or Sub-Zone 1B – prohibited activity**

The purpose of this rule is to ensure that certain land uses do not occur within the Christchurch Groundwater Protection Sub-Zone 1A or Sub-Zone 1B. The identified certain land uses poses a risk to the quality of Christchurch groundwater. This risk cannot be avoided by on-site and off-site management techniques. Consequently, these new land uses of these types should not be established in the Sub-Zone 1A or Sub-Zone 1B areas.<sup>118</sup>

**2.14 Amend 4.9.2 Bonds**

A bond is a monetary deposit to ensure compliance with one or more conditions of a resource consent, or to secure the ongoing performance of conditions relating to adverse effects on the environment including long-term effects that may become apparent during the exercise of the consent of after it has expired.

The circumstances where a bond may be required to ensure the performance of resource consent conditions include, but are not limited to:

- (a) a condition relating to the alteration or removal of structures including: facilities for the use or storage of hazardous substances, bores, or water infiltration galleries.
- (b) a condition relating to the remediation, restoration or maintenance work in water bodies, Community Drinking Water Supply Protection Zones, contaminated land or the Christchurch Groundwater Protection Zones.
- (c) a condition providing for on-going monitoring by the consent holder of long-term effects on water quality, the quality of riverbed substrate, aquatic ecosystems, habitat of indigenous species and salmonid habitat.

...

**2.15 Amend 4.10 Environmental results anticipated**

...

**Environment result WQL7 Groundwater bores**

- (a) Within two years of the relevant provision of the plan becoming operative, any bores and water infiltration galleries within a Community Drinking Water Supply Zone and the Christchurch Groundwater Protection Zones, will have measures in place to prevent the entry of contaminants from the land surface into groundwater via a bore or water infiltration gallery.
- (b) A bore, constructed after the date of notification of the relevant provision of the plan, will have measures in place and be maintained over its life to prevent the entry of contaminants from the land surface into groundwater, and unless specifically authorised the movement of water between aquifers of differing quality.
- (c) An existing bore where a water permit has been granted after the date of notification of the plan will have measures in place to prevent the entry of contaminants from the land surface into groundwater

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<sup>118</sup> WQLV6.80

### Environmental Result WQL9 Community drinking water sources

- (a) There is no decline in water quality where sources of community drinking water are in their natural state.
- (b) Upstream of a community water supply intake on a river or a lake, where water quality is not in a natural state, the water is palatable, the concentration of microbiological contaminants does not exceed the capacity of a treatment system, and the concentration of any other determinand of health significance or pesticide, if present is less than one tenth of the Maximum Acceptable Value.
- (c) In a Community Drinking Water Supply Protection Zone where water quality is not in a natural state, the water is:
  - (i) palatable, aesthetically acceptable, the maximum concentration of nitrate-nitrogen in groundwater does not exceed 5.6 milligrams per litre, and meets the Drinking Water Standards for New Zealand 2000<sup>119</sup> for *Escherichia coli* and the concentration of any other determinand of health significance or pesticide, if present is less than one tenth of the Maximum Acceptable Value; and
  - (ii) the maximum concentration of nitrate-nitrogen in a Community Drinking Water Supply Zone has not increased by more than two milligrams per litre.
- (d) The water quality of the Christchurch Groundwater System is maintained in its overall current state or improved, and where there is localised contamination water quality is improved to the extent consistent with the overall ambient state by addressing the source of the contamination.<sup>120</sup>

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<sup>119</sup> *Drinking Water Standards for New Zealand 2000*. Ministry of Health, Wellington. August 2000. 130 pp.

<sup>120</sup> WQLV6.85

Table WQL13 Compliance and reporting programme`

Type of authorisation	Monitoring method	Monitoring frequency	Reporting
Prohibited activities	Response to complaints or site inspections	As required	Annually in the Environment Canterbury Annual Compliance Monitoring Report
Discharges to surface or groundwater	<ul style="list-style-type: none"> <li>- Site inspection</li> <li>- Sampling of discharges,</li> <li>- Monitoring the rate and type of discharge</li> <li>- Monitoring the impact on the receiving environment</li> <li>- Response to complaints</li> </ul>	<p>To be determined after consideration of the following matters in relation to the authorised activity:</p> <ul style="list-style-type: none"> <li>- extent and severity of potential adverse effects</li> <li>- the sensitivity of the receiving environment</li> <li>- history of compliance</li> <li>- extent and type of self monitoring</li> <li>- number, frequency and type of any complaints</li> </ul>	
Permitted activities	<ul style="list-style-type: none"> <li>- Site inspection</li> <li>- Sampling of discharges,</li> <li>- Monitoring the rate and type of discharge</li> <li>- Monitoring the impact on the receiving environment</li> <li>- Response to complaints</li> </ul>	<p>The frequency of monitoring will increase or decrease in proportion to the level of compliance with the permitted activity conditions and the priority category.</p> <p><b>High priority</b></p> <ul style="list-style-type: none"> <li>History of non-compliance.</li> <li>Activity is widespread throughout the region or concentrated in a particular catchment.</li> <li>Occurs within a Community Drinking Water Supply Zone or the Christchurch Groundwater Protection Zones</li> <li>Activity is a discharge from individual on-site sewerage and wastewater treatment and land application system located in the Christchurch Groundwater Protection Zone 1, Sub-zones 1A, 1B, 1C or 1D, or Zone 2.</li> <li>Large number of complaints.</li> <li>New activity or involves novel technology.</li> <li>Activity must comply within five years from the date of notification of the rule.</li> <li>Activity breaches water quality standards, or plan objectives.</li> </ul> <p><b>Moderate priority:</b></p> <ul style="list-style-type: none"> <li>Activity must comply within ten years from the date of notification of the rule.</li> <li>Activity is occurring with priority water identified in Method WQL 4(c).</li> <li>Significant improvement in the level of compliance with the conditions of a rule.</li> </ul> <p><b>Low priority:</b></p> <ul style="list-style-type: none"> <li>No complaints have been received</li> <li>High and consistent level of compliance with the conditions of a rule.</li> <li>Activity is localised or the size of the discharge is minor.</li> </ul>	

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**Appendix WQL2 Exerts for hazardous substances classified as ecotoxic (Class 9) from Schedule 4 of the Hazardous Substance (Emergency Management) Regulations 2001**

**Schedule 4 Threshold quantities for Level 3: Hazardous classification 9**

<b>Hazard classification</b>	<b>Description</b>	<b>Quantity</b>
9.1A	liquid	100 L
	solid	100 kg
9.1B, 9.1C	liquid	1 000 L
	solid	1 000 kg
9.1D	liquid	10 000 L
	solid	10 000 kg

**Schedule WQL3: Activities or industries that use or store hazardous substances**

Excluding those activities and any related transfer, tracking or handling of materials that take place totally within the confines of a building. Also excluding those premises that are exclusively retail premises

<b>Description of activity or industry</b>
<u>Abrasive blasting – carried out at any one site more than once in any one month period.</u>
<u>Acid/alkali plant, formulation and bulk storage.</u>
<u>Asphalt or bitumen manufacture or bulk storage – manufacturing asphalt or bitumen, or bulk storage of these products, (excludes single-use site used by a mobile asphalt plant).</u>
<u>Battery manufacture or recycling – assembling, disassembling, manufacturing or recycling batteries</u>
<u>Brake lining manufacturers, repairers and recyclers.(excludes mobile machining operations provided all work is carried out undercover)</u>
<u>Coal and coke storage yards that are uncovered or exposed to stormwater</u>
<u>Concrete or Cement manufacture and bulk cement storage, including washing activities and waste storage from manufacturing processes.</u>
<u>Dairy products processing and the bulk storage of dairy products</u>
<u>Drum and tank reconditioning or recycling including drum or tank washing or decontamination and repainting of drums or tanks.</u>
<u>Dry cleaning premises - where dry cleaning is carried out and solvents or petroleum based fuels are stored or used.</u>
<u>Electrical transformers containing oil – manufacture, use, repair or disposal of electrical transformers or other heavy electrical equipment.</u>
<u>Electronics manufacturing</u>
<u>Engine or radiator manufacture or reconditioning workshops, maintenance and servicing of transport plant, engines, railway workshops</u>
<u>Fertiliser (includes inorganic and agricultural) manufacture or bulk storage excluding storage on production land.</u>
<u>Furniture and wood product manufacturing premises (excluding those with solely internally housed conveying and collection systems)</u>
<u>Lime processing – manufacturing or processing lime from limestone material using a kiln and storing wastes from the manufacturing process.</u>
<u>Manufacture of paper and paper products</u>
<u>Manufacture, formulation and bulk storage of chemicals.</u>
<u>Metal recovery or recycling premises and automotive dismantling premises</u>
<u>Metal treatment or coating – including smelting or refining, commercial production of metal products – fusing or melting metalliferous ores or polishing, anodising, galvanising, pickling, electroplating, heat treatment using cyanide compounds and finishing.</u>

Description of activity or industry
<u>Mining and extractive industries and mineral processing – including chemically or physically extracting metalliferous ores, storage hazardous wastes, including waste dumps and tailings dams, excluding gravel extraction and gravel processing plants .</u>
<u>Paint manufacture, formulation and storage</u>
<u>Pesticide and agrichemical manufacture (including animal poisons, insecticides, fungicides and herbicides) and storage, or formulating proprietary pesticides or the associated use of premises for filling and washing out tanks or equipment or vehicle washing.</u>
<u>Petroleum, petroleum hydrocarbon or petrochemical industries or storage, including oil production and operating a petroleum depot, terminal, blending plant or refinery, retail or commercial refuelling facility, and facilities for recovery, reprocessing or recycling petroleum based materials and bulk storage above and below ground (excluding liquid petroleum gas storage)</u>
<u>Plastic or rubber manufacture, recycling or reconstituting.</u>
<u>Printing – commercial printing, using metal type, inks and dyes, or solvents.</u>
<u>Tannery, fellmongery or hide curing, wool scouring or washing or commercially finishing leather.</u>
<u>Vehicle/ truck washing facilities including car washes and valet services</u>
<u>Waste management sites-municipal sites and sites used to store, collect and dispose of waste including land disposal of waste (excludes the use of bio solids as soil conditioners)</u>
<u>Water blasting on a commercial basis but excluding that carried out on dwellings.</u>
<u>Wood processing, treatment or preservation or bulk storage of treated timber.</u>

Any activity where greater than the following aggregate quantities of hazardous substances specified in Schedule 4 of the Hazardous substance (Emergency Management) Regulations 2001 are stored in external areas that are exposed to stormwater

<u>Toxicity Classification</u>	<u>Liquid Value</u>	<u>Solid Weight</u>
<u>6.1a, 6.1b, 9.1a, 9.2a, 9.3a, 9.4a</u>	<u>100L</u>	<u>100kg</u>
<u>6.7a 9.1b, 9.2b, 9.3b, 9.4b 9.1c, 9.2c, 9.3c, 9.4c</u>	<u>1000L</u>	<u>1000kg</u>
<u>6.6a, 6.7b, 6.8a, 6.9a 9.1d, 9.2d</u>	<u>10,000L</u>	<u>10,000kg</u>

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Description of activity or industry	Hazardous Substances
<u>Abrasive blasting – carrying out abrasive blast cleaning (other than cleaning carried out in fully enclosed booths) or disposing of abrasive blasting material.</u>	<u>Heavy metals, iron</u>
<u>Acid/alkali plant, formulation and bulk storage.</u>	<u>Mercury, sulphuric, hydrochloric and nitric acids, sodium and calcium hydroxide</u>
<u>Commercial or pest control premises used storage and preparation of pesticides or agrichemicals for filling and washing out tanks.</u>	<u>Arsenic, cyanide, strychnine, lead, mercury phosphorus, sodium mono-fluoroacetate (1080) copper, organic pesticides</u>
<u>Fuel storage areas, underground storage tanks, refuelling pads for hydrocarbons</u>	<u>Hydrocarbons, metals</u>
<u>Commercial analytical laboratories</u>	<u>Solvents, acids, mercury</u>
<u>Asbestos products Production, storage, use and disposal of asbestos or asbestos products.</u>	<u>Asbestos</u>
<u>Asphalt or bitumen manufacture or bulk storage – manufacturing asphalt or bitumen, or bulk storage of</u>	<u>Petroleum hydrocarbons, including aromatic</u>

<sup>121</sup> WQLV6.87, WQLV6.88, WQLV6.89

these products, (excludes single-use site used by a mobile asphalt plant).	hydrocarbons
Battery manufacture or recycling— assembling, disassembling, manufacturing or recycling batteries (excludes sites used to store batteries for retail sale).	Heavy metals (lead, mercury, zinc, cadmium, nickel, antimony, silver, manganese), sulphuric acid,
Brake lining manufacturers, repairers and recyclers.	Asbestos, copper
Cement or lime processing— manufacturing cement or processing lime from limestone material using a kiln and storing wastes from the manufacturing process.	Lime, calcium hydroxide, alkalis
Manufacture, formulation and bulk storage of chemicals.	Wide range of organic and inorganic compounds—
Coal and coke yards.	Polycyclic aromatic hydrocarbons
Concrete manufacture and bulk cement storage.	Cement, calcium hydroxide, alkalis
Ordnance storage, and testing of ordnance. Training areas or ranges where live firing is carried out.	Explosives, lead, copper, antimony zinc, tin, nickel (firing ranges), solvents and metals (workshops),
Drum and tank reconditioning or recycling.	Wide range of chemicals from drums
Dry cleaning plants— where dry cleaning is carried out and solvents are stored.	Trichloroethylene, 1,1,1-trichloroethane, perchloroethylene, carbon tetrachloride, Volatile organic compounds (VOC), ammonia, phosphoric acid, hydrochloric acid
Electrical transformers— manufacture, use, repair or disposal of electrical transformers or other heavy electrical equipment.	Polychlorinated Biphenyls, hydrocarbons, copper, tin, lead, mercury
Electronics manufacturing	Alkalis, acids, cyanides, oils, metal sludges, methylene chloride, tetrachloroethylene, trichloroethane, acetone, toluene, PCB
Reconditioning industries, including engines, drums	Solvents, hydrocarbons, heavy metals, detergents, paint, organic and inorganic chemicals, degreasers
Explosive production or bulk storage	Acetone, nitric & sulphuric acid, ammonium nitrate, fuel oil, nitroglycerine, lead, mercury, copper, aluminium, silver, sodium hydroxide
Inorganic fertiliser manufacture— manufacturing or bulk storage of agriculture fertiliser.	Calcium phosphate, calcium sulphate, copper chloride, sulphur, sulphuric acid, molybdenum, selenium, boron, cadmium, nitrates, ammonia

Smelting or refining, commercial production of metal products— fusing or melting metalliferous ores or refining the metal.	Metals, particularly (iron, aluminium, lead, zinc, copper, tin, nickel, chromium and oxides, chlorides, fluorides and sulphates of these. Acids, coke, fuel oil
Gasworks— manufacture of town gas from coal or oil feedstocks.	Polycyclic aromatic hydrocarbons, phenolics, metals (particularly arsenic, lead, copper, chromium), cyanide compounds, sulphides and sulphates, thiocyanates, ammonia, nitrates, coke
Landfill sites	Hydrocarbons, including aromatic hydrocarbons, metals, organic acids, landfill gas
Livestock dip or spray race operations	Arsenic, organochlorines and organophosphates, carbamates, and synthetic pyrethroids.
Market gardens, orchards, glass houses used for commercial horticulture	Arsenic, lead, copper, mercury, organochlorines and organophosphates, carbamates, and synthetic pyrethroids
Metal treatment or coating— including polishing, anodising, galvanising, pickling, electroplating, heat treatment using cyanide compounds and finishing. Curing works or commercially finishing leather.	Metals (zinc, aluminium, cadmium, chromium, lead, copper, tin), acids (sulphuric, nitric, hydrochloric, phosphoric), alkalis (sodium hydroxide), organic solvents, gluconates, emulsifying agents, surfactants, degreasers, cyanide, antimony trichloride
Mining and extractive industries and mineral processing— including chemically or physically extracting metalliferous ores, storage hazardous wastes, including waste dumps and tailings dams, excluding gravel extraction and gravel processing plants.	Arsenic, mercury, cyanides, sulphides, metals
Workshops, maintenance and servicing of transport plant, engines, railway workshops	Hydrocarbons, organic solvents, metals

Paint manufacture, formulation and storage	Solvents, resins, heavy metals
Manufacture of paper and paper products	Chlorine, chlorate, sodium hydroxide, sulphuric acid
Manufacture of plastic and rubber products	Organic solvents, oils, cyanides acids, esters, alkalis, surfactants, glycols, phenols, formaldehyde, peroxides
Pesticide manufacture (including animal poisons, insecticides, fungicides and herbicides) — commercially manufacturing, or formulating proprietary pesticides.	Wide range of insecticides, herbicides and fungicides, including arsenic, lead, mercury, copper, tin, chromium, organochlorines, organonitrogens, organophosphates, acid herbicides, dioxin, carbamates
Petroleum or petrochemical industries or storage, including oil production and operating a petroleum depot, terminal, blending plant or refinery, retail or commercial refuelling facility, and facilities for recovery, reprocessing or recycling petroleum based materials and bulk storage above and below ground.	Hydrocarbons, including polycyclic aromatic hydrocarbons, solvents, lead
Pharmaceutical manufacture — commercially manufacturing, blending, mixing or formulating pharmaceuticals, including animal remedies.	Solvents, organic compounds
Printing — commercial printing, using metal type, inks and dyes, or solvents.	Solvents, acids, alkalis, heavy metals
Scrap yards — including automotive dismantling or wrecking yard or scrap metal yard.	Metals, hydrocarbons, solvents
Tannery, fellingmongery or hide curing, wool scouring or washing or commercially finishing leather.	Chromium, manganese, copper, ammonia, sulphides, acids, sodium hydroxide, lime
Sites used to store, collect, and dispose of waste including land disposal of wastes, but not the use of biosolids as soil conditioners.	Depends on type of waste — biological hazards (bacteria, viruses), metals, polycyclic aromatic hydrocarbons, semi-volatile organic compounds, solvents.
Wood processing and treatment and preservation and bulk storage of treated timber.	Pentachlorophenol, copper, arsenic, chromium, boron, organo-tin, polycyclic aromatic hydrocarbons, and phenolics (creosote), organochlorine pesticides, solvents, anti-sapstain fungicides

Except that for the purposes of Rule WQL65 Use of land within the Christchurch Groundwater Protection Zone 1 — prohibited activity, the following activities of industries shall be excluded from the above table:

Description of activity or industry
Livestock dip or spray race operations
Market gardens, orchards, glass houses used for commercial horticulture

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**Schedule WQL3A: Activities or industries that use or store hazardous substances in Sub-Zone 1A or Sub-Zone 1B of the Christchurch Groundwater Protection Zone**

Description of activity or industry
Asphalt or bitumen manufacture or bulk storage — manufacturing asphalt or bitumen, or bulk storage of these products, (excludes single use site used by a mobile asphalt plant).
Battery manufacture or recycling — assembling, disassembling, manufacturing or recycling batteries (excludes sites used to store batteries for retail sale).
Drum and tank reconditioning or recycling.
Dry cleaning plants — where dry cleaning is carried out and solvents are

122 WQLV6.88, WQLV6.89

stored.
Electrical transformers— manufacture, use, repair or disposal of electrical transformers or other heavy electrical equipment.
Inorganic fertiliser manufacture— manufacturing or bulk storage of agriculture fertiliser.
Smelting or refining, commercial production of metal products— fusing or melting metalliferous ores or refining the metal.
Gasworks— manufacture of town gas from coal or oil feedstocks.
Landfill sites
Metal treatment or coating— including polishing, anodising, galvanising, pickling, electroplating, heat treatment using cyanide compounds and finishing, curing works or commercially finishing leather.
Workshops , maintenance and servicing of transport plant, engines, railway workshops
Pesticide manufacture (including animal poisons, insecticides, fungicides and herbicides)— commercially manufacturing, or formulating proprietary pesticides.
Petroleum or petrochemical industries or storage, including oil production and operating a petroleum depot, terminal, blending plant or refinery, and facilities for recovery, reprocessing or recycling petroleum based materials and bulk storage above and below ground.
Scrap yards— including automotive dismantling or wrecking yard or scrap metal yard.
Tannery, fellingmongery or hide curing, wool scouring or washing or commercially finishing leather.
Sites used to store, collect, and dispose of waste including land disposal of wastes, but not the use of biosolids as soil conditioners.
Wood processing and treatment and preservation and bulk storage of treated timber.

**Schedule WQLZZ Aggregate quantities of specified substances for  
Rule WQLYY**

<u>Substance Category</u>	<u>Description</u>	<u>Threshold 1</u>	<u>Threshold 2</u>	<u>Examples</u>
<b><u>Group 1</u></b>	<p>Any of the following hazardous substances that has a Hazardous Substances and New Organisms Act 1996 (HSNO) classification of 9.1A:</p> <p>(a) <u>petroleum hydrocarbon</u><sup>124</sup>,</p> <p>(b) <u>chlorinated hydrocarbon</u>,</p> <p>(c) <u>pesticide</u>,</p> <p>(d) <u>timber preservative</u>, <u>or</u></p> <p>(e) a <u>substance containing arsenic, cadmium, chromium, cyanide, lead, mercury, nickel or selenium</u>.</p>	<p><u>50L (liquid)</u></p> <p><u>50kg (solid)</u></p>	<p><u>500L (liquid)</u></p> <p><u>500kg (solid)</u></p>	<p><u>1080 stock solution</u></p> <p><u>Copper Chrome Arsenate (CCA), timber treatment chemicals.</u></p>
<b><u>Group 2</u></b>	<p>Any of the following hazardous substances not included in Group 1:</p> <p>(a) <u>petroleum hydrocarbon</u>,</p> <p>(b) <u>chlorinated hydrocarbon</u>,</p> <p>(c) <u>pesticide</u>,</p> <p>(d) <u>timber preservative</u>, <u>or</u></p> <p>(e) a <u>substance containing arsenic, cadmium, chromium, cyanide, lead, mercury, nickel or selenium</u>.</p>	<p><u>200L (liquid)</u></p> <p><u>200kg (solid)</u></p>	<p><u>5000L (liquid)</u></p> <p><u>5000kg (solid)</u></p>	<p><u>Petrol, diesel, toluene, benzene, 1080 pellets, waste oil, waste solvent, de-registered agrichemicals</u></p> <p><u>Nitric acid, chromium (III) salt</u></p>

<sup>124</sup> As at 31 December 2009 there were no petroleum hydrocarbons in New Zealand with HSNO classification of 9.1A.

<p><b><u>Group 3</u></b></p>	<p><u>Any of the following hazardous substances which is not identified or is not labelled:</u></p> <p>(a) <u>petroleum hydrocarbon,</u></p> <p>(b) <u>chlorinated hydrocarbon,</u></p> <p>(c) <u>pesticide,</u></p> <p>(d) <u>timber preservative,</u> <u>or</u></p> <p>(e) <u>a substance containing arsenic, cadmium, chromium, cyanide, lead, mercury, nickel or selenium.</u></p> <p>125</p>	<p><u>5L (liquid)</u></p> <p><u>5kg (solid)</u></p>	<p><u>50L (liquid)</u></p> <p><u>50kg (solid)</u></p>	<p><u>Unidentified chemicals</u></p>
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# **Consequential changes to Chapter 4: Water Quality resulting from submissions on Variation 6**



#### **4.7.3.2 Management plan for a stormwater discharge under Regional Rules WQL7 or WQL55**

In addition to the general information outlined in Sections 1.3.4, 4.7.1. and 4.7.2, where relevant, an application for a stormwater discharge under Regional Rules WQL7 or WQL 55 shall include a management plan which contains the following information to a level and scale that reflects the area, activity, and scale of potential effects:<sup>126</sup>

##### **Rule WQL59 — Use of land for certain activities**

The purpose of the rule is to ensure that the effects on the environment of a specified land use activity that does not comply with the provisions of a preceding rule managing that land use activity are assessed through a resource consent process.<sup>127</sup>

##### **Rule WQL62 — Use of land for certain activities**

The purpose of the rule is to ensure that the effects on the environment of a land use that does not comply with the provisions of a rule managing the land use, and that rule states that an activity that does not comply with that provision is a non-complying activity under Rule WQL62, are assessed through a resource consent process. However, before a resource consent could be granted the consent authority would have to be satisfied that either the activity did not contravene the objectives and policies of the Plan, or the adverse effects of the activity would be minor.<sup>128</sup>

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<sup>126</sup> WQLV6.70

<sup>127</sup> WQLV6.1

<sup>128</sup> WQLV6.1, WQLV6.75

**Rule WQL57 – Discharge of a contaminant onto or into land – discretionary activity**

Activity	Conditions	Discretion	Cross reference
<p>Except where it is:</p> <ul style="list-style-type: none"> <li>(a) a <b>permitted activity</b> under Rule WQL 2, Rule WQL 3, Rule WQL 5, Rule WQL 8, Rule WQL 10, Rule WQL 11, Rule WQL 13, Rule WQL 16, Rule WQL 23, Rule WQL 24, Rule WQL 31, Rule WQL 47, or Rule WQL 49; or</li> <li>(b) a <b>controlled activity</b> under Rule WQL 7, Rule WQL 12, Rule WQL 26, Rule WQL 41, or Rule WQL 50; or</li> <li>(c) a <b>restricted discretionary activity</b> under Rule WQL 9 or Rule WQL 27; or</li> <li>(d) a <b>discretionary activity</b> under Rule WQL 51, WQL 54, WQL 57; or WQL 58</li> <li>(e) a <b>prohibited activity</b> under Rule WQL 28, Rule WQL 46, or Rule WQL 52;</li> </ul> <p>the discharge of a contaminant onto or into land; is –</p> <ul style="list-style-type: none"> <li>1. a <b>discretionary activity</b> if the discharge complies with the Condition of this Rule;</li> <li>2. a <b>non-complying activity</b> if the discharge does not comply with the Condition of this Rule, in which case a resource consent under Rule WQL 62 is required.</li> </ul>	<ul style="list-style-type: none"> <li>1. The discharge shall not occur within a Community Drinking Water Supply Protection Zone for a well listed in Schedule WQL 2.</li> </ul>	<p>Unlimited</p>	<p><b>Policies</b></p> <ul style="list-style-type: none"> <li>WQL 6</li> <li>WQL 8</li> <li>WQL 10</li> <li>WQL 12</li> </ul>
<p><b>Where rule applies</b></p> <p>This rule applies everywhere in the Canterbury region, excluding the Coastal marine area</p>			
<p><b>Information to be provided</b></p> <p>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.</p>			
<p><sup>129</sup></p>			

<sup>129</sup> WQLV6.32

**Part 2 continued:**

**Proposed Canterbury Natural  
Resources Regional Plan Variation  
6, Changes to Map Volume**

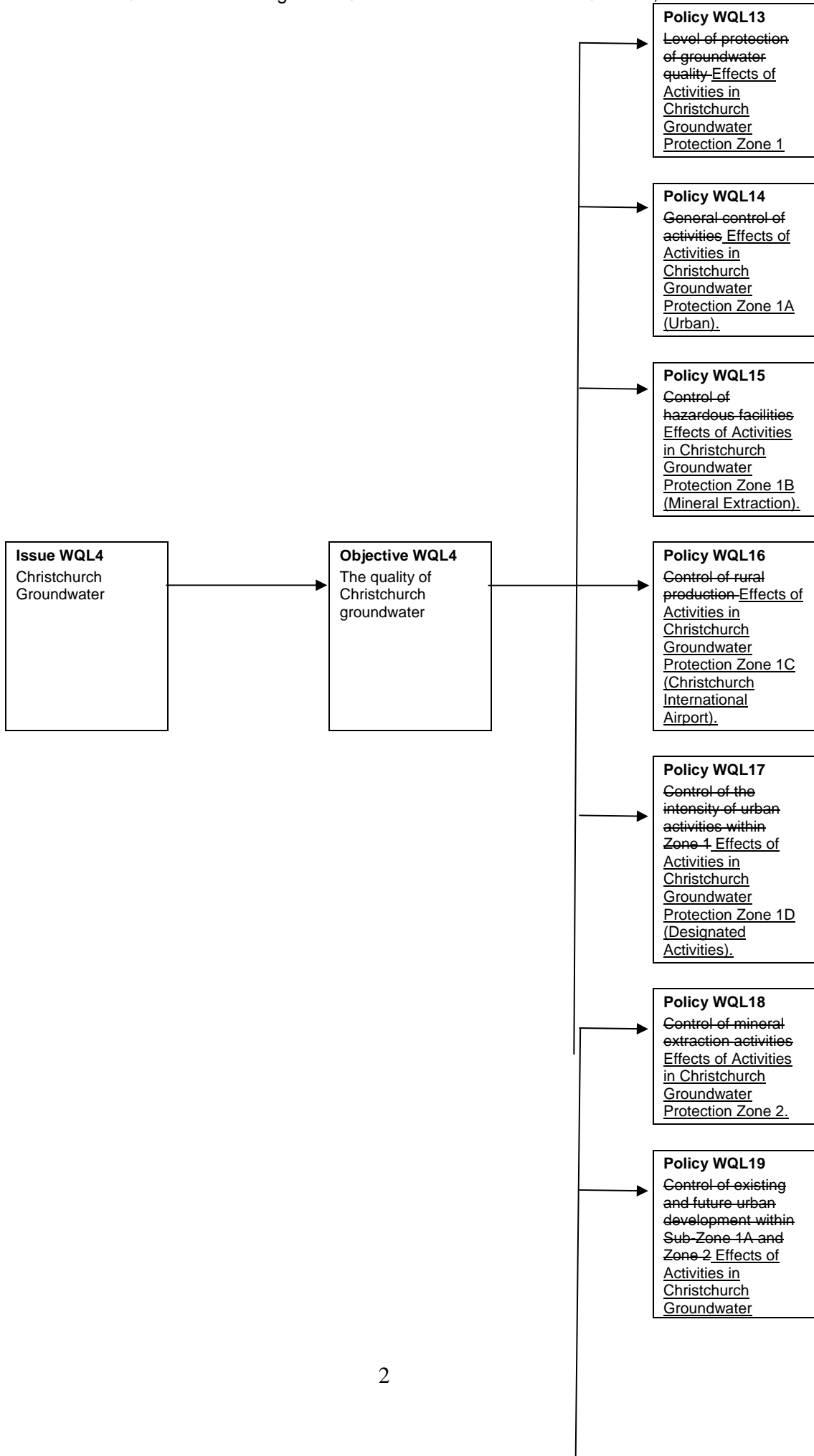
**No changes to the map volume recommended – see main decision report.**

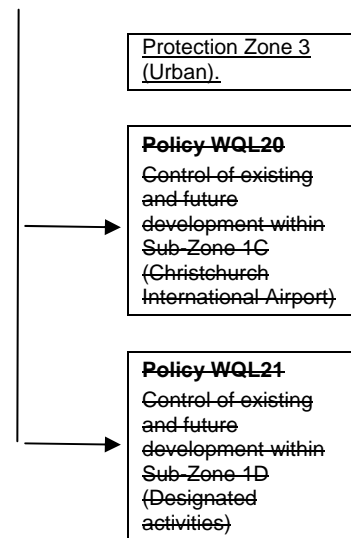
# Schedule of Changes to Chapter 4 of the NRRP from Decisions on Submissions on Variation 6

**This schedule lists the decision numbers and their associated changes to Chapter 4 of the NRRP. It only shows decisions adopted by Council following the withdrawal of parts of Variation 6.**

(see the Introduction for information about how to use the decision numbers)

**Decision WQLV6.1:** Amend Figure WQL3 in relation to Policies WQL13-21, as follows:





**Decision WQLV6.1 and WQLV6.6:** amend Policy WQL10(3)(c), (4) and Method WQL10(a)(b) as follows: “...the Christchurch Groundwater Protection Zone 1, including ~~Sub-Zones 1A, 1B, 1C, and Zone 2,~~...”

**Decision WQLV6.97:** amend Policy WQL12 as follows:

“Policy WQL12: Avoid the potential for contamination of community drinking water sources ~~within Community Drinking Water Supply Protection Zones~~”

**Decision WQLV6.11:** amend Issue WQL4 as follows:

“Reduction and loss of the present and future benefits of the current high quality of Christchurch groundwater, including being an ~~highly valued~~ untreated source of major importance of drinking water for Christchurch City, as a result of the adverse effects of existing and potential contamination from a variety of sources, including land uses, water use and discharges (both deliberate and accidental).”

**Decision WQLV6.11:** amend Objective WQL4 as follows:

- “(1) The quality of Christchurch groundwater is maintained or enhanced as far as practicable in its overall high quality state in the long term
- (2) Christchurch groundwater subject to existing localised contamination will be improved to achieve remediated as far as practicable to endeavour to re-establish the maintenance and enhancement of its overall high quality state.”

**Decision WQLV6.12:** Add the following paragraphs after the first paragraph to the Explanation and principal reasons for Objective WQL4 as follows:

“Objective WQL4 is to avoid or mitigate any further overall long-term decline in water quality from occurring. ‘Overall’ refers to the background or ambient groundwater water quality. It is recognised that this varies in space and time, reflecting the hydrogeological characteristics of the groundwater system and the seasonal influences of activities. When applying Objective WQL4, it is important to take this into account. Environment Canterbury undertook a comprehensive analysis of existing water quality within the Christchurch Groundwater System in July 2002. This provides an understanding of existing groundwater water quality. This understanding will be of assistance when considering how well the policies and methods within, and activities considered in terms of, this Plan achieve Objective WQL4.

Where there is already evidence of localised contamination of Christchurch groundwater, Objective WQL4 is that groundwater quality is remediated as far as practicable. The necessary level of remediation is the removal of the localised contamination, resulting in the groundwater quality reflecting the overall ambient quality of the groundwater within the Christchurch system. In practical terms, this will be

achieved by addressing the source of the contamination and where it is beneficial to do so, enabling activities that contribute to that remediation process.”

**Decision WQLV6.1, WQLV6.12 and WQLV6.26:** Add the following footnote in relation to new paragraph to the Explanation and principal reasons for Objective WQL4 (above), after the words “Christchurch Groundwater System in July 2002” as follows:

“Haywood, S. (2002) Christchurch-West Melton Groundwater Quality: a review of groundwater quality monitoring data from January 1986 to March 2002. Environment Canterbury unpublished report no. U02/47, Environment Canterbury, July 2002. 141 pp.”

**Decision WQLV6.12:** Amend the Explanation and principal reasons for Objective WQL4 as follows:

“Maintaining the high quality of Christchurch’s groundwater enables present and future generations to gain social, economic and other benefits, contributing to the health of the community and its overall wellbeing. It is a major economic and social asset to Christchurch and the Region. If, over the long term, Christchurch’s groundwater quality further declines, there are potentially serious and costly consequences to the community, including the water supply to Christchurch City. It provides a low cost and highly valued important untreated drinking water supply for the community, serving over 60% of the Region’s population. Recognising these values, the Christchurch Groundwater system is an outstanding natural feature.

The area of land to the west of Christchurch bounded by the Waimakariri River to the north and a line approximately between Halkett and Prebbleton to the south, is the principal recharge area for the Christchurch Groundwater System that is the source of Christchurch City’s water. Increases in groundwater levels and the intensification of some land uses over this recharge area, pose significant risks could give rise to potential adverse effects to water quality within the Christchurch Groundwater System. These land uses include; the intensification of those rural productive activities which could cause such adverse effects, the intensification of the use and storage of hazardous substances in an uncontrolled manner that might give rise to such adverse effects, and the uncontrolled spread and intensification of urban development in any respect that gives rise to such adverse effects.

The quality of water in Aquifer 1 of the Christchurch Groundwater System is more likely to be affected by any adverse effects that might arise from such intensive activities if they occur over the recharge area. If contaminated water enters the confined aquifers it may take many decades for the contaminated water to be flushed from the aquifer. In addition, it may take a considerable amount of time and resources to determine the extent of contamination, and to apply remediation measures, if remediation is possible. Therefore, over the long term the water quality in the unconfined part of the recharge area must be maintained in a high quality state in order to prevent a decline in the quality of the Christchurch Groundwater System.

~~Objective WQL4 is to prevent any further overall long-term decline in water quality from occurring. ‘Overall’ refers to the background or ambient groundwater water quality. It is recognised that this varies in space and time, reflecting the hydrogeological characteristics of the groundwater system and the seasonal influences of activities. When applying Objective WQL4, it is important to take this into account. Environment Canterbury undertook a comprehensive analysis of existing water quality within the Christchurch Groundwater System in July 2002. This provides an understanding of existing groundwater water quality. This understanding will be of assistance when considering how well the policies and methods within, and activities considered in terms of, this Plan achieve Objective WQL4.~~

~~Where there is already evidence of localised contamination of Christchurch groundwater, Objective WQL4 is that groundwater quality is improved. The necessary level of improvement is the removal of the localised contamination, resulting in the groundwater quality reflecting the overall ambient quality of the groundwater within the Christchurch system. In practical terms, this will be achieved by addressing the source of the contamination.~~

The existing overall water quality within the Christchurch Groundwater System is high, but not pristine. This reflects the long history of human activities in this location. Objective WQL4 anticipates that, with appropriate mitigation, activities will be able to continue and develop as provided for in the Canterbury Regional Policy Statement, City of Christchurch District Plan and Proposed Selwyn District Plan. Central to this is ensuring that any adverse effects of activities that increase the risk of further decline in

groundwater quality are managed. The policies that follow set out the most appropriate way to achieve this. The result of these policies is that some contaminants will enter groundwater, but the concentrations of these contaminants will be such that existing overall ambient water quality is at least maintained, ~~if not improved and where appropriate is remediated where its quality has already declined~~. These policies reflect judgments made in relation to the efficient, effective and most appropriate way to achieve the objective.

The vulnerability of the Christchurch groundwater system to contamination depends on its intrinsic susceptibility (the aquifer system hydrogeological properties), and the location and types of sources of naturally occurring and anthropogenic contamination, relative locations of wells, and the fate and transport of the contaminant(s). For management purposes, the Christchurch Groundwater System is divided into three main zones reflecting its intrinsic hydrogeological properties. This zone system is:

Zone 1 (High intrinsic hydrogeological vulnerability): this zone generally covers the area of the Christchurch Groundwater System of high hydrogeological vulnerability and is as shown on Map Volume Part 1 – Planning Maps. It comprises a significant portion of the land surface recharge area for the Christchurch Groundwater System. Substantial areas of this land have very thin soils over generally highly permeable gravel. Groundwater varies in depth from less than 1metre below ground level near the Waimakariri River to greater than 10metres below ground level near West Melton. It is characterised by the absence of an adequate surface confining layer and the absence of upwards groundwater pressure. As such, contaminants can move downwards into the groundwater system with minimal natural treatment.

Zone 2 (Transition in intrinsic hydrogeological vulnerability): this zone covers the area of the Christchurch Groundwater System where the hydrogeological vulnerability transitions from high to low and is as shown on Map Volume Part 1 – Planning Maps. It is that area where there is uncertainty in the existence/extent of a surface confining layer and/or the direction of the groundwater pressure. Areas where the surface confining layer is greater than 3m thick and where the Aquifer 1/Aquifer 0 pressure gradient is uncertain, are included in this zone. As such, the hydrogeological vulnerability of this area may vary in location and over time due to changes in water pressure.

Zone 3 (Low intrinsic hydrogeological vulnerability): this zone covers the area of the Christchurch Groundwater System of low hydrogeological vulnerability and is as shown on Map Volume Part 1 – Planning Maps. This low vulnerability is due to the presence of both an effective surface confining layer of between 3 metres to 45 metres thick and a constant natural upwards groundwater pressure.

In order to facilitate the establishment, and continuation, of appropriate activities within the area of high intrinsic hydrogeological vulnerability, a number of ~~sub~~-zones are established. For the purposes of this Plan, the ~~sub~~-zones are discrete from Zone 1. These ~~sub~~-zones are:

- ~~Sub~~-Zone 1A: (Urban) this ~~sub~~-zone recognises that part of Zone 1 that is currently, or is planned to be, used for urban purposes. It is as shown on Map Volume Part 1 – Planning Maps.
- ~~Sub~~-Zone 1B: (Mineral extraction) this ~~sub~~-zone recognises areas identified for mineral extraction, being those areas zoned Rural Quarry within the City of Christchurch District Plan and designated for this purpose in the Proposed Selwyn District Plan. It is as shown on Map Volume Part 1 – Planning Maps.
- ~~Sub~~-Zone 1C: (Christchurch International Airport) this ~~sub~~-zone recognises areas associated with the operational and functional needs of the Christchurch International Airport. It is as shown on Map Volume Part 1 – Planning Maps.
- ~~Sub~~-Zone 1D: (Designations) this ~~sub~~-zone recognises areas associated with regionally significant activities such as the state highway network, ~~Paparu~~ Prison Christchurch Prison and land associated with Ministry of Defence activities. These areas are designated within the respective City of Christchurch District Plan and Proposed

Selwyn District Plan.

Within Zone 2, the management approach is different. If adequate protection is provided as a result of the existence of permanent upwards hydraulic water pressure gradient and a confining layer of at least three metres, then provided this protection is not compromised by the proposal reduced control is ~~necessary~~ appropriate. However, in the event these hydrogeological features do not exist at the site, or will be compromised by the proposal, then in recognition of the largely established urban land use patterns, the management approach is the same for existing legally established activities in Zone 1. ~~The w~~Water quality in the Christchurch Groundwater System will continue to be characterised using an array of monitoring bores. These will be selected so that there is a sufficient density of bores in any given part of the System to ensure that the monitoring results can be used collectively to characterise the water quality for that part of the Groundwater System. Each bore will be located to avoid the effects of land use activities or discharges in the vicinity of the bore.”

**Decision WQLV6.1:** Delete Policies WQL13 to WQL21 and their explanations and replace as follows:

“

**Policy WQL13: Effects of Activities in Christchurch Groundwater Protection Zone 1**

**Manage the adverse effects of activities in the Christchurch Groundwater Protection Zone 1 so that there is no significant increase in the effects of contamination of groundwater by avoiding or mitigating the adverse effects of activities that may result in contaminants entering and persisting in groundwater, and minimising effects of activities where contaminants will exist in groundwater for only a short period. In particular:**

- (1) Enable the establishment of activities provided for in the City of Christchurch District Plan or Selwyn District Plan, or the Canterbury Regional Policy Statement, to the extent that:**
  - (a) the effects of the activity are consistent with the protection of groundwater quality; and**
  - (b) where appropriate best management practice measures are implemented to avoid or mitigate adverse effects on groundwater quality.**
- (2) Minimise the adverse effects on groundwater of lawfully established existing activities by requiring that all practicable management measures are implemented.**
- (3) Ensure that for all new activities enabled in (1) above:**
  - (a) any onsite sewage collection, treatment and disposal system is designed, constructed and maintained in accordance with best management practices; and**
  - (b) any stormwater collection, treatment and disposal system is designed, constructed and maintained in accordance with best management practices.**
- (4) Avoid or mitigate the adverse effects of the development of land for urban purposes in circumstances where that the adverse effects of the contamination of groundwater may be increased, including the development of land for commercial or industrial purposes listed in Schedule WQL3 that aggregates large quantities of hazardous substances in a manner where adverse effects to groundwater might potentially arise.**
- (5) Ensure existing lawfully established hazardous facilities implement the design and management standards required under the Hazardous Substances and New Organisms legislation and regulations.**
- (6) New hazardous facilities, and additions or extensions to existing lawfully established hazardous facilities, must:**
  - (a) not aggregate large quantities of hazardous substances on a site in a manner which might potentially give rise to adverse effects on groundwater; and**
  - (b) be designed, constructed and maintained in accordance with best management**

practice so as to avoid or mitigate the effects of hazardous substances entering groundwater and causing significant adverse effects to groundwater quality as a result of day-to-day use, leakage, accident or a natural hazard event.

- (7) Mobile hazardous substance facilities must be managed so as to avoid hazardous substances entering land or groundwater, including during machinery refuelling and in the event of accidental spillage so as to avoid causing significant adverse effects to groundwater quality.
- (8) Existing lawfully established rural production land uses must reduce potential adverse effects from contaminants entering groundwater by instituting all practicable management measures relating to such effects arising from:

  - (a) the application of water; and
  - (b) the use and storage of fertilizer; and
  - (c) agrichemical storage and application; and
  - (d) incidental farm management activities such as farm landfills and offal pits.
- (9) Adverse effects on groundwater quality arising from rural production land uses existing at the date this policy becomes operative must be avoided or mitigated, and adverse effects from new rural production uses, that increase the potential for nutrient, chemical and microbiological contaminants to adversely affect groundwater quality, must also be avoided or mitigated.
- (10) Avoid or mitigate the adverse effects of all other activities that may result in contaminants entering and persisting in groundwater and which have an adverse effect on groundwater quality, including prohibiting the establishment of a new municipal solid or hazardous waste landfill.
- (11) Where mineral extraction activities occur, reduce the potential for adverse effects from contaminants entering groundwater by requiring:

  - (a) an effective buffer including an appropriate thickness of soils, an impermeable liner, a containment bund, and a depth to groundwater, to be maintained between the bottom of the excavation and the top of the highest level of groundwater to avoid or mitigate any adverse effect from contaminants directly or indirectly entering groundwater; and
  - (b) the extraction site to be developed and worked so as to avoid or mitigate any adverse effect from hydrocarbons entering land, and in the event they do enter land, ensure any contaminated land is removed and reinstated with uncontaminated material; and
  - (c) a rehabilitation or re-instatement plan to be adopted prior to excavation ceasing; and
  - (d) a groundwater quality and/or soil quality monitoring programme to be adopted prior to excavation commencing; and
  - (e) any rehabilitation or re-instatement that utilises fill material to be undertaken in accordance with the Ministry for the Environment “A Guide to the Management of Cleanfills” (2002); and
  - (f) any rehabilitation or re-instatement that utilises inert uncontaminated cleanfill material must not adversely impact on groundwater quality and is contoured so that surface ponding of water does not occur; and
  - (g) land uses occurring on the site following completion of the extraction avoid or mitigate any adverse effects from contaminants potentially entering groundwater.

**Policy WQL14: Effects of Activities in Christchurch Groundwater Protection Zone 1A (Urban)**

**Manage activities in the Christchurch Groundwater Protection Zone 1A so that there is no significant increase of the adverse effects affecting groundwater quality arising from contamination of groundwater by avoiding or mitigating the adverse effects of activities that may result in contaminants entering and persisting in groundwater, and minimising effects of activities where contaminants will exist in groundwater for only a short period. In particular:**

- (1) Enable the establishment of activities provided for in the City of Christchurch District Plan or Selwyn District Plan, or the Canterbury Regional Policy Statement, to the extent that:**
  - (a) the effects of the activity are consistent with the protection of groundwater quality; and**
  - (b) where appropriate best management practice measures are implemented to avoid or mitigate adverse effects on groundwater quality.**
- (2) Manage the effects of existing lawfully established activities occurring in existing urban areas, by requiring where appropriate implementation of all practicable management measures to protect groundwater quality, including:**
  - (a) current industry design standards; and**
  - (b) any relevant codes of practice.**
- (3) Ensure that for all new activities enabled in (1) above in :**
  - (a) any sewage collection, treatment and disposal system is designed, constructed and maintained in accordance with best management practices; and**
  - (b) any stormwater collection, treatment and disposal system is designed, constructed and maintained in accordance with best management practices.**
- (4) Any extension to existing lawfully established hazardous facilities, or any new hazardous facility, must provide adequate measures to avoid or mitigate the adverse effects of toxic, mobile or persistent contaminants entering groundwater as a result of:**
  - (a) the routine use of a hazardous substance; or**
  - (b) leakage or spill from a hazardous facility or pipeline; or**
  - (c) seismic activity that is likely to result in structural damage from ground motion; or**
  - (d) emergency situations.**
- (5) All hard surfaces and vehicle standing areas associated with urban activities must be designed, constructed and maintained so as to avoid or mitigate the effects of hazardous substances and contaminants entering groundwater.**
- (6) Mobile hazardous facilities associated with urban activities must be managed so as to avoid or mitigate the adverse effects of hazardous substances entering land or groundwater, including during machinery refuelling, hazardous substance transportation, hazardous substance use and handling, and in the event of accidental spillage.**
- (7) Existing lawfully established rural production land uses must minimise the adverse effects of contaminants potentially entering groundwater by instituting all practicable management measures relating to such effects arising from :**

- (a) the application of water; and
  - (b) the use and storage of fertilizer; and
  - (c) agrichemical storage and application; and
  - (d) incidental farm management activities such as farm landfills and offal pits.
- (8) Adverse effects on groundwater quality arising from rural production land uses must be avoided or mitigated, and adverse effects from new rural production uses that increase the potential for nutrient, chemical and microbiological contaminants to adversely affect groundwater quality, must also be avoided or mitigated.(10 9)  
Avoid or mitigate the adverse effects of all other activities that may result in contaminants entering and persisting in groundwater and which have an adverse effect on groundwater quality, including by avoiding if possible mineral extraction activities, including prohibiting the establishment of a new municipal solid or hazardous waste landfill.
- (9) Where mineral extraction activities occur, reduce the potential for adverse effects from contaminants entering groundwater by requiring:
- (a) an effective buffer including an appropriate thickness of soils, an impermeable liner, a containment bund, and a depth to groundwater, to be maintained between the bottom of the excavation and the top of the highest level of groundwater to avoid or mitigate any adverse effects from contaminants directly or indirectly entering groundwater; and
  - (b) the extraction site to be developed and worked so as to avoid or mitigate any adverse effect from hydrocarbons entering land, and in the event they do enter land, ensure any contaminated land is removed and reinstated with uncontaminated material; and
  - (c) a rehabilitation or re-instatement plan to be adopted prior to excavation ceasing; and
  - (d) a groundwater quality and/or soil quality monitoring programme to be adopted prior to excavation commencing; and
  - (e) any rehabilitation or re-instatement that utilises fill material to be undertaken in accordance with the Ministry for the Environment “A Guide to the Management of Cleanfills” (2002); and
  - (f) any rehabilitation or re-instatement that utilises inert uncontaminated cleanfill material must not adversely impact on groundwater quality and is contoured so that surface ponding of water does not occur; and
  - (g) land uses occurring on the site following completion of the extraction avoid or mitigate any adverse effects from contaminants potentially entering groundwater.

**Policy WQL15: Effects of Activities in Christchurch Groundwater Protection Zone 1B (Mineral Extraction)**

**Manage the adverse effects of activities in the Christchurch Groundwater Protection Zone 1B so that there is no significant increase in the effects of contamination of groundwater by avoiding or mitigating the adverse effects of activities that may result in contaminants entering and persisting in groundwater, and minimising effects of activities where contaminants will exist in groundwater for only a short period. In particular:**

- (1) Enable the establishment of activities provided for in the City of Christchurch District Plan or Selwyn District Plan, or the Canterbury Regional Policy Statement, to the extent that:**

- (a) the activity is consistent with the protection of groundwater quality; and
  - (b) where appropriate best management practice measures are implemented to avoid or mitigate adverse effects on groundwater quality.
- (2) Minimise the adverse effects on groundwater of lawfully established existing activities by requiring that all practicable management measures are implemented.
- (3) Minimise the adverse effects on groundwater quality of mineral extraction activities and reduce the potential for contaminants to enter groundwater by:
  - (a) recognising and providing for mineral extraction activities that are lawfully established, or provided for in the City of Christchurch District Plan or Proposed Selwyn District Plan on the date this policy becomes operative, or provided for in the Canterbury Regional Policy Statement; and
  - (b) requiring where appropriate all practicable management measures to be implemented to avoid or mitigate adverse effects on groundwater quality; and
  - (c) requiring where appropriate best management practice measures to be implemented to avoid or mitigate adverse effects on groundwater quality; and
  - (d) requiring an effective buffer including an appropriate thickness of soils, an impermeable liner, a containment bund, and a depth to groundwater, to be maintained between the bottom of the excavation and the top of the highest level of groundwater to avoid or mitigate any adverse effects from contaminants directly or indirectly entering groundwater; and
  - (e) requiring the extraction site to be developed and worked so as to avoid or mitigate any adverse effects from hydrocarbons entering land, and in the event they do enter land, ensure any contaminated land is removed and reinstated with uncontaminated material; and
  - (f) requiring a rehabilitation or re-instatement plan to be adopted prior to excavation ceasing; and
  - (g) requiring a groundwater quality and/or soil quality monitoring programme to be adopted prior to excavation commencing; and
  - (h) requiring any rehabilitation or re-instatement that utilises fill material to be undertaken in accordance with the Ministry for the Environment “A Guide to the Management of Cleanfills” (2002); and
  - (i) requiring any rehabilitation or re-instatement that utilises inert uncontaminated cleanfill material must not adversely impact on groundwater quality and is contoured so that surface ponding of water does not occur; and
  - (j) requiring land uses occurring on the site following completion of the extraction avoid or mitigate any adverse effects from contaminants potentially entering groundwater.
- (4) Ensure existing lawfully established hazardous facilities implement the design and management standards required under the Hazardous Substances and New Organisms legislation and regulations.
- (5) New hazardous facilities, and additions or extensions to existing lawfully established hazardous facilities, must:
  - (a) not aggregate large quantities of hazardous substances on a site in a manner which might potentially give rise to adverse effects to groundwater; and
  - (b) be designed, constructed and maintained in accordance with best management practice so as to avoid or mitigate hazardous substances entering groundwater and causing significant adverse effects to groundwater quality as a result of day-to-day use, leakage, accident or a natural hazard event.
- (6) Mobile hazardous substance facilities must be managed so as to avoid hazardous

substances entering land or groundwater, including during machinery refuelling and in the event of accidental spillage so as to avoid causing significant adverse effects to groundwater quality.

- (7) Existing lawfully established rural production land uses must reduce the potential adverse effects from contaminants entering groundwater by instituting all practicable management measures relating to such effects arising from:
- (a) the application of water; and
  - (b) the use and storage of fertilizer; and
  - (c) agricultural storage and application; and
  - (d) incidental farm management activities such as farm landfills and offal pits.
- (8) Adverse effects on groundwater quality arising from rural productive land uses existing at the date this policy becomes operative must be avoided or mitigated, and adverse effects from new rural productive uses, that increase the potential for nutrient, chemical and microbiological contaminants adversely affecting groundwater quality, must also be avoided or mitigated.
- (9) Avoid or mitigate the adverse effects of all other activities that may result in contaminants entering and persisting in groundwater which have an adverse effect on groundwater quality, including by prohibiting the establishment of a new municipal solid or hazardous waste landfill.

**Policy WQL16: Effect of Activities in Christchurch Groundwater Protection Zone 1C (Christchurch International Airport)**

Manage the adverse effects of activities in the Christchurch Groundwater Protection Zone 1C so that there is no significant increase in the effects of contamination of groundwater by avoiding or mitigating the adverse effects of activities that may result in contaminants entering and persisting in groundwater, and minimising effects of activities where contaminants will exist in groundwater for only a short period. In particular:

- (1) Enable the establishment of activities provided for in the City of Christchurch District Plan or Selwyn District Plan, or the Canterbury Regional Policy Statement, to the extent that:
- (a) the effects of the activity are consistent with the protection of groundwater quality; and
  - (b) where appropriate best management practice measures are implemented to avoid or mitigate adverse effects on groundwater quality.
- (2) Manage the effects of existing lawfully established activities, by requiring where appropriate implementation of all practicable management measures to protect groundwater quality, including:
- (a) current industry design standards; and
  - (b) any relevant codes of practice, including those prepared in accordance with the Hazardous Substances and New Organism management system.
- (3) Enable the Christchurch International Airport to continue to operate, function and expand to meet the community's needs on:
- (a) land which is zoned for such purposes (Special Purpose Airport) in the City of Christchurch District Plan; and
  - (b) land designated for Airport Purposes in the City of Christchurch District Plan;
- by
- (c) recognising and providing for those activities provided for in Volume 3, Part 8,

Rule 3.3.3 within the City of Christchurch District Plan in the Special Purpose (Airport) Zone, or undertaken by the requiring authority in accordance with Airport Purposes designation within the City of Christchurch District Plan;

but

- (d) avoiding or mitigating the adverse effects on groundwater quality of any activities in these locations that potentially contaminate Christchurch groundwater.
- (4) Ensure that for all new development:
  - (a) any sewage collection, treatment and disposal system is designed, constructed and maintained in accordance with best management practices; and
  - (b) any stormwater collection, treatment and disposal system is designed, constructed and maintained in accordance with best management practices.
- (5) Any extension to existing hazardous facilities, or any new hazardous facility, must provide best management practice measures to avoid or mitigate the adverse effects of toxic, mobile or persistent contaminants entering groundwater as a result of:
  - (a) the routine use of a hazardous substance; or
  - (b) leakage or spill from a hazardous facility or pipeline; or
  - (c) seismic activity that is likely to result in structural damage from ground motion; or
  - (d) emergency situations.
- (6) All hard surfaces and vehicle standing areas associated with commercial, industrial or institutional activities must be designed, constructed and maintained so as to avoid or mitigate the adverse effects of hazardous substances and contaminants entering groundwater.
- (7) Mobile hazardous facilities associated with commercial and industrial activities must be managed so as to avoid or mitigate the effects of hazardous substances entering land or groundwater, including during machinery refuelling, hazardous substance transportation, hazardous substance use and handling, and in the event of accidental spillage.
- (8) Existing lawfully established rural production land uses must minimise the adverse effects of contaminants potentially entering groundwater by instituting all practicable management measures relating to such effects arising from:
  - (a) the application of water; and
  - (b) the use and storage of fertilizer; and
  - (c) agrichemical storage and application; and
  - (d) incidental farm management activities such as farm landfills and offal pits.
- (9) Adverse effects on groundwater quality arising from rural production land uses must be avoided or mitigated, and adverse effects from new rural production land uses that increase the potential for nutrient, chemical and microbiological contaminants to adversely affect groundwater quality, must also be avoided or mitigated.
- (10) Avoid or mitigate the adverse effects of all other activities that may result in contaminants entering and persisting in groundwater and which have an adverse effect on groundwater quality, including by avoiding if possible mineral extraction activities, and by prohibiting the establishment of a new municipal solid or hazardous waste landfill.
- (11) Where mineral extraction activities occur, reduce the potential for adverse effects from contaminants entering groundwater by requiring:

- (a) an effective buffer including an appropriate thickness of soils, an impermeable liner, a containment bund, and a depth to groundwater, to be maintained between the bottom of the excavation and the top of the highest level of groundwater to avoid or mitigate any adverse effects from contaminants directly or indirectly entering groundwater; and
- (b) the extraction site to be developed and worked so as to avoid any adverse effects from hydrocarbons entering land, and in the event they do enter land, ensure any contaminated land is removed and reinstated with uncontaminated material; and
- (c) a rehabilitation or re-instatement plan to be adopted prior to excavation ceasing; and
- (d) a groundwater quality and/or soil quality monitoring programme to be adopted prior to excavation commencing; and
- (e) any rehabilitation or re-instatement that utilises fill material to be undertaken in accordance with the Ministry for the Environment “A Guide to the Management of Cleanfills” (2002); and
- (f) any rehabilitation or re-instatement that utilises inert uncontaminated cleanfill material must not adversely impact on groundwater quality and is contoured so that surface ponding of water does not occur; and
- (g) land uses occurring on the site following completion of the extraction avoid or mitigate any adverse effects from contaminants potentially entering groundwater.

**Policy WQL17: Effects of Activities in Christchurch Groundwater Protection Zone 1D (Designated Activities)**

**Manage the adverse effects of activities in the Christchurch Groundwater Protection Zone 1D so that there is no significant increase in the effects of contamination of groundwater by avoiding or mitigating activities that may result in contaminants entering and persisting in groundwater, and minimising effects of activities where contaminants will exist in groundwater for only a short period. In particular:**

- (1) Enable the establishment of activities provided for in the City of Christchurch District Plan or Selwyn District Plan, or the Canterbury Regional Policy Statement, to the extent that:**
  - (a) the effects of the activity are consistent with the protection of groundwater quality; and
  - (b) best management practice measures are implemented to avoid or mitigate adverse effects on groundwater quality.
- (2) Manage the effects of existing lawfully established activities on designated land, by requiring where appropriate the implementation of all practicable management measures to protect groundwater quality, including:**
  - (a) current industry design standards, and
  - (b) any relevant codes of practice.
- (3) Enable the relevant requiring authority to undertake new activities, and undertake additions or extensions to existing lawfully established activities, on:**
  - (a) land which is subject to a designation for such purposes in the City of Christchurch District Plan or the Proposed Selwyn District Plan;

**provided that**

  - (b) those activities are designed, constructed and maintained where appropriate in

- accordance with best management practice to protect groundwater quality;  
but while
- (c) avoiding or mitigating the adverse effects on groundwater quality of activities not consistent with the designations in these locations from contamination of Christchurch groundwater.
- (4) Ensure that for all activities on designated land:
- (a) sewage collection, treatment and disposal systems are designed, constructed and maintained in accordance with best management practices; and
- (b) stormwater collection, treatment and disposal systems are designed, constructed and maintained in accordance with best management practices.
- (5) Any extension to existing lawfully established hazardous facilities, or any new hazardous facility, must provide best management practice measures to avoid or mitigate the adverse effects of toxic, mobile or persistent contaminants entering groundwater as a result of:
- (a) the routine use of a hazardous substance; or
- (b) leakage or spill from a hazardous facility or pipeline; or
- (c) seismic activity that is likely to result in structural damage from ground motion; or
- (d) emergency situations.
- (6) All hard surfaces and vehicle standing areas associated with activities on designated land must be designed, constructed and maintained so as to avoid or mitigate the adverse effects of hazardous substances and contaminants entering groundwater.
- (7) Mobile hazardous facilities associated with activities on designated land must be managed so as to avoid or mitigate the effects of hazardous substances entering land or groundwater, including during machinery refuelling, hazardous substance transportation, hazardous substance use and handling, and in the event of accidental spillage.
- (8) Existing lawfully established rural production land uses must minimise the adverse effects of contaminants potentially entering groundwater by instituting all practicable management measures relating to such effects arising from:
- (a) the application of water; and
- (b) the use and storage of fertilizer; and
- (c) agrichemical storage and application; and
- (d) incidental farm management activities such as farm landfills and offal pits.
- (9) Adverse effects on groundwater quality arising from rural production land uses must be avoided or mitigated, and adverse effects from new rural production uses that increase the potential for nutrient, chemical and microbiological contaminants to adversely affect groundwater quality, must also be avoided or mitigated..
- (10) Avoid or mitigate the adverse effects of all other activities that may result in contaminants entering and persisting in groundwater which have an adverse effect on groundwater quality, including by avoiding if possible mineral extraction activities, and by prohibiting the establishment of a new municipal solid or hazardous waste landfill.
- (11) Where mineral extraction activities occur, reduce the potential for adverse effects from contaminants entering groundwater by requiring:
- (a) an effective buffer including an appropriate thickness of soils, an impermeable liner, a containment bund, and a depth to groundwater, to be maintained

between the bottom of the excavation and the top of the highest level of groundwater to avoid or mitigate adverse effects from contaminants directly or indirectly entering groundwater; and

- (b) the extraction site to be developed and worked so as to avoid any adverse effects from hydrocarbons entering land, and in the event they do enter land, ensure any contaminated land is removed and reinstated with uncontaminated material; and
- (c) a rehabilitation or re-instatement plan to be adopted prior to excavation ceasing; and
- (d) a groundwater quality and/or soil quality monitoring programme to be adopted prior to excavation commencing; and
- (e) any rehabilitation or re-instatement that utilises fill material to be undertaken in accordance with the Ministry for the Environment “A Guide to the Management of Cleanfills” (2002); and
- (f) any rehabilitation or re-instatement that utilises inert uncontaminated cleanfill material must not adversely impact on groundwater quality and is contoured so that surface ponding of water does not occur; and
- (g) land uses occurring on the site following completion of the extraction avoid or mitigate any adverse effects from contaminants potentially entering groundwater.

#### Policy WQL18: Effects of Activities in Christchurch Groundwater Protection Zone 2

Manage the adverse effects of activities in the Christchurch Groundwater Protection Zone 2 so that there is no significant increase in the effects of contamination of groundwater by avoiding or mitigating the adverse effects of activities that may result in contaminants entering and persisting in groundwater, and minimising effects of activities where contaminants will exist in groundwater for only a short period. In particular:

- (1) Where the groundwater system is not protected by permanent upwards hydraulic water pressure gradient and a confining layer of at least three metres thickness, minimise adverse effects on groundwater quality by requiring that all appropriate practicable management measures are implemented.
- (2) Where the groundwater system is protected by permanent upwards hydraulic water pressure gradient and a confining layer of at least three metres thickness, ensure the protection afforded to groundwater quality by these hydrogeological features is not compromised or is appropriately mitigated.
- (3) Manage the effects of existing lawfully established activities occurring in existing urban areas, by requiring where appropriate implementation of all practicable management measures to protect groundwater quality, including:
  - (a) current industry design standards; and
  - (b) any relevant codes of practice.
- (4) Within the non-urbanised rural portion, minimise the adverse effects on groundwater to the extent that where appropriate all practicable management measures are implemented.
- (5) Control the location of mineral extraction activities to manage any potential adverse effects on groundwater quality and reduce the potential for contaminants to enter groundwater by:
  - (a) recognising and providing for mineral extraction activities that are lawfully established, or provided for in the City of Christchurch District Plan or Proposed Selwyn District Plan, or provided for in the Canterbury Regional

**Policy Statement; and**

- (b) avoiding or mitigating the adverse effects of mineral extraction activities in other locations.**
- (6) Where mineral extraction activities occur, reduce the potential for adverse effects from contaminants entering groundwater by requiring:**
- (a) an effective buffer including an appropriate thickness of soils, an impermeable liner, a containment bund, and a depth to groundwater, to be maintained between the bottom of the excavation and the top of the highest level of groundwater to avoid or mitigate adverse effects from contaminants directly or indirectly entering groundwater; and**
- (b) the extraction site to be developed and worked so as to avoid any adverse effects from hydrocarbons entering land, and in the event they do enter land, ensure any contaminated land is removed and reinstated with uncontaminated material; and**
- (c) a rehabilitation or re-instatement plan to be adopted prior to excavation ceasing; and**
- (d) a groundwater quality and/or soil quality monitoring programme to be adopted prior to excavation commencing; and**
- (e) any rehabilitation or re-instatement that utilises fill material to be undertaken in accordance with the Ministry for the Environment “A Guide to the Management of Cleanfills” (2002); and**
- (f) any rehabilitation or re-instatement that utilises inert uncontaminated cleanfill material must not adversely impact on groundwater quality and is contoured so that surface ponding of water does not occur; and**
- (g) land uses occurring on the site following completion of the extraction avoid or mitigate any adverse effects from contaminants potentially entering groundwater.**
- (7) Prohibit the establishment of a new municipal solid or hazardous waste landfill.**

**Policy WQL19: Effects of Activities in Christchurch Groundwater Protection Zone 3**

**Manage the adverse effects of activities in the Christchurch Groundwater Protection Zone 3 so that there is no significant increase in the effects of contamination of groundwater by avoiding or mitigating the adverse effects of activities that may result in contaminants entering and persisting in groundwater, and minimising effects of activities where contaminants will exist in groundwater for only a short period. In particular:**

- (1) Ensure that the adverse effects of activities do not:**
- (a) directly or indirectly compromise the natural hydrogeological protection of groundwater quality; or**
- (b) discharge directly or indirectly to groundwater.**
- (2) Where mineral extraction activities occur, reduce the potential for adverse effects from contaminants entering groundwater by requiring:**
- (a) an effective buffer including an appropriate thickness of soils, an impermeable liner, a containment bund, and a depth to groundwater, to be maintained between the bottom of the excavation and the top of the highest level of groundwater to avoid or mitigate any adverse effects from contaminants directly or indirectly entering groundwater; and**
- (b) the extraction site to be developed and worked so as to avoid any adverse effects from hydrocarbons entering land, and in the event they do enter land,**

ensure any contaminated land is removed and reinstated with uncontaminated material; and

(c) a rehabilitation or re-instatement plan to be adopted prior to excavation ceasing; and

(d) a groundwater quality and/or soil quality monitoring programme to be adopted prior to excavation commencing; and

(e) any rehabilitation or re-instatement that utilises fill material to be undertaken in accordance with the Ministry for the Environment “A Guide to the Management of Cleanfills” (2002); and

(f) any rehabilitation or re-instatement that utilises inert uncontaminated cleanfill material must not adversely impact on groundwater quality and is contoured so that surface ponding of water does not occur; and

(g) land uses occurring on the site following completion of the extraction avoid or mitigate any adverse effects from contaminants potentially entering groundwater.

### Explanation and principal reasons

Many activities occurring over the Christchurch groundwater system have the potential to result in adverse effects on groundwater quality. This potential can be described as the probability of contamination occurring together with the consequence of that contamination. As such, different activities are associated with different levels of adverse effects, ranging from no such adverse effects to effects having a significant adverse impact. This assessment of effects informs the level of intervention required in order to achieve Objective WQL4. However, the effects based approach takes into account potential consequences of significance that have a low probability of occurring.

The quality of Christchurch’s groundwater can be adversely affected by a single large event (e.g. a tanker spill) or an individual activity, or by the cumulative effects of many smaller events or activities. Both the individual and cumulative adverse effects of events and activities must be avoided or mitigated.

The Christchurch groundwater system is of major importance and finite in character. The reversal of adverse groundwater quality effects is likely not possible, or if it is possible it will be financially prohibitive. Accordingly, the appropriate approach to managing groundwater quality is to avoid or mitigate potential consequence, even if the probability of those consequences occurring is low. That is, the emphasis of management is to be on the consequences of an activity rather than the probability of those consequences occurring.

The groundwater quality consequences are dependant on the properties of the contaminant. The contaminants of most concern are those that are mobile, toxic, and persistent or which can taint large volumes of water. Many contaminants remain in the groundwater for long periods of time so their adverse effects on groundwater quality are long term, and are to be avoided. Other contaminants decay at a reasonably rapid rate. As a result, there can be greater tolerance of minor adverse effects of these contaminants on groundwater quality.

Contaminants can enter groundwater by a number of pathways. Each pathway has different characteristics which influence:

1. the nature of the contaminants entering groundwater (including any natural attenuation)
2. the circumstances under which contaminants may enter groundwater
3. when and how long from the time of release, contaminants will enter and remain in groundwater.

The pathways include the deliberate or accidental release of contaminants into groundwater, or into or onto land that may result in that contaminant entering groundwater. This may be a result of inappropriate disposal, leakage from stormwater or effluent disposal systems, or failure of systems due to a natural hazard event.

Irrespective of the ‘intent’ or cause of the release, the consequences for the quality of Christchurch groundwater remain. In order to achieve Objective WQL4, it is important that all the contaminant

pathways are managed in a comprehensive way. This requires the control of land uses, discharges, water takes and use.

The vulnerability of the Christchurch groundwater system to contamination arises from its intrinsic susceptibility (the aquifer system hydrogeological properties), and the location and types of sources of naturally occurring and anthropogenic contamination, relative locations of wells, and the fate and transport of the contaminant(s). With respect to anthropogenic sources of contamination:

1. The more intense the activities, the greater the need to manage effects as there are a larger number of potential contaminants and contaminant pathways.
2. The transport, storage, use and disposal of hazardous substances are important contamination factors. As the quantity of contaminant being stored and used on-site increases, so too does the level of consequence to groundwater in the event of a system failure. However, it is only in the event of failure, or accident, that contamination occurs. There is a clear need for a strong level of management of this adverse effect, e.g. limiting the quantity of hazardous substances on site, or requiring bunding and impervious sealing to ensure containment of any spillage and to avoid its penetration to groundwater.
3. The application of pesticides and fertilisers in both the urban and rural environments associated with intensive land use activities (e.g. horticulture) may have significant consequences for groundwater contamination. Over-application and improper application, in conjunction with irrigation and/or significant rainfall events, will result in contaminants being readily flushed into the groundwater system where it is unconfined.
4. Land uses may require different levels of management dependent upon the time of their establishment. Existing activities may have legitimately established under lesser conditions or lower standards than currently exists today. For example, old petroleum storage tanks and on-site effluent disposal systems were designed and constructed to significantly lesser standards than those designed and built today.
5. In a catastrophic event such as earthquake the failure of sewer and stormwater reticulation systems and hazardous substance transportation and storage systems, will have significant consequences for groundwater quality.

The groundwater in Zone 1 and Zones 1A, 1B, 1C and 1D is particularly vulnerable to potential adverse effects arising from contamination resulting from land use activities, because the groundwater is near the land surface and the overlying soil and gravel is very permeable. Zone 1 comprises a significant proportion of the recharge area for the Christchurch Groundwater System. Maintaining the high quality of the groundwater in Zone 1 will ensure a continual supply of high quality water to the confined aquifer systems so that it remains suitable for a range of uses, including as a source of untreated drinking water. The groundwater in Zone 2 is also vulnerable to such contamination effects.

The likelihood of adverse effects from contaminants entering groundwater may increase if landuse intensification proceeds in an uncontrolled manner in Zone 1 or 2. Despite all precautions, including the application of high design standards, it is inevitable some discharges will occur. For these reasons, the effects of certain activities are such that some activities should not occur within the recharge zone. Other land use activities across the recharge zone need to be managed with the primary aim of maintaining the quality of the groundwater in this area.

Once intensive land uses become established in Zone 1 and Zones 1A, 1B, 1C and 1D, it will be very difficult to apply measures retrospectively to protect or remediate groundwater quality. The purpose of the policies is to not allow any increase in the adverse effects of new activities that will adversely affect groundwater quality, either directly or indirectly.

### **Rural landuses**

Rural production activities represent the dominant land use within the highly vulnerable Christchurch Groundwater Protection Zone 1 and within parts of Zones 1A, 1B, 1C and 1D. This reflects a long-established land use pattern which is expected to continue. The potential adverse effects of rural activities on groundwater quality is a result of some poor land management practices. The aim of the policies is to manage such poor practices so as to avoid or mitigate their potential adverse effects on groundwater quality. The rural land management practices with the potential to adversely affect groundwater quality include:

1. the use of fertiliser and agrichemicals in a manner that results in chemicals being transported past the root zone into the sub-soil, and eventually into groundwater

2. the application of water in a manner that flushes contaminants through into groundwater
  3. waste management practices, including the use of on-site landfills and offal pits for the storage and disposal, including decomposition of unwanted vegetation, of containers, and other materials
  4. the transport, storage and use of hazardous substances as part of the rural production activities.
- The approach taken is to manage individual components while providing for the continuation of the existing lawfully established rural activities and new rural production activities which must also avoid or mitigate their potential adverse effects on groundwater quality.

Some land uses that may have an adverse effect on groundwater quality, including parts of the urban area of Christchurch, Christchurch International Airport, mineral extraction or excavation, and other regionally significant activities (e.g. state highways), are already well-established in Zones 1A, 1B, 1C and 1D. While these land uses may continue in these areas, the policies require that they must be, to the extent practicable, undertaken in a way that ensures that their effects do not compromise the groundwater quality in an adverse manner.

### **Urban**

Intensification and development for urban purposes includes all the activities associated with a change in land use from rural to urban, or the intensification of current urban activities. These activities will include; residential, recreational, commercial, industrial, community and educational activities, together with the associated infrastructure. Potential adverse effects from such activities to groundwater quality are in the form of inappropriate waste disposal practices, accidental spillage, and increased amounts of wastes such as sewage and stormwater to be managed. Many of these risks are cumulative, arising from dispersed discharges.

It is recognised that some intensification of, in particular, residential and some industrial activities are provided for within the City of Christchurch District Plan and Selwyn District Plan and Canterbury Regional Policy Statement. Generally, these plans only enable a level of intensification that is appropriate within the rural environment or within recognised Urban Limits. In order to protect groundwater quality, the potential causes of adverse effects of any further growth are managed by the objectives, policies and rules. The presence of existing or lawfully authorised urban activities is provided for as Zone 1A.

### **Mineral Excavation**

Mineral extraction activities (for gravel) give rise to three primary potential adverse effects to groundwater quality, being:

1. the reduction in the protective layer of soils above groundwater providing a pathway for contaminants entering groundwater, both during the time of mineral extraction and after the extraction activities have occurred
2. the deposition of contaminants onto or into land as part of the mineral extraction activities, for example through the handling of fuel and from machinery
3. the deposition of contaminants into land as part of any re-instatement activity.

A recent Environment Court case has held that all those aspects are capable of being sustainably managed but only through a carefully assessed resource consent process with appropriate conditions.

Currently there are a number of mineral extraction activities occurring within the area of high intrinsic hydrogeological vulnerability. The City of Christchurch District Plan provides for quarry activities predominantly through zoning areas 'Rural Quarry'. The Selwyn District Plan contains two designations providing for mineral extraction.

It is anticipated that as sources of material reduce within the existing areas, there will be pressure for new areas of mineral extraction to be established outside of Zone 1B. While mineral extraction activities outside of Zone 1B are to be generally avoided, guidance is provided for proposals in locations where it can be clearly demonstrated through location, topography, soil structure, hydrology and the adoption of mitigation measures that these will not result in significant adverse effects on groundwater quality.

It is recognised that mineral extraction activities provide the opportunity to establish long-term land uses following re-establishment that pose very low risk to groundwater quality. If this occurs, it is a long-term benefit that may result from mineral extraction activities.

## **Airport**

The presence of the Christchurch International Airport within the highly vulnerable groundwater zone means that there is already a significant potential risk of groundwater contamination from day-to-day operations involving hazardous substances. The overall judgement is that those airport related activities identified in the City of Christchurch District Plan (Volume 3, Part 8, Special Purposes (Airport) Zone, Rule 3.3.3 Activities within Airport Zone), or undertaken by the requiring authority in accordance with the Airport Purposes designation, are to be provided for in recognition of the regional significance of the Airport.

Careful management is required to achieve a sustainable expansion to existing aviation related activities or new such activities establishing within Zone 1C which may otherwise result in an increased adverse effects to groundwater quality, including from inappropriate waste disposal, increased potential for accidental spills or leakage, and increased amounts of waste and contaminants via sewerage and stormwater systems. For sewerage and stormwater systems, it is appropriate to ensure that such treatment systems are designed, constructed and maintained in accordance with best management practices.

## **Designations**

Within the highly vulnerable groundwater zone there are areas of land which are subject to designations in the City of Christchurch District Plan or Proposed Selwyn District Plan. Requiring authorities have established activities that are recognised as being of regional significance. These consist of Christchurch Prison, the Ministry of Defence Rifle range, and that part of the state highway network not located within Zone 1A. These activities have existed for a significant period of time and are likely to continue for the foreseeable future and in respect of the latter at least are likely to expand.

Adverse effects to groundwater quality arising from intensification of existing activities, and introduction of new activities, including from the use of hazardous substances, accidental spills and chronic leakage of hazardous substances, and through the management of sewage and stormwater require careful management. However, the overall judgement is that designations are to be provided for in recognition of their regional significance, and that the increase in potential adverse effects requires management through the adoption of best management practice measures (e.g. measures could include bunding, stopvalves, audited management procedures, etc). For stormwater and sewerage systems, it is appropriate to ensure that such treatment systems are designed, constructed and maintained in accordance with best management practices.

## **Overall Approach**

In recognition of the wider purpose of the Resource Management Act, including the social, economic, environmental and cultural aspirations of the Christchurch and Canterbury communities, the level of control appropriate to achieve Objective WQL4 must be determined by forming an overall judgement in relation to these competing values. The judgement made for Zone 1 and Zones 1A, 1B, 1C and 1D is:

1. The adverse effects of activities that currently exist, and can be reasonably expected to continue, are able to continue provided the potential for contamination of groundwater is mitigated by the implementation where appropriate of **all practicable management measures**. In this context “all practicable management measures” means mitigation measures or practices that can reasonably be established while retaining the overall viability of the activity.
2. The adverse effects of activities that are provided for in the City of Christchurch District Plan, Proposed Selwyn District Plan or Canterbury Regional Policy Statement, but yet to occur, must adopt practices that ensure the effects provide for the protection of groundwater quality and all best management practice measures to protect groundwater quality are put in place. In this context “**best management practice measures**” means those mitigation measures or practices that are appropriate and would be expected to be implemented as part of an environmentally responsible activity in order to avoid the potential for groundwater contamination..
3. The adverse effects of some other activities can only be sustainably managed if the potential for groundwater contamination is avoided.

Within Zone 2, the approach to the control of activities is different. The policy contains two different management regimes depending on hydrogeological characteristics at the site of the proposal. If adequate protection is provided as a result of the existence of a permanent upwards hydraulic groundwater pressure gradient and a confining layer of at least three metres thickness, then provided this protection is not compromised by the proposal, reduced control is acceptable. However, in the event

these hydrogeological features do not exist at the site, or will be compromised by the effects of the proposal, then in recognition of the largely established urban land use patterns, the management approach is the same as for existing lawfully established activities in Zone 1.

Within Zone 1, Zones 1A, 1B, 1C and 1D, and Zone 2, adverse effects are to be determined at the boundary of the property within which the activity is occurring. This provides scope for activities to have short-term adverse effects on groundwater within a property, provided that at the property boundary these effects are no longer present. It is anticipated that this will enable the discharge of contaminants onto land that then enter groundwater, or into groundwater, which decay at a rapid rate, such as some microbiological contaminants.

Within Zone 3, the hydrogeological characteristics of a significant confining layer over groundwater and the permanent upwards hydraulic groundwater pressure, affords a high degree of natural protection of groundwater quality. Provided this protection is not compromised, the potential adverse effects of activities do not pose a risk to groundwater quality.”

**Decision WQLV6.27 and WQLV6.1:** Amend the first sentence for Methods and Methods WQL13(b), WQL13(c), WQL13(f), WQL13(g) and WQL13(j) as follows:

**“Methods**

The methods used or to be used to implement Policies WQL13 to ~~WQL2019~~ are:

**Method WQL13(b) Information and promotion**

Environment Canterbury will work with local authorities, landholders, community ~~or industrial~~ groups, industry groups (e.g. Horticulture New Zealand and Federated Farmers) to develop and disseminate information:

- (a) in relation to legally established existing activities, the practicable management measures that can be implemented to minimise the adverse effects on groundwater
- (b) in relation to new activities committed to in the district plans, best management practice measures to avoid adverse effects on groundwater
- (c) on the vulnerability of the Christchurch Groundwater Protection Zone to contamination.

**Method WQL13(c) Community Drinking Water Supply Catchment Risk Assessments**

Environment Canterbury may assist registered drinking water suppliers ~~water supply authorities~~ to undertake a risk assessment of their drinking water sources by making available water quality data and information on land use activities collected by Environment Canterbury where this is available.

**Method WQL13(f) Resource consents**

Resource consents may be required to undertake activities that adversely affect the quality of Christchurch groundwater.

If a resource consent application is granted, conditions on a resource consent may require, among other matters:

- (a) a financial contribution as set out in section 4.9 of this Plan, be made by the consent holder to mitigate or remedy the adverse effects on groundwater quality; or
- (b) a bond be imposed on the consent holder to ensure compliance with conditions on a resource consent.

**Method WQL13(g) Regional Policy Statement**

Environment Canterbury will ~~prepare~~ consider a change to the Canterbury Regional Policy Statement defining limits to urban growth over the high vulnerability portion of the Christchurch Groundwater System if the Environment Court’s decisions on Proposed Change 1 warrant that approach.

**Method WQL13(j) Territorial authorities**

Territorial authorities shall, in the preparation, variation, change or review of their district plans, and the exercise of their functions under Resource Management Act 1991, make provision as appropriate in any particular set of circumstances for the prevention, avoidance or mitigation of adverse effects on Christchurch groundwater quality by, in Christchurch Groundwater Protection Zone 1, and ~~Sub-Zones 1A, 1B, 1C and 1D, controlling~~ managing:

1. the any potential adverse effects on groundwater quality arising from density of subdivision and development
2. any potential adverse effects on groundwater quality arising from the type of land uses that may be established
3. the storage and/or use of hazardous substances as defined as a territorial authority responsibility in the Canterbury Regional Policy Statement.”

**Decision WQLV6.1:** Delete all information for Rules WQL55, WQL63, WQL64, WQL65 and WQL66 from Table WQL8 as follows:

Where rule applies	Rule No.	Activity type	Description	Activity Status	Page No.
In Christchurch Groundwater Protection Sub-Zone 1A, Sub-Zone 1B Sub-Zone 1C or Sub-Zone 1D, except where a discharge to surface water or onto land adjacent to a surface water body is controlled by the Waimakariri River Regional Plan.	WQL 55	Land Use/ Discharge	Use of land for mineral extraction, use of a specified hazardous substances, or the discharge of stormwater in Christchurch Groundwater Protection Sub-Zones 1A, 1B, 1C or 1D— discretionary activity	Discretionary	
In Christchurch Groundwater Protection Zone 1, Sub-Zone 1C or Sub-Zone 1D	WQL 63	Land Use	The use including storage of a specified hazardous substance in Christchurch Groundwater Protection Zone 1, or Sub-Zones 1C or 1D	Prohibited	
In Christchurch Groundwater Protection Zone 4	WQL 64	Land Use	Use of land within Christchurch Groundwater Protection Zone 4	Non-complying	
In Christchurch Groundwater Protection Zone 4	WQL 65	Land Use	Use of land (hazardous substances) within Christchurch Groundwater Protection Zone 4	Prohibited	
In Christchurch Groundwater Protection Sub-Zone 1A or Sub-Zone 1B	WQL66	Land use	Use of land (hazardous substances) within the Christchurch Groundwater Protection Sub-Zone 1A or Sub-Zone 1B	Prohibited	

**Decision WQLV6.1** In Rule WQL5, delete the Cross reference to Policies WQL13-21

**Decision WQLV6.32** In Rule WQL5, delete Activity (c) as follows:

“(c) — a discretionary activity if a discharge does not comply with condition 10 of this Rule, in which case a resource consent under Rule WQL 55 or Rule WQL57 is required.”

**Decision WQLV6.32** In Rule WQL5, delete the Condition 10 as follows:

“10. — Except as provided for in Condition 2, there shall be no discharge in the area identified as Christchurch Groundwater Protection Zone 1, or Sub-Zones 1B or 1D as shown on Map Volume Part 1 Planning Maps.”

**Decision WQLV6.1** In Rule WQL7, amend the Condition 4 as follows:

“There shall be no discharge in the areas identified as Christchurch Groundwater Protection ~~Sub-Zones 1, 1A, 1B, 1C, or 1D~~ or 2 on Map Volume - Part 1 Planning Maps. “

**Decision WQLV6.32** In Rule WQL7, as a consequence of deleting Rule WQL55, amend the Activity 3 as follows:

“3. ...the discharge does not comply with Condition 4 of this Rule, ~~in which case a resource consent under Rule WQL 55 is required;~~”

**Decision WQLV6.1** In Rule WQL7, delete the Cross reference to Policies WQL13-21

**Decision WQLV6.1** In Rule WQL8, delete the Cross reference to Policies WQL13-21

**Decision WQLV6.1** In Rule WQL8, amend Condition 8 as follows:

“...Zone 1, or ~~Sub-Zones 1A, ...~~”

**Decision WQLV6.1** In Rule WQL12, delete the Cross reference to Policies WQL13-21

**Decision WQLV6.1** In Rule WQL12, amend Condition 2(d) by making the Christchurch Protection Zone a separate clause (ii) and as a consequence the Community Drinking Water Supply Protection Zone clause (i), as follows:

“(d) within:

- (i) a Community Drinking Water Supply Protection Zone for a well listed in Schedule WQL2, or
- (ii) ~~within~~ the Christchurch Groundwater Protection Zone 1, or ~~Sub-Zones 1A, 1B, 1C, or 1D, or Zone 2; or~~

**Decision WQLV6.1** In Rule WQL12, as a consequence of making the Protection Zone a separate clause within Condition 2(d), amend Activity 2 and 3 as follows:

“2. ...excluding Condition 2(d)(i), ...”

“3....comply with Condition 2(d)(i) of this...”

**Decision WQLV6.1** In Rule WQL16, delete the Cross reference to Policies WQL13-21

**Decision WQLV6.42** In Rule WQL16, amend condition 9 and add a new condition as follows:

“9. No mixing or diluting of an agrichemical shall take place within the ~~Christchurch Groundwater Protection Zone 1, or Sub-Zones 1A, 1B, 1C or 1D, or Zone 2,~~ or within ten metres of the edge of a river, lake, or an artificial water course, bore, or on land containing a subsurface drainage system, unless the mixing takes place over an impervious surface that will contain any spillage.

X. No mixing or diluting of an agrichemical shall take place:

(a) Within the Christchurch Groundwater Protection Zones 1, 1A, 1B, 1C, 1D or 2, unless:

- i. The mixing/dilution takes place within a sealed, banded system that would contain at least 110% of the largest single spray tank to be filled; or
- ii. The mixing/dilution is for a hand-held application technique or method.

If the mixing/dilution water 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.”

**Decision WQLV6.1** In Rule WQL16, amend condition 10 as follows:

“... Christchurch Groundwater Protection Zone 1, or ~~Sub-Zones 1A, 1B, 1C or 1D~~ or Zone 2...”

**Decision WQLV6.1** In Rule WQL23, delete the Cross reference to Policies WQL13-21

**Decision WQLV6.44** In Rule WQL23, amend condition 9 as follows:

"Within the Christchurch Groundwater Protection Zone 1, ~~Sub-Zones 1A, 1B, 1C or 1D~~ or Zone 2 any discharge shall be limited to an existing discharge that was ~~authorised~~ lawfully established on-at or before 4 August 2007, the time this rule becomes operative."

**Decision WQLV6.1** In Rule WQL24, delete the Cross reference to Policies WQL13-21

**Decision WQLV6.1** In Rule WQL24, amend condition 7 as follows:

"Within the Christchurch Groundwater Protection Zone 1, ~~Sub-Zones 1A, 1B, 1C or 1D~~ or Zone 2, any discharge shall be limited to an existing discharge that was ~~authorised~~ lawfully established on-at or before 4 August 2007, the time this rule becomes operative."

**Decision WQLV6.1** In Rule WQL26, amend condition 8 as follows:

"The discharge shall not occur within the Christchurch Groundwater Protection Zone 1, or ~~Sub-Zones 1A, 1B, 1C or 1D~~ or Zone 2, as shown on Map Volume Part 1- Planning Maps."

**Decision WQLV6.1** In Rule WQL26, delete the Cross reference to Policies WQL13-21

**Decision WQLV6.1** In Rule WQL27, delete condition 3 as follows:

~~"3. The discharge shall not occur within the Christchurch Groundwater Protection Zone 1, or Sub-Zones 1A, 1B, 1C or 1D or Zone 2, as shown on Map Volume Part 1- Planning Maps."~~

**Decision WQLV6.1** In Rule WQL27, delete the Cross reference to Policies WQL13-21

**Decision WQLV6.1** In Rule WQL29, amend condition 2(f) as follows:

"within the Christchurch Groundwater Protection Zone 1, or ~~Sub-Zones 1A, 1B, 1C, or 1D~~ or 2 as shown on Map Volume Part 1- Planning Maps."

**Decision WQLV6.1** In Rule WQL29, delete the Cross reference to Policies WQL13-21

**Decision WQLV6.1** In Rule WQL30, delete condition 2(f) as follows:

~~"within the Christchurch Groundwater Protection Zone 1, or Sub-Zones 1A, 1B, 1C or 1D as shown on Map Volume Part 1- Planning Maps."~~

**Decision WQLV6.1** In Rule WQL30, delete the Cross reference to Policies WQL13-21

**Decision WQLV6.1** In Rule WQL31, add a new clause (d) to condition 6 as follows (and renumber clauses (d) and (e) as (d) and (f) :

"(d) within the Christchurch Groundwater Protection Zone 1A, 1B, 1C or 1D; and including existing land parcels which overlap within Zone 1 and Zone 2"

**Decision WQLV6.54** In Rule WQL31, as a consequence of adding new Condition 8, amend the Activity 2 as follows:

"2. ...excluding condition 6(~~ed~~)..."

**Decision WQLV6.54** In Rule WQL31, as a consequence of adding new Condition 8, amend the Activity 3 as follows:

"3. ...does not comply with condition 6(~~ed~~) of this Rule..."

**Decision WQLV6.54** In Rule WQL31, amend clause (d) (now numbered (e)) to condition 6 as follows:

"...or within the Christchurch Groundwater Protection Zone 1, or ~~Sub-Zone 2s 1A, 1B, 1C or 1D;~~ or"

**Decision WQLV6.1** In Rule WQL31, delete the Cross reference to Policies WQL13-21

**Decision WQLV6.1** In Rule WQL36, amend condition 11(b) as follows:

"Christchurch Groundwater Protection Zone 1, or ~~Sub-Zones 1A, 1B, 1C or 1D,~~ Zone 2, or Zone 3..."

**Decision WQLV6.1** In Rule WQL36, delete the Cross reference to Policies WQL13-21

**Decision WQLV6.1** In Rule WQL40 amend condition 1(d) as follows

“(d) Christchurch Groundwater Protection ~~Sub-Zone 1, 1A, 4B, 1C, 1D~~ or Zone 2 as shown on the Map Volume Part 1- Planning Maps.”

**Decision WQLV6.1** In Rule WQL40 delete condition 1(e) as follows:

~~“(e) Christchurch Groundwater Protection Zone 1, Sub-Zone 1A, 1C or 1D as shown on the Map Volume Part 1- Planning Maps.”~~

**Decision WQLV6.1** In Rule WQL40, as a consequence of adding new Condition 1(d), amend the Activity (d) as follows:

“(d) a **discretionary activity** if such use is within Christchurch Groundwater Protection Zone 1B or complies with conditions 1(a), (b), (c), but does not comply with condition 1(d) in which case a resource consent under Rule WQL55 is required.”

**Decision WQLV6.1** In Rule WQL40, as a consequence of adding new Condition 1(d), amend the Activity (e) as follows:

“a **non-complying activity** if, ~~with the exception of condition 1(d),~~ such use does not comply with any one or more of the Conditions 1(a), (b), (c) or (d) ....”

**Decision WQLV6.1** In Rule WQL40, delete the Cross reference to Policies WQL13, 14 and 18.

**Decision WQLV6.76** In Rule WQL42, delete Condition 2(b) as follows:

~~“(b) Within Christchurch Groundwater Protection Zones 1, or Sub-Zones 1A, 1B, 1C or 1D, if a discrepancy is identified as a result of condition 2(a), the container shall immediately be tested to detect any leakage of contaminants. The results of the leakage test shall be forwarded to Environment Canterbury within two working days of the results becoming available”~~

**Decision WQLV6.76** In Rule WQL42, amend Condition 3 as follows:

~~“3. ...; or if the container is located within Christchurch Groundwater Protection Zone 1, Sub-Zones 1A, 1B, 1C or 1D, within one year of the rule being operative and thereafter,”~~

**Decision WQLV6.76** In Rule WQL42, amend Condition 3(a)(i) as follows:

~~“(i) the Christchurch Groundwater Protection Zone 2 as shown on the Map Volume Part 1- Planning Maps; or”~~

**Decision WQLV6.76** In Rule WQL42, delete Condition 3(b) as follows:

~~“(b) a container located in the Christchurch Groundwater Protection Zone 1, Sub-Zones 1A, 1B, 1C or 1D as shown on the Map Volume Part 1 – Planning Maps shall be tested at a minimum frequency of not less than once every 12 months; and”~~

**Decision WQLV6.1** In Rule WQL42, delete the Cross reference to Policies WQL13-21

**Decision WQLV6.76** In Rule WQL43, amend Condition 3 as follows:

~~“3. ... in Christchurch Groundwater Protection Zone 1 or Sub-Zones 1A, 1B, 1C or 1D, as shown on the Map Volume Part 1- Planning Maps;”~~

**Decision WQLV6.76** In Rule WQL43, delete Condition 3(b) as follows:

~~“Unless:~~

~~(b) the hazardous facility is existing, legally established or authorised before 1 August 2007 and the aggregate volume or quantity of hazardous substances used or stored is not increased.”~~

**Decision WQLV6.76** In Rule WQL43, delete Condition 6 as follows:

~~“6. In the Christchurch Ground Water Protection Zone 1, or Sub-Zones 1A, 1B, 1C or 1D, or Zone 2, any refuelling shall occur over an area constructed of impervious materials.”~~

**Decision WQLV6.1** In Rule WQL43, delete the Cross reference to Policies WQL13-21

**Decision WQLV6.76** In Rule WQL44, delete Conditions 2 and 3 as follows:

~~"2. Any hazardous facility located in Christchurch Groundwater Protection Zone 1, or Sub-Zones 1A, 1B, 1C or 1D as shown on the Map Volume Part 1- Planning Maps is existing and legally established or authorised before 1 August 2007.~~

~~3. For:~~

~~(a) an extension to an existing hazardous facility that is legally established or authorised before 1 August 2007, or~~

~~(b) a new hazardous facility-~~

~~located in Christchurch Groundwater Protection Zone 1 of the Christchurch Groundwater Recharge Zone or Sub-Zones 1A, 1B, 1C or 1D, as shown on the Map Volume Part 1- Planning Maps, the aggregate quantity of the hazardous substances on a site shall not exceed the quantity specified in Schedule 4 of the Hazardous Substances (Emergency Management) Regulations 2001."~~

**Decision WQLV6.76** In Rule WQL44, delete Activity 2(b), (c), (d), (e) and (f) as follows:

~~"(b) does not comply with Condition 2 of this Rule and is located in Christchurch Groundwater Protection Zones 1, in which case a resource consent under Rule WQL 59 is required,~~

~~(c) does not comply with Condition 2 of this Rule and is located in Christchurch Groundwater Protection Sub-Zones 1A, 1B, 1C or 1D in which case a resource consent under Rule WQL 55 is required.~~

~~(d) does not comply with Condition 3 of this Rule and is located in Christchurch Groundwater Protection Sub-Zone 1A, in which case a resource consent under Rule WQL 55 is required, unless Rule WQL66 applies.~~

~~(e) does not comply with Condition 3 of this Rule and is located in Christchurch Groundwater Protection Sub-Zone 1C and the activity is:~~

~~(i) carried out by the requiring authority in accordance with a designation in the Christchurch City Council City Plan; or~~

~~(ii) carried out in accordance with Christchurch District Plan (Volume 3, Part 8, Special Purposes (Airport) Zone, Rule 3.3.3 Activities within Airport Zone~~

~~in which case a resource consent under Rule WQL 55 is required; or~~

~~(f) does not comply with Condition 3 of this Rule, is located in Christchurch Groundwater Protection Sub-Zone 1D and the activity is carried out by the requiring authority in accordance with a designation in the Christchurch City Council City Plan or Proposed Selwyn District Plan, in which case a resource consent under Rule WQL 55 is required; or"~~

**Decision WQLV6.76** In Rule WQL44, delete Activity 3(b) as follows:

~~"or~~

~~(b) does not comply with Condition 2-3 of this Rule and is located in Christchurch Groundwater Protection Sub-Zone 1B in which case, unless Rule WQL66 applies, a resource consent under Rule WQL 62 is required;"~~

**Decision WQLV6.76** In Rule WQL44, delete Activity 4 as follows:

~~"4. a prohibited activity if such use:~~

~~(a) does not comply with Condition 3 of this Rule and the use is located within Christchurch Groundwater Protection Zone 1; or~~

~~(b) does not comply with Condition 3 of this Rule and is located in Christchurch Groundwater Protection Sub-Zone 1C and the activity is:~~

~~(i) not carried out by the requiring authority in accordance with a designation in the Christchurch City Council City Plan; or~~

~~(ii) not carried out in accordance with Christchurch District Plan (Volume 3, Part 8, Special Purposes (Airport) Zone, Rule 3.3.3 Activities within Airport Zone~~

~~(c) does not comply with Condition 3 of this Rule, is located in Christchurch Groundwater Sub-Zone 1D and the activity is not carried out by the requiring authority in accordance with a designation in the Christchurch City Council City Plan or Proposed Selwyn District Plan;~~

~~in which case no resource consent will be granted under Rule WQL 63 or Rule WQL65."~~

**Decision WQLV6.1** In Rule WQL44, delete the Cross reference to Policies WQL13-21

**Decision WQLV6.76, WQLV6.79, WQLV6.80, WQLV6.133, WQLV6.134, WQLV6.135, WQLV6.136, WQLV6.137, WQLV6.138 and WQLV6.139:** Add new Rule WQLZZ to apply in the Christchurch Groundwater Protection Zones, as follows:

**“Rule WQLZZ Decommissioning of an underground container that has stored a specified hazardous substance**

<b><u>Activity</u></b>	<b><u>Conditions</u></b>
<p><u>The use of land to decommission a container located in or under land that is, or has been, used to store a specified hazardous substance is –</u></p> <ol style="list-style-type: none"> <li>1. <u>a permitted activity if such use complies with all of the conditions of this Rule;</u></li> <li>2. <u>a discretionary activity if such use does not comply with any one or more of the conditions of this Rule.</u></li> </ol> <p><u>For the purposes of this Rule:</u></p> <ol style="list-style-type: none"> <li>i) <u>a specified hazardous substance is any:</u> <ol style="list-style-type: none"> <li>(a) <u>petroleum hydrocarbon, including those used for cooling purposes, but excluding liquefied petroleum gas;</u></li> <li>(b) <u>chlorinated hydrocarbon;</u></li> <li>(c) <u>pesticide;</u></li> <li>(d) <u>timber preservative; or</u></li> <li>(e) <u>substance containing any one or more of the following; arsenic, cadmium, chromium, cyanide, lead, mercury, nickel or selenium.</u></li> </ol> </li> <li>ii) <u>a container means any tank, vessel, equipment, device or other facility, and includes any associated pipes or pipeline;</u></li> </ol> <p><u>For the purposes of this rule:</u></p> <p><b><u>Decommission</u></b> means to:</p> <ol style="list-style-type: none"> <li>(a) <u>remove a container; or</u></li> <li>(b) <u>permanently disable a container from its use to store a specified hazardous substance.</u></li> </ol>	<ol style="list-style-type: none"> <li>1. <u>Environment Canterbury shall be notified in writing at least ten working days prior to the commencement of the decommissioning with the following information:</u> <ol style="list-style-type: none"> <li>(a) <u>the capacity of the container;</u></li> <li>(b) <u>the type of specified hazardous substance that is or has been stored in the container;</u></li> <li>(c) <u>the legal description of the land and the location of the container on the site;</u></li> <li>(d) <u>the name and address of the person undertaking the decommissioning of the container;</u></li> <li>(e) <u>the proposed method of decommissioning;</u></li> <li>(f) <u>the date and approximate time the container is to be decommissioned;</u></li> <li>(g) <u>the reason for the decommissioning of the container;</u></li> <li>(h) <u>the destination or proposed use of the decommissioned container;</u></li> <li>(i) <u>the process for cleaning or decontaminating the container, and the disposal of any residue from this process;</u></li> <li>(j) <u>the destination of any contaminated soil, water or other material removed during the decommissioning process and</u></li> <li>(k) <u>the proposed method of backfilling and/or repairing disturbed land as a result of the decommissioning and a description of any backfill materials to be used.</u></li> </ol> </li> <li>2. <u>Where a container has been used to store:</u> <ol style="list-style-type: none"> <li>(a) <u>petroleum hydrocarbons, an investigation of the site shall be undertaken in accordance with Section 4 of <i>Contaminated Land Management Guidelines No. 1: Reporting on Contaminated Sites in New Zealand (Ministry for the Environment, 2003)</i>. If there is evidence of hydrocarbon contamination of groundwater, or hydrocarbon concentrations in soil exceed Tier 1 soil acceptance criteria in Module 4 of the <i>Guidelines for Assessing and Managing Petroleum Hydrocarbon Contaminated Sites in New Zealand (Ministry for the Environment, 1999)</i>, then either:</u> <ol style="list-style-type: none"> <li>(i) <u>a site assessment to establish Tier 2 site specific acceptance criteria shall be undertaken in accordance with Module 6 of the <i>Guidelines for Assessing and Managing Petroleum Hydrocarbon Contaminated Sites in New Zealand (Ministry for the Environment, 1999)</i>, and reported in accordance with the <i>Contaminated Land Management Guidelines No. 1: Reporting on Contaminated Sites in New Zealand (Ministry for the Environment, 2003)</i>; or</u></li> <li>(ii) <u>a Remedial Action Plan shall be prepared in accordance with Section 2.3 of the <i>Contaminated Land Management Guidelines No. 1: Reporting on Contaminated Sites in New Zealand (Ministry for the Environment, 2003)</i> and the Plan implemented.</u></li> </ol> </li> <li>(b) <u>a specified hazardous substance other than petroleum hydrocarbons, an investigation of the site shall be undertaken and reported on in accordance with Section 2.2 of the <i>Contaminated Land Management Guidelines No. 1: Reporting on Contaminated Sites in New Zealand (Ministry for the Environment, 2003)</i>.</u></li> </ol> </li> </ol>

	<p>3. <u>Where an investigation, site assessment or Remedial Action Plan is undertaken in accordance with Condition 2:</u></p> <p>(a) <u>the investigation shall be completed within three months from the date the container was decommissioned;</u></p> <p>(b) <u>the site assessment shall be completed within six months from the date the container was decommissioned;</u></p> <p>(c) <u>where a Remedial Action Plan is implemented, a site validation report shall be prepared in accordance with Section 2.4 of the <i>Contaminated Land Management Guidelines No. 1: Reporting on Contaminated Sites in New Zealand (Ministry for the Environment, 2003)</i>.</u></p> <p>4. <u>A copy of any report or plan prepared in accordance with Conditions 2 or 3 shall be forwarded to Environment Canterbury within one month of the report being completed.</u></p>
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**Decision WQLV6.76, WQLV6.79, WQLV6.80, WQLV6.133, WQLV6.134, WQLV6.135, WQLV6.136, WQLV6.137, WQLV6.138 and WQLV6.139:** Add new Rule WQLYY to apply in the Christchurch Groundwater Protection Zones, as follows:

**“Rule WQLYY Use of land to store a specified hazardous substance**

<u>Activity</u>	<u>Conditions</u>
<p><u>The use of land to store or to use a specified hazardous substance in or on land is:</u></p> <p>1. <u>a permitted activity if it complies with Conditions 1 to 5 inclusive, or with Condition 6, or 7, or 9.</u></p> <p>2. <u>a restricted discretionary activity if it:</u></p> <p>(a) <u>complies with Condition 8;</u></p> <p>(b) <u>the storage is not located within Christchurch Groundwater Protection Zones 1, 1A, 1B, 1C, 1D, or 2, and it:</u></p> <p>(i) <u>Complies with Condition 1 but does not comply with any of Conditions 2 to 5 inclusive; or</u></p> <p>(ii) <u>Does not comply with Condition 9.</u></p> <p>3. <u>a discretionary activity if it: does not comply as a permitted or restricted discretionary activity, but is not a non-complying or prohibited activity, and is located within Christchurch Groundwater Protection Zones 1A, 1B, 1C or 1D; and including existing land parcels which overlap within Zone 1 and Zone 2.</u></p> <p>4. <u>a non-complying activity if it does not comply as a permitted, restricted</u></p>	<p style="text-align: center;"><b><u>Existing Storage or Use</u></b></p> <p>1. <u>The storage can be demonstrated to the satisfaction of the consent authority as being lawfully established before the operative date of this rule and similarly the maximum quantity stored has not increased since that date.</u></p> <p>2. <u>Stock reconciliation of a specified hazardous substance shall be undertaken at regular intervals. 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 100 litres or 0.5 percent, whichever is the smaller, Environment Canterbury shall be notified:</u></p> <p>(i) <u>immediately, if the container is located within a Community Drinking Water Supply Protection Zone for a well listed in Schedule WQL2, or within Christchurch Groundwater Protection Zones 1, 1A, 1B, 1C, 1D, or 2 ;</u> <u>or</u> (ii) <u>within two working days if the discrepancy occurs over three consecutive measurements for a container located in any other area.</u></p> <p>3. <u>A container located on or over the land surface shall be visually inspected for leakage at least once per month.</u></p> <p>4. <u>If requested, a copy of a stock reconciliation record or inspection records or the most recent certification of a container shall be provided to Environment Canterbury within five working days.</u></p> <p>5. <u>A container located in or under land shall not be altered except for the repair or replacement of pipes, taps, valves, hoses or other fittings that are attached to the container.</u></p> <p style="text-align: center;"><b><u>New Storage or Use – Small Quantities</u></b></p> <p>6. <u>Where the aggregate quantity of specified hazardous substances on a site is less than or equal to Threshold 1 of Schedule WQLZZ, the substances:</u></p> <p>(a) <u>shall not be stored on bare land within 10 metres from a lawfully established bore, a wetland boundary, or water in a river or lake;</u> <u>and</u> (b) <u>shall be stored under cover on an impervious surface.</u></p> <p style="text-align: center;"><b><u>New Storage or Use – Medium Quantities</u></b></p> <p>7. <u>Where the aggregate quantity of specified hazardous substances on a</u></p>

<p><u>discretionary or discretionary activity, or, it is recognised as nationally or regionally significant infrastructure as defined in the Regional Policy Statement, but it is not a prohibited activity</u></p> <p><b>5. a prohibited activity if:</b></p> <p>(a) <u>it does not comply with Condition 6(a); or</u></p> <p>(b) <u>the storage is not a permitted, restricted discretionary, discretionary, or non-complying activity and it is located within a Community Drinking Water Supply Protection Zone for a bore listed in Schedule WQL2.</u></p> <p>For the purposes of this Rule:</p> <p>i) <b>a specified hazardous substance is any:</b></p> <p>(a) <u>petroleum hydrocarbon, including those used for cooling purposes, but excluding liquefied petroleum gas;</u></p> <p>(b) <u>chlorinated hydrocarbon;</u></p> <p>(c) <u>pesticide;</u></p> <p>(d) <u>timber preservative; or</u></p> <p>(e) <u>substance containing any one or more of; arsenic, cadmium, chromium, cyanide, lead, mercury, nickel or selenium.</u></p> <p>ii) <b>a container</b> means any tank, vessel, equipment, device or other facility whether in, on, under, or over the land, and includes any associated pipes or pipeline but does not include the fuel system used to power a vehicle or machine.</p> <p>iii) <b>a portable container</b> means one or more containers of petrol or diesel used for refuelling and the container(s) is fixed to a vehicle, towed by a vehicle or transported by a helicopter, but does not comprise part of the fuel system required to power a vehicle or machine.</p> <p>iv) <b>stock reconciliation</b> means to measure the quantity of a specified substance in accordance with a code of practice approved under the Hazardous Substances and New Organisms Act 1996.</p>	<p><u>site is more than the quantity specified in Threshold 1 but equal to or less than the quantity specified in Threshold 2 of Schedule WQLZZ, the storage:</u></p> <p>(a) <u>shall comply with Conditions 2 to 5 of this rule; and</u></p> <p>(b) <u>the person in charge of the site shall:</u></p> <p>(i) <u>maintain a current inventory of specified hazardous substances on the site including the maximum quantities of each substance stored, and provide a copy of the inventory to Environment Canterbury or emergency services upon request; and</u></p> <p>(ii) <u>store or use the substances in a facility which is designed, constructed and managed to:</u></p> <p>(1) <u>prevent the escape of substances or contaminated water, and</u></p> <p>(2) <u>prevent stormwater runoff entering the facility; and contain a leak or spill and allow the leaked or spilled substance to either be collected or lawfully disposed of; and</u></p> <p>(iii) <u>have spill kits to contain or absorb the spilled substance located close to the substance storage and use areas at all times, and train staff to manage spilled substances; and</u></p> <p>(c) <u>the substances shall not be stored or used:</u></p> <p>(i) <u>within 20 metres of; a lawfully established bore used for a purpose other than a community drinking water supply, a wetland boundary, or water in a river or lake; or</u></p> <p>(ii) <u>on land:</u></p> <p>(1) <u>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;</u></p> <p>(2) <u>where water is known to pond for at least two hours in a rainfall event, on average, at least once in every five years;</u></p> <p>(3) <u>within a Community Drinking Water Supply Protection Zone for a bore listed in Schedule WQL2; or</u></p> <p>(4) <u>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, or within 50 metres of a permanently or intermittently flowing river or a lake.</u></p> <p>(d) <u>The erection, reconstruction, placement, alteration, or extension of a container located in or under land, shall comply with Schedule WQL5.</u></p> <p>(e) <u>Where a container is above the land surface but the associated pipe work is in or under the land the pipe work shall comply with the relevant provisions of Clause (d) to (g) inclusive of Schedule WQL5</u></p>
	<p style="text-align: center;"><b><u>New Storage or Uses – Large Quantities</u></b></p> <p><b>8.</b> <u>Where the aggregate quantity of the specified hazardous substances stored or used on a site is more than Threshold 2 of Schedule WQLZZ, the substances shall not be stored or used:</u></p> <p>(a) <u>within 20 metres of a lawfully established bore, the bed of a river or lake or a wetland boundary; or</u></p> <p>(b) <u>within a Community Drinking Water Supply Protection Zone for a bore listed in Schedule WQL2; or</u></p> <p>(c) <u>within Christchurch Groundwater Protection Zones 1, 1A, 1B, 1C, 1D or 2; or</u></p>

	<p>(d) <u>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; or</u></p> <p>(e) <u>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.</u></p> <p style="text-align: center;"><b>Portable Containers</b></p> <p>9. <u>A portable container shall comply with the following:</u></p> <p>(a) <u>the aggregate quantity of petrol and diesel stored on a site in a portable container shall not exceed 2,000 litres; and</u></p> <p>(b) <u>a container shall be located in an area or structure that will contain a leak or spill of the substance and will allow the spilled substance to be collected ; and</u></p> <p>(c) <u>equipment that is suitable to absorb any leak or spill of the substance shall be located with a container at all times, and have staff trained to manage spilled substances; and</u></p> <p>(d) <u>if the aggregate quantity of specified hazardous substances stored on a site in portable containers exceeds 200 litres, the containers shall not be located within 50 metres of a lawfully established bore, a wetland boundary, or water in a river or lake; and</u></p> <p>(e) <u>a portable container shall not remain on a site for a continuous period of more than 90 days.</u></p>
<b><u>Restriction of Discretion</u></b>	
	<p><u>Where the activity is classified as a restricted discretionary activity Environment Canterbury has restricted its discretion to the following matters:</u></p> <ol style="list-style-type: none"> <li>1. <u>Suitability of the land for the storage or use of the specified substance.</u></li> <li>2. <u>Measures to avoid:</u> <ol style="list-style-type: none"> <li>(a) <u>the entry of the substances or associated contaminants into groundwater, surface fresh or coastal water, and supplies of drinking water, aquatic ecosystems; and</u></li> <li>(b) <u>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.</u></li> </ol> </li> <li>3. <u>Measures to prevent or contain spills or leaks, including site design and drainage, waste management, emergency management and leak detection.</u></li> <li>4. <u>Maintenance and monitoring of the storage or use system including containment measures.</u></li> <li>5. <u>The requirement for financial contributions, or bonds.</u></li> <li>6. <u>The monitoring of the activity and its effects.</u></li> <li>7. <u>The duration of the land use consent.</u></li> <li>8. <u>Review of resource consent conditions.</u></li> </ol>

**For information only**

1. The use and storage of a hazardous substance, including stock reconciliation procedures, must also comply with the Hazardous Substances and New Organisms Act 1996 and any regulations or codes of practice approved under that Act
2. This rule does not authorise the discharge of a specified hazardous substance.

**Decision WQLV6.1** In Rule WQL48 amend condition 1(f) as follows

“(f) On land in the Christchurch Groundwater Protection Zone 1, or ~~Sub-Zone~~ 1A, 1B, 1C, or 1D, or Zone 2 as shown on the Map Volume Part 1- Planning Maps.”

**Decision WQLV6.1** In Rule WQL48 amend Activity 2 as follows:

“2. ...conditions 1(a) to 1(d) or condition 1(f) of this....”

**Decision WQLV6.1** In Rule WQL48 amend Activity 3 as follows:

“3. ...with Condition 1(e) ~~or 1(f)~~ of this....”

**Decision WQLV6.1** In Rule WQL48, delete the Cross reference to Policies WQL13 and 14

**Decision WQLV6.1** In Rule WQL51 amend condition 1(b) as follows

“(b) ...System including the Christchurch Groundwater Protection Zone 3 as shown...”

**Decision WQLV6.1** In Rule WQL51, amend condition 1(c) as follows:

“(c) in the Christchurch Groundwater Protection Zone 1, or ~~Sub-Zone 1A, 1B, 1C or 1D~~ or Zone 2 as shown on the Map Volume Part 1- Planning Maps;”

**Decision WQLV6.1** In Rule WQL52 delete Activity 2 as follows:

~~“2. the Christchurch Groundwater Protection Zone 1, or Sub-Zones 1A, 1B, 1C, or 1D, or Zone 2 as shown on the Map Volume Part 1- Planning Maps; or”~~

**Decision WQLV6.1** In Rule WQL52, delete the Cross reference to Policies WQL13 and 14

**Decision WQLV6.32, WQLV6.70** Delete Rule WQL55.

**Decision WQLV6.1** In Rule WQL59 delete Activity (a) as follows:

~~“(a) Condition 2 of Rule WQL44 and is located in Christchurch Groundwater Protection Zone 1 as shown on the Map Volume Part 1- Planning Maps”~~

**Decision WQLV6.1 and WQLV6.75** In Rule WQL62 delete Activity 6, 7 and 8 as follows:

~~“6. The use of land for mineral extraction in Christchurch Groundwater Protection Zone 1 or Sub-Zones 1A, 1C or 1D as shown on the Map Volume Part 1- Planning Maps.~~

~~7. The use of land in Christchurch Groundwater Protection Sub-Zone 1A as shown on the Map Volume Part 1- Planning Maps to use, including store in a container or transport through a pipe, any of the following substances:~~

~~(i) petroleum hydrocarbon products, including those for cooling purposes, but excluding liquefied petroleum gas,~~

~~(ii) chlorinated hydrocarbons,~~

~~(iii) agrichemicals,~~

~~(iv) timber preservatives, or~~

~~(v) any other substance containing, arsenic, cadmium, chromium, cyanide, lead, mercury, nickel, or selenium;~~

~~where that substance is a hazardous substance and is classified under the Hazardous Substances and New Organisms Act 1993 with an ecotoxicity classification of 9.1A, or 9.1B, or 9.1C;~~

~~that does not comply with the condition 1 of Rule WQL 55, unless prohibited by Rule WQL66~~

~~8. The use of land in Christchurch Groundwater Protection Sub-Zone 1B as shown on the Map Volume Part 1- Planning Maps to use, including store in a container or transport through a pipe, any of the following substances:~~

~~(i) petroleum hydrocarbon products, including those for cooling purposes, but excluding liquefied petroleum gas,~~

~~(ii) chlorinated hydrocarbons,~~

~~(iii) agrichemicals,~~

~~(iv) timber preservatives, or~~

~~(v) any other substance containing, arsenic, cadmium, chromium, cyanide, lead, mercury, nickel, or selenium;~~

~~where that substance is a hazardous substance and is classified under the Hazardous Substances and New Organisms Act 1993 with an ecotoxicity classification of 9.1A, or 9.1B, or 9.1C;~~

~~that does not comply with Condition 3 of Rule WQL 44, unless prohibited by Rule WQL66”~~

**Decision WQLV6.1** In Rule WQL62, delete the Cross reference to Policies WQL13 to 21

**Decision WQLV6.76** Delete Rule WQL63.

**Decision WQLV6.77** Delete Rule WQL64.

**Decision WQLV6.79** Delete Rule WQL65.

**Decision WQLV6.80** Delete Rule WQL66.

**Decision WQLV6.32** In the Explanation for Rule WQL5, delete the last paragraph as follows:  
“Condition 10 prevents discharges occurring as a permitted activity in Christchurch Groundwater Protection Zone 1, or Sub-Zones 1B or 1D (but excluding Sub-Zones 1A and 1C), except for roof stormwater discharged in accordance with Condition 2—discharges in Sub-Zones 1A or 1C are controlled by Rule WQL7. Discharges of stormwater potentially threaten groundwater quality, and including by increasing the risk that contaminants enter the groundwater system.”

**Decision WQLV6.32** In the Explanation for Rule WQL7, amend the second paragraph as follows:  
“...Condition 4 prevents the discharge occurring within specific areas of the Christchurch Groundwater Protection ~~Sub-Zone 1,~~ 1A, 1B, 1C, 1D or ~~Sub-Zone 2~~ as these...”

**Decision WQLV6.70** In the Explanation for Rule WQL7, amend the third paragraph as follows:  
“...Christchurch Groundwater Protection ~~Sub-Zone 1,~~ 1A, 1B, 1C, or 1D or 2 is managed under Rule ~~WQL55~~ as a discretionary activity...”

**Decision WQLV6.1** In the Explanation for Rule WQL8, amend the eighth paragraph as follows:  
“...Christchurch Groundwater Protection Zone 1, ~~Sub-Zones 1A, 1B, 1C, or 1D,~~ or Zone 2...”

**Decision WQLV6.1** In the Explanation for Rule WQL23, amend the seventh paragraph as follows:  
“...Christchurch Groundwater Protection Zone 1, ~~Sub-Zones 1A, 1B, 1C, or 1D,~~ or Zone 2 no new or unauthorised offal pits or refuse pits are allowed as of right after 4 August 2007 the rule becomes operative. (Condition 9). ...”

**Decision WQLV6.1** In the Explanation for Rule WQL24, amend the second paragraph as follows:  
“Christchurch Groundwater Protection Zone 1, ~~Sub-Zones 1A 1B, 1C or 1D~~ or Zone 2”

**Decision WQLV6.1** In the Explanation for Rule WQL26, amend the sixth paragraph as follows:  
“...Christchurch Groundwater Protection Zone 1, ~~Sub-Zones 1A 1B, 1C or 1D~~ or Zone 2”

**Decision WQLV6.1** In the Explanation for Rule WQL27, delete part of the explanation in relation to the Christchurch Groundwater Protection zone from the second paragraph as follows:  
“~~The discharge of animal effluent onto land in the Christchurch Groundwater Protection Zone 1, Sub-Zones 1A, 1B, 1C or 1D, or Zone 2 is an activity which, in this area, has the potential to significantly affect the quality of water entering the source of Christchurch’s drinking water. In these zones the activity is to be considered as a discretionary activity, so that all effects of each activity can be considered on a case-by-case basis.~~”

**Decision WQLV6.1** In the Explanation for Rule WQL30, in the second paragraph, delete the text added by Variation 6 as follows:  
“~~in the Christchurch Groundwater Protection Zone 1, Sub-Zone 1A, Sub-Zone 1B, Sub-Zone 1C or Sub-Zone 1D~~”

**Decision WQLV6.1** In the Explanation for Rule WQL31, in the second paragraph, amend as follows:  
“...Christchurch Groundwater Protection Zone 1, ~~Sub-Zone 1A, Sub-Zone 1B, Sub-Zone 1C,~~ or Sub-Zone 1D or Zone 2...”

**Decision WQLV6.1** In the Explanation for Rule WQL36, in the second paragraph, amend as follows:  
“...Christchurch Groundwater Protection Zones 1, 2 and 3, and ~~Sub-Zones 1A, 1B, 1C and 1D~~...”

**Decision WQLV6.1** In the Explanation for Rule WQL40, in the first paragraph, amend as follows:  
“...Christchurch Groundwater Protection Zones 1 and 2 and ~~Sub-Zones 1A, 1C and 1D~~...”

**Decision WQLV6.1** In the Explanation for Rule WQL42, in the third paragraph delete the text added by Variation 6 as follows:  
“~~(Christchurch Groundwater Protection Sub-Zone 1C).~~...~~(Christchurch Groundwater Protection Sub-Zone 1B)~~”

**Decision WQLV6.1** In the Explanation for Rule WQL43, delete the sentence in the third paragraph that relates to the Christchurch Groundwater Protection Zone as follows:

~~“The establishment of new facilities that use of large quantities of hazardous substances in the Christchurch Groundwater Protection Zone 1, Sub-Zones 1A, 1B, 1C or 1D are not compatible with protection of groundwater quality in this area.”~~

**Decision WQLV6.1** In the Explanation for Rule WQL43, in the fifth paragraph delete the text added by Variation 6 as follows:

~~“This is particularly so for the more vulnerable areas of the groundwater system, namely Christchurch Groundwater Protection Zone 1, Sub-Zones 1A, 1B, 1C or 1D, or Zone 2.”~~

**Decision WQLV6.137** In the Explanation for Rule WQL44, delete the sentence in the third paragraph that relates to the Christchurch Groundwater Protection Zone as follows:

~~“The establishment of new facilities that use of large quantities of hazardous substances in the Christchurch Groundwater Protection Zone 1 or Sub-Zones 1A, 1B, 1C or 1D are not compatible with protection of groundwater quality in this area.”~~

**Decision WQLV6.137** Add the following Explanations for new Rule WQLZZ and YY

**“Rule WQLZZ Decommissioning of an underground container that has stored a specified hazardous substance**

The removal of an underground container is encouraged through making the activity permitted. Old tanks are more likely to be leaky, and their removal should be standard practice. The conditions only require informing the Council of the removal of a tank and supplying information of environmental sampling to check that there is no contamination of soils or water underlying the site. Even if there is contamination, the conditions acknowledge that cleanup will be necessary and that this needs to be recorded by the Council. It is anticipated that most situations will be permitted activities, and it will only be those where good practice is not undertaken that a resource consent will be required. This provides the Council with a measure of assurance that if there is contamination then it will be properly addressed.

The requirement for notification of details as to end location of decommissioned containers and contaminated materials removed is relevant to ensure they do not merely shift location within the Christchurch Groundwater System. The same applies to the relevance of methods and materials to be used in re-instatement.

**Rule WQLYY Use of land to store a specified hazardous substance**

The Canterbury Regional Policy Statement (CRPS) specifically identifies a number of hazardous substances over which Environment Canterbury, rather than district councils, retains responsibility in respect of the control of the use of land to prevent or mitigate adverse effects on water quality from the storage, use, disposal, or transportation through a pipe. The Hazardous Substances and New Organisms legislation (HSNO) also applies to hazardous facilities and substances. However, HSNO does not deal with site specific matters; it sets minimum national standards. Consequently it is the responsibility of local authorities under the RMA to determine how the hazardous substances should be controlled in particular locations. Therefore it is appropriate to control the location, use and storage of hazardous substances in areas that are vulnerable to activities on the land surface or where the consequences of contamination significant. Reliance is placed on HSNO to ensure structural integrity and stock reconciliation.

The storage of hazardous substances, particularly hydrocarbons such as petrol and diesel, frequently occurs in tanks which are fully or partially buried. In Canterbury, this is often in areas where groundwater is present in unconfined or semi-confined aquifers, or over confined aquifers where the surface confining sediments may be relatively thin or the upwards groundwater pressure is not always present. In these circumstances, there is little natural protection preventing the contents of a leaking tank from entering groundwater. These contaminants are toxic and may persist in groundwater for considerable time, affecting wide areas of aquifers used for drinking water. Hazardous substances may affect the quality of the drinking water at very low concentrations, causing the water to be unpalatable or unsafe for consumption.

The purpose of the rule is to authorise, as a permitted activity, existing underground storage containers as long as they are not altered other than repaired (conditions 1 and 5). The contents of a container are to be regularly monitored in accordance with HSNO, and if there is any leakage then the Council is to be informed (conditions 2, 3, and 4).

Small quantities of hazardous substances, including portable containers, pose a relatively small risk to vulnerable water sources as long as there is careful siting and appropriate construction, mitigation measures, monitoring and spill containment and cleanup facilities. The rule authorises, as a permitted activity, the storage of such small quantities (conditions 6, 7, and 9). The Schedule WQLZZ sets out the quantity thresholds for different substances that pose relatively small risk of adverse effects.

Large quantities of hazardous substances pose a high risk of adverse effects to vulnerable water sources. Such quantities would be associated with significant storage, such as commercial and industrial enterprises. The Schedule WQLZZ sets out the quantity thresholds, and the Condition 8 identifies those areas where water is at risk from adverse effects. Because of the general high risk of such adverse effects, the rule requires a resource consent as a restricted discretionary activity. However, in those areas where water is vulnerable, the rule classifies the activity as a non-complying activity.

The activity status for certain areas is in recognition of the significant risk of adverse effects to vulnerable water, e.g. over the unconfined aquifer recharge zone of the Christchurch groundwater system. It is anticipated that locating activities which might cause significant adverse effects in these areas would not obtain consent without extraordinary mitigation measures. However, it is considered that the risk of adverse effects is too great to allow activities in the vicinity of a bore used for public drinking water supply. Except for regionally and nationally significant infrastructure the rule classifies such activities as prohibited.

**Decision WQLV6.1** In the Explanation for Rule WQL51, in the first paragraph, amend as follows:  
 "...Christchurch Groundwater Protection Zone 1, ~~Sub-~~ Zones 1A, 1B, 1C or 1D, or Zone 2..."

**Decision WQLV6.137** In the Explanation for Rule WQL52, delete text relating to the Christchurch Groundwater Protection Zone as follows:  
 "...System, ~~the Christchurch Groundwater Protection Zone 1, Sub-Zones 1A, 1B, 1C and 1D, or Zone 2 and...~~"

**Decision WQLV6.70, WQLV6.77, WQLV6.79 and WQLV6.80** Delete the Explanation for Rules WQL55, WQL63, WQL64, WQL65 and WQL66.

**Decision WQLV6.85** In Environmental Result WQL9 amend (d) as follows:  
 "(d) The water quality of the Christchurch Groundwater System is maintained in its overall current state or improved, ~~and w~~Where there is localised contamination water quality is improved to the extent consistent with the overall ambient state by addressing the source of the contamination."

**Decision WQLV6.1** In Table WQL13, under 'Monitoring' frequency for 'permitted activities' amend text as follows:  
 "...Christchurch Groundwater Protection Zone 1, ~~Sub-~~ zones 1A, 1B, 1C or 1D, or Zone 2..."

**Decision WQLV6.87** Delete Appendix WQL2 and Schedule 4 as added by Variation 6.

**Decision WQLV6.87, WQLV6.88 and WQLV6.89** Add a new Schedule for Activities or industries that use or store hazardous substances in the Christchurch Groundwater Protection Zones, as follows:  
"Excluding those activities and any related transfer, tracking or handling of materials that take place totally within the confines of a building. Also excluding those premises that are exclusively retail premises

<b>Description of activity or industry</b>
<u>Abrasive blasting – carried out at any one site more than once in any one month period.</u>
<u>Acid/alkali plant, formulation and bulk storage.</u>
<u>Asphalt or bitumen manufacture or bulk storage – manufacturing asphalt or bitumen, or bulk storage of these products, (excludes single-use site used by a mobile asphalt plant).</u>
<u>Battery manufacture or recycling – assembling, disassembling, manufacturing or recycling batteries</u>
<u>Brake lining manufacturers, repairers and recyclers. (excludes mobile machining operations provided all work is carried out undercover)</u>
<u>Coal and coke storage yards that are uncovered or exposed to stormwater</u>
<u>Concrete or Cement manufacture and bulk cement storage, including washing activities and waste storage from manufacturing processes.</u>

Description of activity or industry
<u>Dairy products processing and the bulk storage of dairy products</u>
<u>Drum and tank reconditioning or recycling including drum or tank washing or decontamination and repainting of drums or tanks.</u>
<u>Dry cleaning premises - where dry cleaning is carried out and solvents or petroleum based fuels are stored or used.</u>
<u>Electrical transformers containing oil – manufacture, use, repair or disposal of electrical transformers or other heavy electrical equipment.</u>
<u>Electronics manufacturing</u>
<u>Engine or radiator manufacture or reconditioning workshops, maintenance and servicing of transport plant, engines, railway workshops</u>
<u>Fertiliser (includes inorganic and agricultural) manufacture or bulk storage excluding storage on production land.</u>
<u>Furniture and wood product manufacturing premises (excluding those with solely internally housed conveying and collection systems)</u>
<u>Lime processing – manufacturing or processing lime from limestone material using a kiln and storing wastes from the manufacturing process.</u>
<u>Manufacture of paper and paper products</u>
<u>Manufacture, formulation and bulk storage of chemicals.</u>
<u>Metal recovery or recycling premises and automotive dismantling premises</u>
<u>Metal treatment or coating – including smelting or refining, commercial production of metal products – fusing or melting metalliferous ores or polishing, anodising, galvanising, pickling, electroplating, heat treatment using cyanide compounds and finishing.</u>
<u>Mining and extractive industries and mineral processing – including chemically or physically extracting metalliferous ores, storage hazardous wastes, including waste dumps and tailings dams, excluding gravel extraction and gravel processing plants.</u>
<u>Paint manufacture, formulation and storage</u>
<u>Pesticide and agrichemical manufacture (including animal poisons, insecticides, fungicides and herbicides) and storage, or formulating proprietary pesticides or the associated use of premises for filling and washing out tanks or equipment or vehicle washing.</u>
<u>Petroleum, petroleum hydrocarbon or petrochemical industries or storage, including oil production and operating a petroleum depot, terminal, blending plant or refinery, retail or commercial refuelling facility, and facilities for recovery, reprocessing or recycling petroleum based materials and bulk storage above and below ground (excluding liquid petroleum gas storage)</u>
<u>Plastic or rubber manufacture, recycling or reconstituting.</u>
<u>Printing – commercial printing, using metal type, inks and dyes, or solvents.</u>
<u>Tannery, fellmongery or hide curing, wool scouring or washing or commercially finishing leather.</u>
<u>Vehicle/ truck washing facilities including car washes and valet services</u>
<u>Waste management sites-municipal sites and sites used to store, collect and dispose of waste including land disposal of waste (excludes the use of bio solids as soil conditioners)</u>
<u>Water blasting on a commercial basis but excluding that carried out on dwellings.</u>
<u>Wood processing, treatment or preservation or bulk storage of treated timber.</u>

Any activity where greater than the following aggregate quantities of hazardous substances specified in Schedule 4 of the Hazardous substance (Emergency Management) Regulations 2001 are stored in external areas that are exposed to stormwater

<b><u>Toxicity Classification</u></b>	<b><u>Liquid Value</u></b>	<b><u>Solid Weight</u></b>
<u>6.1a, 6.1b, 9.1a, 9.2a, 9.3a, 9.4a</u>	<u>100L</u>	<u>100kg</u>
<u>6.7a 9.1b, 9.2b, 9.3b, 9.4b 9.1c, 9.2c, 9.3c, 9.4c</u>	<u>1000L</u>	<u>1000kg</u>
<u>6.6a, 6.7b, 6.8a, 6.9a 9.1d, 9.2d</u>	<u>10,000L</u>	<u>10,000kg</u>

**Decision WQLV6.88** Delete text added to Schedule WQL3 by Variation 6 as follows.

~~“Except that for the purposes of Rule WQL65 Use of land within the Christchurch Groundwater Protection Zone1 – prohibited activity, the following activities of industries shall be excluded from the above table:~~

Description of activity or industry
Livestock dip or spray race operations
Market gardens, orchards, glass houses used for commercial horticulture

”

Decision WQLV6.89 Delete Schedule WQL3A as follows.

**~~“Schedule WQL3A: Activities or industries that use or store hazardous substances in Sub-Zone 1A or Sub-Zone 1B of the Christchurch Groundwater Protection Zone~~**

Description of activity or industry
Asphalt or bitumen manufacture or bulk storage — manufacturing asphalt or bitumen, or bulk storage of these products, (excludes single-use site used by a mobile asphalt plant).
Battery manufacture or recycling — assembling, disassembling, manufacturing or recycling batteries (excludes sites used to store batteries for retail sale).
Drum and tank reconditioning or recycling.
Dry cleaning plants — where dry cleaning is carried out and solvents are stored.
Electrical transformers — manufacture, use, repair or disposal of electrical transformers or other heavy electrical equipment.
Inorganic fertiliser manufacture — manufacturing or bulk storage of agriculture fertiliser.
Smelting or refining, commercial production of metal products — fusing or melting metalliferous ores or refining the metal.
Gasworks — manufacture of town gas from coal or oil feedstocks.
Landfill sites
Metal treatment or coating — including polishing, anodising, galvanising, pickling, electroplating, heat treatment using cyanide compounds and finishing, curing works or commercially finishing leather.
Workshops, maintenance and servicing of transport plant, engines, railway workshops
Pesticide manufacture (including animal poisons, insecticides, fungicides and herbicides) — commercially manufacturing, or formulating proprietary pesticides.
Petroleum or petrochemical industries or storage, including oil production and operating a petroleum depot, terminal, blending plant or refinery, and facilities for recovery, reprocessing or recycling petroleum-based materials and bulk storage above and below ground.
Scrap yards — including automotive dismantling or wrecking yard or scrap metal yard.
Tannery, fellmongery or hide curing, wool scouring or washing or commercially finishing leather.
Sites used to store, collect, and dispose of waste including land disposal of wastes, but not the use of biosolids as soil conditioners.
Wood processing and treatment and preservation and bulk storage of treated timber.

“

Decision WQLV6.137 and WQLV61.39 Add new Schedule WQLZZ as follows:

**Schedule WQLZZ Aggregate quantities of specified substances for Rule WQLYY**

<u>Substance Category</u>	<u>Description</u>	<u>Threshold 1</u>	<u>Threshold 2</u>	<u>Examples</u>

<p><b><u>Group 1</u></b></p>	<p><u>Any of the following hazardous substances that has a Hazardous Substances and New Organisms Act 1996 (HSNO) classification of 9.1A:</u></p> <p>(a) <u>petroleum hydrocarbon<sup>1</sup>,</u></p> <p>(b) <u>chlorinated hydrocarbon,</u></p> <p>(c) <u>pesticide,</u></p> <p>(d) <u>timber preservative, or</u></p> <p>(e) <u>a substance containing arsenic, cadmium, chromium, cyanide, lead, mercury, nickel or selenium.</u></p>	<p><u>50L (liquid)</u></p> <p><u>50kg (solid)</u></p>	<p><u>500L (liquid)</u></p> <p><u>500kg (solid)</u></p>	<p><u>1080 stock solution</u></p> <p><u>Copper Chrome Arsenate (CCA), timber treatment chemicals.</u></p>
<p><b><u>Group 2</u></b></p>	<p><u>Any of the following hazardous substances not included in Group 1:</u></p> <p>(a) <u>petroleum hydrocarbon,</u></p> <p>(b) <u>chlorinated hydrocarbon,</u></p> <p>(c) <u>pesticide,</u></p> <p>(d) <u>timber preservative, or</u></p> <p>(e) <u>a substance containing arsenic, cadmium, chromium, cyanide, lead, mercury, nickel</u></p>	<p><u>200L (liquid)</u></p> <p><u>200kg (solid)</u></p>	<p><u>5000L (liquid)</u></p> <p><u>5000kg (solid)</u></p>	<p><u>Petrol, diesel, toluene, benzene, 1080 pellets, waste oil, waste solvent, de-registered agrichemicals</u></p> <p><u>Nitric acid, chromium (III) salt</u></p>

<sup>1</sup> As at 31 December 2009 there were no petroleum hydrocarbons in New Zealand with HSNO classification of 9.1A.

	<u>or selenium.</u>			
<b>Group 3</b>	<p><u>Any of the following hazardous substances which is not identified or is not labelled:</u></p> <p>(a) <u>petroleum hydrocarbon,</u></p> <p>(b) <u>chlorinated hydrocarbon,</u></p> <p>(c) <u>pesticide,</u></p> <p>(d) <u>timber preservative, or</u></p> <p>(e) <u>a substance containing arsenic, cadmium, chromium, cyanide, lead, mercury, nickel or selenium.</u></p>	<p><u>5L (liquid)</u></p> <p><u>5kg (solid)</u></p>	<p><u>50L (liquid)</u></p> <p><u>50kg (solid)</u></p>	<u>Unidentified chemicals</u>

**Decision WQLV6.70** In Information to be provided 4.7.3.1 amend the title and the first paragraph as follows.

**“4.7.3.2 Management plan for a stormwater discharge under Regional Rules WQL7 or WQL55**

In addition to the general information outlined in Sections 1.3.4, 4.7.1. and 4.7.2, where relevant, an application for a stormwater discharge under Regional Rules WQL7 or WQL55 shall include a management plan which contains the following information:”