Plan Change 4A (Groundwater and North Otago Volcanic Aquifer)

Regional Plan: Water for Otago

Otago Regional Council

1 March 2012
ISBN 978-0-478-37623-4

This is a true and correct copy of Plan Change 4A to the Regional Plan: Water for Otago which was approved by the resolution of the Otago Regional Council on Wednesday, 8 February 2012.

Plan Change 4A to the Regional Plan: Water is deemed to be operative on Thursday, 1 March 2012.

The Common Seal of the Otago Regional Council was hereto affixed pursuant to the resolution of the Council passed on Wednesday, 8 February 2012 in the presence of:

OTAGO REGIONAL COUNCIL
Common Seal

Stephen Woodhead
Chairperson

Graeme Martin
Chief Executive

Introduction

Plan Change 4A (Groundwater and North Otago Volcanic Aquifer) to the Regional Plan: Water for Otago (Water Plan) improves groundwater management, with focus on the North Otago Volcanic Aquifer. The boundaries of the North Otago Volcanic Aquifer are extended, a maximum allocation volume set, seawater intrusion management area established, and existing restriction levels amended. The groundwater management framework of the Water Plan was amended to clarify matters related to implementing the maximum allocation volume and restriction levels, and avoiding aquifer contamination. Permitted activity rules for taking groundwater are simplified and streamlined, and the Mosgiel and Clydevale-Pomahaka water supplies are included in Schedule 3B (groundwater takes used for community supply).

Plan Change 4A (Groundwater and North Otago Volcanic Aquifer) was notified on Saturday 18 September 2010, and submissions closed on Monday 18 October 2010. A total of nine submissions (including two late submissions) were received. The summary of decisions requested and call for further submissions was notified on Saturday 13 November 2010, and two further submissions were made by the Friday 26 November 2010 closing date.

Four submitters made presentations to the Hearing Committee on Monday 13 June 2011, in Dunedin.

On 14 September 2011, Council made its decision on Plan Change 4A (Groundwater and North Otago Volcanic Aquifer). This decision was publicly notified on 24 September 2011.

No appeals were received, so it was approved by Otago Regional Council on 8 February 2012. Plan Change 4A (Groundwater and North Otago Volcanic Aquifer) is operative on 1 March 2012.

The following sections detail the operative provisions of Plan Change 4A (Groundwater and North Otago Volcanic Aquifer) in order of chapters in the Regional Plan: Water for Otago. Note that where changes are made to the same provisions by Plan Change 1C (Water Allocation and Use), the Plan Change 1C changes are shown, as both plan changes become operative on 1 March 2012. An updated version of the operative Regional Plan: Water, incorporating both plan changes, is also available.

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Regional Plan: Water, as amended by Plan Change 4A:

Chronicle of Key Events

Key event	Date notified	Date decisions released	Date operative
Regional Plan: Water	28 February 1998	7 July 2000	1 January 2004
Variation No. 1 to the Regional Plan: Water	3 October 1998	7 July 2000	1 January 2004
Waitaki Catchment Water Allocation Regional Plan	19 February 2005	30 September 2005	3 July 2006
Plan Change 1A to the Regional Plan: Water	17 August 2005	1 April 2006	1 August 2006
Plan Change 1B (Minimum Flows) to the Regional Plan: Water	20 December 2008	31 October 2009	1 March 2010
Plan Change 3A (Minimum Flow for Taieri River at Tiroiti) to the Regional Plan: Water	26 June 2010	8 December 2010	1 May 2011
Amendment 1 (NPS Freshwater Management) to the Regional Plan: Water	24 June 2011	24 June 2011	1 July 2011
Plan Change 1C (Water Allocation and Use) to the Regional Plan: Water	20 December 2008	10 April 2010	1 March 2012
Plan Change 4A (Groundwater and North Otago Volcanic Aquifer) to the Regional Plan: Water	18 September 2010	24 September 2011	1 March 2012

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Introduction

1.1 to **1.3** *[No change]*

1.4 Process of Plan preparation

A number of legal instruments, which were operative in Otago on 1 October 1991 (when the Resource Management Act came into force), formed rules in the Transitional Regional Plan, constituted by Section 368 of the Resource Management Act. Some of these rules related to water and water bodies, and comprised notices, authorisations, bylaws, determinations and resolutions. This Regional Plan: Water was prepared to partly supersede the Transitional Regional Plan, thus the transitional rules which related to water were deleted when this Plan became operative. The rules deleted, and any replacement provisions, are listed in Schedule 13.

In developing this Regional Plan: Water, the Otago Regional Council consulted with a variety of individuals, groups and agencies.

Following preliminary consultation, a Consultative Draft of the Regional Plan: Water, was released in September 1996. Over 70 meetings were held throughout Otago to introduce and explain the Consultative Draft, and it attracted written comments from 110 individuals and groups representing a wide range of interests. This feedback was used to further refine the provisions of the Plan. Background reports were compiled which provided additional information about aspects of Otago's water resources. These reports remain available from the Otago Regional Council:

- Background Report 1: Water Quantity
- Background Report 2: Water Quality
- Background Report 3: Groundwater
- Background Report 4: Significant Wetlands
- Background Report 5: Resource Description
- Background Report 6: Kakanui Catchment Water Resource Investigations

The Proposed Regional Plan: Water for Otago was notified on 28 February 1998, in accordance with the requirements of the First Schedule of the Resource Management Act 1991. Submissions were received from 280 individuals and groups, followed by 64 further submissions. Many submitters spoke at the 18 public hearings held in Dunedin, Alexandra, Oamaru and Balclutha between 17 August 1998 and 9 November 1998.

Proposed Variation No.1 was notified on 3 October 1998, to manage the construction, reconstruction or modification of defences against water built for the purpose of flood mitigation. Ten submissions and five further submissions were received.

Following the hearings and the consideration of evidence, decisions on the submissions received on both the Proposed Regional Plan: Water and the Proposed Variation No.1 were released on 7 July 2000. Several organisations and individuals made references (appeals) to the Environment Court regarding the decisions. The 171

reference points were resolved by negotiated agreements and Court decisions in the period up to 4 July 2003. These changes were incorporated into the Plan and the Plan made operative.

Proposed Plan Change 1A was notified on 17 August 2005 to make miscellaneous amendments consequential to recent changes to the Resource Management Act and other minor changes. Four submissions and one further submission were received. Following the hearing, decisions on the submissions received were released on 1 April 2006. Plan Change 1A was made operative on 1 August 2006.

On 3 July 2006, the Waitaki Catchment Water Allocation Regional Plan became operative and added new provisions to this Plan.

Proposed Plan Change 1B was notified on 20 December 2008 to set minimum flows and primary allocation limits for the Luggate, Trotters and Waianakarua catchments in Schedule 2A, and to include Schedule 2D outlining matters for consideration when setting minimum flows and primary allocation limits. A total of 71 submissions and six further submissions were received. Following the hearing, decisions on the submissions received were released on 31 October 2009. Plan Change 1B was made operative on 1 March 2010.

Proposed Plan Change 3A (Minimum Flow for Taieri River at Tiroiti) was notified on 26 June 2010 to introduce an additional minimum flow monitoring site at Tiroiti. A total of six submissions and two further submissions were received. Following the hearing, decisions on the submissions received were released on 8 December 2010. Plan Change 3A (Minimum Flow for Taieri River at Tiroiti) was made operative on 1 May 2011.

Proposed Plan Change 1C (Water Allocation and Use) was notified on 20 December 2008 to improve the overall effectiveness with which limited water resources are used, enabling the community to go forward and benefit from future opportunities to use water. Fifty-nine submissions and fifteen further submissions were received. Following the hearing, decisions on the submissions received were released on 10 April 2010. Plan Change 1C (Water Allocation and Use) was made operative on 1 March 2012.

Proposed Plan Change 4A builds on the groundwater management system of taking water within a maximum allocation volume, established under Proposed Plan Change 1C (Water Allocation and Use), with focus on the North Otago Volcanic Aquifer. It was notified on Saturday 18 September 2010, and a total of nine submissions and two further submissions were received. Following the hearing, decisions on submissions received were released on 24 September 2011. Plan Change 4A was made operative on 1 March 2012.

1.4.1 *[No change]*

1.5 *[No change]*

3

Regional Description

3.1 to **3.2** *[No change]*

3.3 Subregions of Otago

Figure 3 *[No change]*

3.3.1 North Otago Subregion

The North Otago subregion extends from the Waitaki River in the north to the Pleasant River in the south and includes the catchments of the Shag, Waianakarua and Kakanui Rivers. These and other catchments in the subregion are naturally subject to low flows, particularly between November and April, due primarily to climatic factors.

North Otago is not as dry as some inland areas but still experiences a relatively low rainfall. Rainfall varies from less than 600 mm per annum near Oamaru, to in excess of 1000 mm per annum in the Kakanui Mountains. The majority of the coastal downlands have rainfalls in the order of 600 to 700 mm per annum.

The subregion's most highly used aquifers are:

- Lower Waitaki Plains Aquifer;
- Papakaio Aquifer;
- North Otago Volcanic Aquifer;
- Kakanui-Kauru Alluvium Aquifer; and
- Shag Alluvium Aquifer.

3.3.2 to **3.3.10** *[No change]*

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Water Quantity

6.1 Introduction *[No change]*

6.2 Issues

6.2.1 *[No change]*

6.2.1A The taking of water from Otago's aquifers can lead to:

(a) Long term depletion of groundwater levels and water storage volume; and
(b) Loss of artesian conditions; and
(c) Short and long term depletion of surface water; and
(d) Contamination of groundwater or surface water resources; and
(e) Aquifer compaction.

Explanation
When groundwater is taken for consumptive use from the aquifer in quantities greater than it is being replaced by aquifer recharge, long term and potentially irreversible adverse effects can occur.

6.2.2 to **6.2.8** *[No change]*

6.3 Objectives *[No change]*

6.4 Policies applying to the management of the taking of water

Index to policies in 6.4

Integrated Water Management

6.4.0 to **6.4.1** *[No change]*

6.4.1A A groundwater take is allocated as:

(a) Surface water, subject to a minimum flow, if the take is from any aquifer in Schedule 2C; or

(b) Surface water, subject to a minimum flow, if the take is within 100 metres of any connected perennial surface water body; or

(c) Groundwater and part surface water if the take is 100 metres or more from any connected perennial surface water body, and depletes that water body most affected by at least 5 litres per second as determined by Schedule 5A; or

(d) Groundwater if (a), (b) and (c) do not apply.

Explanation

Most aquifers share a hydrological connection with adjoining surface water bodies. The degree of connection varies in significance, and this is reflected in the four ways of managing groundwater allocations. Some aquifers are identified on Maps C1-C17. Where the maps show aquifers overlapping, the Council will identify which aquifer the groundwater is to be taken from (e.g. from borelogs or water chemistry analyses).

(a) Schedule 2C

Surface water controls apply to takes from Schedule 2C aquifers because there is a close hydrological connection with the adjoining surface water bodies. These controls best manage the environmental effects of such takes.

(b) Take is within 100 metres

In some instances the degree of hydrological connection is sufficiently significant that a take of groundwater causes a depletion effect on surface water, as described in Schedule 5A. Therefore, surface water controls are imposed for groundwater takes that occur within 100 metres of a connected perennial surface water body because those takes have a direct effect on the surface water body.

(c) Take is from 100 metres or more, and depletes surface water by at least 5 litres per second

A dual water allocation regime applies under (c) if a groundwater take produces a surface water depletion of 5 litres per second or more. This regime recognises the effect of groundwater takes by allocating the full quantity of take against the aquifer allocation. It is important that the allocation is not allocated again to another groundwater taker.

This regime also recognises the effect of surface water depletion, which can occur immediately or time delayed, by allocating a portion of the take determined using the equations set out in Schedule 5A against the surface water allocation. Therefore, the quantity of water which depletes surface water must not be allocated again to any other water take (whether of surface water or groundwater).

Surface water minimum flow restrictions are not imposed under (c) because they would not immediately alleviate low surface water flow.

(d) All other groundwater

Certain factors reduce the connection between aquifer and surface water body to a degree that surface water depletion effects are below the threshold level of 5 litres per second. These typically include:

(i) The bed of the surface water body is impermeable; or
(ii) The surface water body is ephemeral and only conveys water in periods of high runoff; or
(iii) The groundwater is separated from the underlying water table by an unsaturated zone that inhibits connection to aquifer's water table; or
(iv) The groundwater system has very low permeability; or
(v) The groundwater system has very steep gradients or perched water tables adjacent to the surface water body boundaries; or
(vi) The bore or well screen is sufficiently deep to avoid influence on surface water; or
(vii) The bore or well is sufficiently distant from the surface water body to avoid influence on the surface water body.

In these instances water is allocated as groundwater only.

Principal reasons for adopting
This policy is adopted to ensure, when allocating groundwater, that the management is consistent with the management of surface water allocation, where the two resources are closely connected. The policy allows for the sustainable taking of groundwater while avoiding adverse effects, including in particular the matters listed in Policy 5.4.2 and 5.4.3.

6.4.2 to **6.4.7** *[No change]*

6.4.8 Minimum flows required by Policies 6.4.1A, 6.4.3, 6.4.4 or 6.4.6 will not apply to community water supply takes identified in Schedules 1B or 3B.

Explanation
This policy exempts scheduled community water supplies from restriction in terms of the minimum flow requirements of Policies 6.4.1A, 6.4.3, 6.4.4 and 6.4.6.

Community water supply takes beyond primary allocation will be subject to Policy 6.4.9 or 6.4.10 to maintain aquatic ecosystem values.

Principal reasons for adopting
This policy is adopted to enable continued unrestricted operation of Schedule 1B and 3B community water supplies. Human health and safety are dependent on a reasonable supply of water and imposing minimum flows on existing takes may compromise human health and safety unnecessarily. In many instances the community has made a considerable investment in developing infrastructure to supply water, and has undertaken significant development that is dependent on the water supply.

6.4.9 to **6.4.10** *[No change]*

Groundwater Takes

6.4.10A To enable the taking of groundwater by:

(a) In each aquifer other than any in Schedule 2C or within 100 metres of a connected perennial surface water body, defining a quantity known as the *maximum allocation volume*, which is:
- **(i) For aquifers in Schedule 4A, the greater of:**
  - **(1) A limit specified as the maximum allocation volume in Schedule 4A; or**
  - **(2) The sum of assessed maximum annual take for that aquifer at 10 April 2010, less any quantity in a consent where:**
    - **(A) All of the water taken is immediately returned to the aquifer or connected surface water body;**
    - **(B) The consent has been surrendered or has expired (except where the quantity has been granted to the existing consent holder as a new consent;**
    - **(C) The consent has been cancelled (except where the quantity has been transferred to a new consent under Section 136(5));**
    - **(D) The consent has lapsed;**
- **(ii) For aquifers other than those in Schedule 4A, the greater of:**
  - **(1) A limit which is 50% of the calculated mean annual recharge; or**
  - **(2) The sum of maximum annual take for that aquifer at 10 April 2010, less any quantity in a consent where:**
    - **(A) All of the water taken is immediately returned to the aquifer or connected surface water body;**
    - **(B) The consent has been surrendered or has expired (except where the quantity has been granted to the existing consent holder as a new consent;**
    - **(C) The consent has been cancelled (except where the quantity has been transferred to a new consent under Section 136(5));**
    - **(D) The consent has lapsed; and**

(b) In an aquifer other than any in Schedule 2C or within 100 metres of a connected perennial surface water body, applying aquifer restriction levels where specified in Schedule 4B; and

(c) In any aquifer, avoiding contamination of groundwater or surface water; and

(d) In any aquifer, avoiding permanent aquifer compaction.

Explanation

Policy 6.4.1A(a) and (b) provide for the management of connected groundwater as if it were surface water. All water allocated as groundwater in terms of Policy 6.4.1A(c) or (d) needs to be managed for the protection

of aquifers and the maintenance of any long term outflows. The outflows from any aquifer need to be maintained to prevent long term depletion of base flow to surface water bodies and prevent seawater intrusion.

Sustainable allocation of groundwater will be achieved by considering as restricted discretionary activities, those applications where:

(i) The individual take would not cause the cumulative take from the aquifer to exceed 50%[(2)] of the mean annual recharge of the aquifer, or the maximum allocation volume listed in Schedule 4A, unless that take was the subject of a resource consent granted before 10 April 2010; and
(ii) Relevant aquifer restriction levels are met; and
(iii) Aquifer contamination or compaction will be avoided.

For some aquifers identified in Maps C1–C17, maximum allocation volumes are specified in Schedule 4A, where there is sufficient information to set them. Maximum allocation volumes are appropriate for managing the cumulative effects of groundwater takes on long term storage of an aquifer and on outflows to surface water bodies. Matters that will be considered when setting maximum allocation volumes are given in Schedule 4C.1. Significant drawdown effects are addressed under (b) of this policy.

Allocation is available when the assessed maximum annual take is below the limits specified in (a)(i)(1) or (a)(ii)(1) of this policy. Where the assessed maximum annual take reduces below those limits, through surrender, lapse, cancellation or non-replacement on expiry of existing consents, new quantities may be granted. The assessed maximum annual take is calculated using the process outlined in Method 15.8.3.1.

When an existing consent holder applies for a new consent for the same activity, and is able to continue to lawfully exercise the consent under Section 124, that quantity of water retains its status within maximum allocation volume and may be granted to the new consent. Only where the application is approved does the quantity remain within maximum allocation volume.

Note that where the quantity from an existing consent within maximum allocation volume is transferred to a new consent, calculation of the maximum allocation volume in (a)(i)(2) and (a)(ii)(2) of this policy is based on the quantity specified in the new consent.

When the aquifer levels specified in Schedule 4B are reached, the actual taking of water will be restricted as provided for in the Schedule. Restrictions will apply to all consents to take groundwater under Policy 6.4.1A(c) or (d), including those for community water supply specified in Schedule 3B, as well as permitted taking in accordance with Rule 12.2.2.2.

Maps D1–D4 show the Schedule 4B aquifers to which the restrictions apply.

When considering the taking of any groundwater, the adverse effects identified in (c) and (d) of this policy must be avoided.

Principal reasons for adopting
This policy is adopted to ensure that potentially long term or irreversible adverse effects on aquifer properties resulting from taking groundwater are avoided. It is important to achieve this outcome in order to provide for the needs of Otago's present and future generations.

This policy also maintains levels and pressures within identified aquifers. This will assist in achieving the environmental results detailed in Schedule 4B, by avoiding significant reductions.

This policy allows for sustainable taking of groundwater from aquifers, where the take will not have a direct effect on any surface water body, while avoiding adverse effects, including in particular the matters listed in Policies 5.4.2 and 5.4.3. Allocating no more than the limits in the policy ensures the remaining groundwater provides for adequate levels of system outflow.

6.4.10AB To define restriction levels where needed to protect aquifer properties and water storage.

Explanation
Groundwater restriction levels can be useful for protecting an aquifer from over-depletion due to extended periods of low recharge, or in managing localised areas of high demand. They can assist in avoiding land subsidence, aquifer compression, reduced outflows to surface water, and sustaining the life supporting capacity of the aquifer. Near the coast or contaminated sites restrictions can minimise the potential for water quality effects by intrusion.

Restriction levels are listed in Schedule 4B, and new aquifers may be added to the schedule using the plan change process. Schedule 4C.2 provides detail of the matters that may be considered when setting restriction levels.

Principal reasons for adopting
This policy is adopted to enable the taking of groundwater while assisting to maintain groundwater levels and water storage, water quality, aquifer interaction with other water bodies, and avoiding aquifer compression.

6.4.10AC To avoid aquifer contamination by:

(a) Recognising contaminated sites;
(b) Identifying areas vulnerable to seawater intrusion;
(c) Setting maximum allocation volumes;
(d) Setting aquifer restriction levels;
(e) Restricting takes; and
(f) Requiring monitoring of groundwater quality and levels.

Explanation
Lowering groundwater levels through takes near contaminated sites can result in contamination spreading into the aquifer. When groundwater levels are lowered near the coast seawater can intrude inland, and where aquifers are known to be at risk they are identified as "seawater intrusion risk zones" on Maps C1-C17, however all groundwater takes near the coast present some risk.

The maximum allocation volume in Schedule 4A is set to reflect the water from recharge that is available for taking, while avoiding risk of contamination.

Where there is risk of aquifer contamination, a consent holder may be required to monitor groundwater quality and groundwater levels, and the rate, volume, timing and frequency of take may be restricted, to control the degree to which groundwater levels are lowered.

Principal reasons for adopting
This policy is adopted to avoid seawater intrusion into aquifers near the coast, or migration of contaminants from contaminated sites, as a result of taking groundwater. If contaminated, the aquifer's range of uses would be restricted.

6.4.10B to **6.4.10C** *[No change]*

6.4.10D To require that new bores in the Papakaio and Lower Taieri Aquifers are constructed of materials suitable to resist corrosion and in a manner that enables their complete shutdown.

Explanation
This policy establishes requirements for the construction of bores within the Papakaio and Lower Taieri Aquifers. These requirements will enable bores to have an adequate working life, minimise water quality problems associated with corrosion, and control expected artesian conditions. Construction of new bores in these aquifers will require appropriate equipment and expertise. Map C15 shows the location of the Lower Taieri Aquifer. Map C9a shows the Papakaio Aquifer.

Principal reasons for adopting

This policy is adopted to ensure that the construction of bores within the Papakaio and Lower Taieri Aquifers is appropriate for the aquifer conditions. This will protect the supply of water from these aquifers through maintaining both the pressure and the quality of the water as it is delivered by the bore

6.4.10E Unless provision has been made to permanently decommission and seal the bore, to require the structural condition and control mechanisms of all existing bores in the Papakaio and Lower Taieri Aquifers to be certified as being secure against uncontrolled artesian discharge at no more than 5 year intervals.

Explanation
This policy establishes the need to monitor existing bores within the Papakaio and Lower Taieri Aquifers to ensure that they are in sound working order, due to pressure in the aquifer and the corrosive nature of the water. The condition of the bore is considered secure when it is able to resist corrosion and be completely shut down. Map C15 shows the location of the Lower Taieri Aquifer. Map C9a shows the Papakaio Aquifer.

Principal reasons for adopting
This policy is adopted to ensure that there is the facility to safely and effectively control the pressures experienced in the Papakaio and Lower Taieri Aquifers. Such measures will enable compliance with other requirements of this Plan

All Water Takes

6.4.11 to **6.4.21** *[No change]*

6.5 to **6.7** *[No change]*

9

Groundwater

9.1 Introduction *[No change]*

9.2 Issues

9.2.1 to **9.2.4** *[No change]*

9.2.5 Over-use of poor quality groundwater for irrigation may degrade soil resources.

Explanation
Groundwater in certain parts of Otago may be of poor quality. The groundwater of the Waiareka Volcanic Tuff formation (within the western part of the North Otago Volcanic Aquifer), for example, is naturally high in sodium. There is potential for long term degradation of soil health through application of this water for irrigation. While the affected communities are usually aware of this problem and are taking measures to address it, there is a need to evaluate the potential for soil degradation in the granting of any consent to use groundwater for irrigation purposes.

9.3 Objectives *[No change]*

9.4 Policies

9.4.1 to **9.4.21** *[No change]*

9.4.22 *[repealed]*

9.4.23 To support the voluntary efforts of landholders in their management of the effects of poor quality groundwater on irrigated soils.

Explanation
Communities using groundwater for irrigation need to be aware of the potential for soil degradation where that water is of poor quality, and manage their irrigation accordingly.

Principal reasons for adopting
This policy is adopted to ensure appropriate action is taken to avoid reduction of the productive capacity of soil resources for present and future generations, resulting from irrigation using poor quality groundwater.

9.5 Anticipated environmental results *[No change]*

12

Rules: Water Take, Use and Management

12.0 to **12.1** *[No change]*

12.2 The taking and use of groundwater

12.2.1 Prohibited activities: No resource consent will be granted *[No change]*

12.2.2 Permitted activities: No resource consent required

12.2.2.0 *[No change]*

12.2.2.1 The taking and use of groundwater for domestic needs or the needs of animals for drinking water is a ***permitted*** activity providing:

(a) No take is for a volume greater than 25,000 litres per day; and

(b) The taking or use does not have an adverse effect on the environment.

12.2.2.2 Except as provided for by Rules 12.2.1.1 to 12.2.2.1, the taking and use of groundwater is a ***permitted*** activity, providing:

(a) No lawful take of water is adversely affected as a result of the taking; and

(aa) The water is not taken from any aquifer identified in Schedule 2C; and

(ab) The water is not taken from within 100 metres of any wetland, lake or river; and

(b) *[Repealed – 1 March 2012]*

(c) *[Repealed - 1 March 2012]*

(d) The take is for a volume no greater than 50,000 litres per day, at any landholding, from the following aquifers:

(i) Lower Waitaki Plains Groundwater Protection Zone A (as identified on Map C9); and

(ii) Inch Clutha Gravel (as identified on Map C17); and

(e) Except as provided by Condition (d) above, the take is for a volume no greater than 25,000 litres per day, at any landholding, elsewhere in Otago; and

(f) No back-flow of any contaminated water occurs to the aquifer; and

(g) The taking of groundwater is not suspended.

The Otago Regional Council may, by public notice, suspend the taking of water under this rule if the taking of water, under a resource consent has had to cease in accordance with Rule 12.2.3.5, for the aquifer from which the taking of water under this rule is occurring.

12.2.2.3 The taking of groundwater for the purpose of down-hole pump testing is a ***permitted*** activity, providing:

(a) The take does not exceed 2,000,000 litres per day and is carried out for a period of no longer than three consecutive days; and
(b) No lawful take of water is adversely affected as a result of the taking.

12.2.2.4 to 12.2.2.6 *[No change]*

12.2.2.A Controlled activity: Consent required but always granted

12.2.2A.1 The taking and use of groundwater for community water supply, by any take identified in Schedule 3B, up to any volume or rate listed in Schedule 3B, is a ***controlled*** activity.

In granting any resource consent for the taking and use of groundwater in terms of this rule, the Otago Regional Council will restrict the exercise of its control to the following:
(a) The need to observe a restriction level; and
(b) The need for a residual flow at the point of take; and
(c) The rate, volume, timing and frequency of the water to be taken and used; and
(d) The quantity of water required to meet the needs of the community; and
(e) The proposed methods of take and delivery of the water taken; and
(f) The duration of the resource consent; and
(g) The information and monitoring requirements; and
(h) Any bond; and
(i) The review of conditions of the resource consent.

The Consent Authority is precluded from giving public notification and limited notification of an application for a resource consent under this rule.

12.2.3 Restricted discretionary activities: Resource consent required

12.2.3.1 to 12.2.3.3 *[No change]*

12.2.3.4 Restricted discretionary activity considerations
In considering any resource consent for the taking and use of groundwater in terms of Rule 12.2.3.2A, the Otago Regional Council will restrict the exercise of its discretion to the following:
(i) The maximum allocation volume for the aquifer; and
(ii) The mean annual recharge of that aquifer; and
(iii) The effect of the take on the hydrodynamic properties of the aquifer and the vulnerability of the aquifer to compaction

(iv) Whether any part of the take would constitute allocation from any connected perennial surface water body, and the availability of that allocation; and
(v) The rate, volume, timing and frequency of groundwater to be taken and used; and
(vi) The proposed methods of take, delivery and application of the groundwater taken; and
(vii) The source of groundwater available to be taken; and
(viii) The location of the use of the groundwater, when it will be taken out of a local catchment; and
(ix) In the case of takes from an aquifer identified in Schedule 4B, the restriction levels for the aquifer (as identified in that schedule) to be applied to the take of groundwater, if consent is granted; and
(x) The consent being exercised or suspended in accordance with any Council approved rationing regime; and
(xi) Any adverse effect on the existing quality of groundwater in the aquifer; and
(xii) Any irreversible or long term degradation of soils arising from the use of water for irrigation; and
(xiii) Any actual or potential effects on any surface water body; and
(xiv) Any adverse effect on the habitat of any indigenous freshwater fish species that are listed in Schedule 1AA; and
(xv) Any adverse effect on a significant wetland value identified in Schedule 9 or any wetland higher than 800 metres above sea level; and
(xvi) Any financial contribution for Type B wetland values that are adversely affected; and
(xvii) Any adverse effect on any lawful take of water, if consent is granted, including potential bore interference; and
(xviii) Whether the talking of water under a water permit should be restricted to allow the exercise of another water permit; and
(xix) Any arrangement for cooperation with other takers or users; and
(xx) Any water storage facility available for the groundwater taken, and its capacity; and
(xxi) The duration of the resource consent; and
(xxii) The information, monitoring and metering requirements; and
(xxiii) Any bond; and
(xxiv) The review of conditions of the resource consent; and

(xxv) For resource consents in the Waitaki Catchment the matters in (i) to (xxi) above, as well as matters in Policies 6.6A.1 to 6.6A.6.

[Conditions reordered – 1 March 2012]

12.2.3.5 *[No change]*

12.2.4 to **12.2.5** *[No change]*

12.3 to **12.13** *[No change]*

14

Rules: Land Use other than in Lake or River Beds

14.1 *[No change]*

14.2 Drilling

14.2.1 Permitted activities: No resource consent required

14.2.1.1 The drilling of land, other than for the purpose of creating a bore, and other than on the bed of any lake or river, is a ***permitted*** activity providing:

(a) The drilling does not occur on land over an aquifer identified in Maps C1–C17; and

(b) The hole is filled or sealed on completion of the work so that contaminants are prevented from entering the hole at any level.

14.2.2 Controlled activities: Resource consent required but always granted

14.2.2.1 The drilling of land over an aquifer identified in Maps C1–C17, other than for the purpose of creating a bore and other than on the bed of any lake or river, is a ***controlled*** activity.

In granting any resource consent for the drilling of land in terms of this rule, the Otago Regional Council will restrict the exercise of its control to the following:

(a) The potential for contamination of groundwater; and

(b) The location of the drilling; and

(c) The planned depth of the drilling; and

(d) The management of the drill hole on completion; and

(e) The method of drilling; and

(f) The duration of the resource consent; and

(g) The information and monitoring requirements; and

(h) Any bond; and

(i) The review of conditions of the resource consent.

Applications may be considered without notification under Section 93 and without service under Section 94(1) of the Resource Management Act on persons who, in the opinion of the consent authority, may be adversely affected by the activity.

14.2.3 Restricted discretionary activities: Resource consent required *[No change]*

14.3 to **14.4** *[No change]*

15

Methods other than Rules

15.1 to **15.7** *[No change]*

15.8 Methods for calculating allocation and applying minimum flows

15.8.1 to **15.8.2** *[No change]*

15.8.3 Methodology for calculating assessed maximum annual take for groundwater

15.8.3.1 The assessed maximum annual take of groundwater from any aquifer for the purposes of Policy 6.4.10A(a), will be the sum of:

(a) The annual volume specified on consents to take groundwater from that aquifer; and

(b) Where a consent does not specify an annual volume, it is calculated using the instantaneous, daily, weekly or monthly limits specified as shown below:

(i) Except as provided for by (iii) below, where the purpose of use includes irrigation, convert the consent limit as follows:

(1) Where a daily or a monthly limit is specified:

Consent Limit	Purpose of use irrigation
Daily	Multiply by 90
Monthly	Multiply by 6

Note: A 90 day limit is equivalent to irrigating 150 days at 60% of the maximum take rate. A 6 month limit is representative of an annual irrigation season.

Where both limits are specified, use the limit which yields the smaller volume.

(2) Where no daily or monthly limit is specified:

Consent Limit	Purpose of use irrigation
Instantaneous (e.g. litres/second or m^3/hour)	Convert to a daily volume assuming taking of 12 hours per day, and then multiply by 90.
Weekly	Convert to a monthly volume, by multiplying by 4.3, and then multiplying by 6.

Where both limits are specified, use the limit which yields the smaller volume.

(3) If a consent specifically restricts taking over different periods, use the quantity and time limits specified on the consent.

(ii) Where the only purpose of use is frost-fighting, convert any consent limit to a 20 day volume.

(iii) Except as provided for by (i) and (ii), convert the consent limit to a 12-month volume.

less any quantity in a consent where all of the water taken is immediately returned to the aquifer or connected surface water body.

Principal reasons for adopting
This method is adopted to assess the annual volume of take from an aquifer, and so assist in determining the remaining allocation available from an aquifer.

15.9 *[No change]*

16
Information Requirements

16.1 Introduction *[No change]*

16.2 General information required *[No change]*

16.3 Specific information requirements

In addition to the general information required by Section 16.2 above, where the proposed activity involves the following activities, the information listed will be required.

16.3.1 The taking of surface water or groundwater

1. A description of the rate, volume, timing and frequency (including the 7-day take and annual or seasonal volumes) of the proposed take and an assessment of the need for the take.
2. A statement of the intended purpose of use for which the water is to be taken and the location where the water is to be used.
3. A description of the methods of take, delivery, storage (if any) and application to be used.
4. An assessment of the effect of the take on other users of the source water body.

4A. Consideration of the economic, social, environmental and cultural costs and benefits of taking from the water source applied for, over other possible sources, to an extent relative to the scale of the application.

4B. A statement about how, or if, the applicant proposes to work with other water users to meet day-to-day water requirements; and whether there is a water supply scheme in the area.

4C. Evidence of the rate, volume, timing and frequency of water taken under any existing consent, over the preceding 5 years.

4D An outline of the value of the investment of the existing consent holder.

5. In the case of the taking of groundwater, a description of the bore used or to be used.

5A. In the case of the taking of groundwater, affected parties who are those taking from that aquifer, within a radius r of the proposed pumping bore as specified in Schedule 5B.

5B. In the case of the taking of groundwater, results of the aquifer test.

6. In the case of the taking of groundwater, a description of the likely adverse effect on the aquifer or any connected surface water body using the equations given in Schedule 5A of this Plan.
7. In the case of the taking of groundwater for irrigation purposes, a description of the quality of the groundwater where there is likely to be any adverse effect on soils.

8. In the case of any resource consent application for the taking of water under Rule 12.1.5.1 or 12.2.4.1, an assessment of the effects of the activity on:
   (a) The natural and human use values including those identified in Schedule 1 for any affected water body; and
   (b) The natural character of any affected water body; and
   (c) The amenity values supported by any affected water body.

Note: Where the Council already holds this information under the requirements of an existing consent, the applicant may provide a cross-reference to the consent number in relation to which this information is held.

16.3.2 to 1**6.3.13** *[No change]*

16.4 Provision of further information *[No change]*

Schedules

3. Schedule of human use values of Otago's aquifers

Schedule 3A identifies the uses of groundwater from particular aquifers in Otago. These aquifers are identified on Maps C9-C12 and C15. Schedule 3B identifies the location of groundwater takes for the purpose of community water supply. The identification of these human use values provides a mechanism for recognising the existence of values which need to be taken into account and given appropriate protection in managing the taking of water and discharge of contaminants (see Policy 9.4.1). The opportunity to provide such protection will arise when considering applications for resource consents for these activities.

Those that utilise the groundwater do take the risk that it may not be suitable for human consumption due to the presence of contaminants.

3A Schedule of human uses of particular aquifers *[No change]*

3B Schedule of groundwater takes for the purpose of community water supply

Site No.	**Community Water Supply Takes** (at NZMS 260 Series Map Grid Reference)	**Rate (litres per second) and volume (cubic metres per day) authorised**
1*	Glenorchy Water Supply at E41:459-841.	63 l/s; 5400 m^3/day
2*	Arthurs Point Water Supply at E41:686-713.	49 l/s; 3385 m^3/day
3*	Dalefield Water Supply at F41:739-724.	6 l/s; 300 m^3/day
4*	Arrowtown Water Supply at: F41:806-773; F41:808-774; and F41:809-774.	108 l/s; 7800 m^3/day
5*	Cromwell Water Supply at G41:119-671.	210 l/s; 18,000 m^3/day
6*	Alexandra Water Supplies at: G42:253-444; G42:263-454; and G42:271-442	 420 l/s; 21,600 m^3/day 12.5 l/s; 675 m^3/day 4 l/s; 345 m^3/day
7*	Roxburgh Water Supply at G43:210132.	58 l/s; 3000 m^3/day
8*	Dunedin and Outram Water Supplies at: I44:956-803; I44:956-805; and I44:956-804.	 Combined total take of 382 l/s; 33,000 m^3/day
11	Owaka Water Supply at H46:533-124.	4.4 l/s; 380 m^3/day
12	Mosgiel Water Supply at: I44:048-789; I44:042-779; I44:036-776; I44:048-789; I44:036-788*;	 The combined total take shall not exceed 10,104 m^3/day.

	I44:051-787; I44:032-782; I44:051-789; and I44:042-784.	
13*	Clydevale-Pomahaka Water Supply at G45:417-507.	60 l/s; 5160 m^3/day

* Point of take located within 100 metres of a surface water body.

4. Schedule of specified restrictions on the exercise of permits to take groundwater

This schedule sets out restrictions that apply to the taking of groundwater from certain aquifers in Otago.

Schedule 4A identifies maximum allocation volumes for the taking of groundwater from aquifers indentified in the C-series maps, in accordance with Policy 6.4.10A(a)(i) of this Plan. Schedule 4B identifies water levels at which the taking of groundwater will be restricted in accordance with Policy 6.4.10A(b) of this Plan. Schedule 4C identifies matters to be considered when making additions to these schedules through a plan change.

4A Maximum allocation volumes for groundwater takes from aquifers

Aquifer Name	Map Reference	Maximum Allocation Volume (million cubic metres per year)
North Otago Volcanic Aquifer	C10	7

4B Restriction levels for groundwater takes

Schedule 4B identifies water levels at which the taking of groundwater will be restricted, and identifies the nature of the restriction, in terms of a reduction in the take of water authorised by water permits.

The aquifer maximum height refers to the historic record of the water level or pressure head after the recharge season. Note that the areas over which the restrictions apply are shown on Maps D1 - D4.

Aquifer See Maps D1–D4	Aquifer Reference Bore See Maps D1–D4	Aquifer maximum height (metres above datum)	Restriction levels (m above mean sea level)		
			25% restriction or response in terms of Council recognised rationing regime*	50% Restriction	100% restriction
North Otago Volcanic	Websters Well	130.8	126.0	125.5	125.0
Lower Taieri – West	Momona Bore	101.24	100	99.5	99
Lower Taieri – East	Harleys Well, Piezo. 2	112.5	110.5	110.0	109.5
Ettrick Basin	Calder Bore	172.29	170.29	169.79	169.29
Roxburgh Basin (Coal Creek Terrace)	White-Hall Bore	189.5	188	187.8	187.5

* When the aquifer reaches this level there shall be either a 25% restriction or a water allocation committee, appointed by the Otago Regional Council, will

implement a protocol to take all practical steps to curb the decline in the aquifer level so as to avoid a 50% restriction. If there is no water allocation committee or the water allocation committee does not use a protocol approved by the Council, the 25% water restriction will apply.

4C Schedule of matters to be considered when setting maximum allocation volumes and restriction levels for aquifers

Maximum allocation volumes and restriction levels for aquifers in Schedules 4A and 4B give effect to the objectives and policies in this Plan. Additional aquifers are added through the plan change process following scientific investigation and consultation with the community and affected parties. The lists in 4C.1 and 4C.2 identify matters to which consideration will be given when setting these volumes and levels. The lists are not exhaustive and consideration will be given to these and any other relevant matters. Restriction levels may not be needed for all aquifers.

4C.1 When setting maximum allocation volumes in Schedule 4A for an aquifer, consideration will be given to the following matters:

(a) Physical properties of the aquifer;
(b) The amount and characteristics of recharge to the aquifer;
(c) Interaction with other aquifers;
(d) Interaction with surface water bodies and their values;
(e) The potential for contamination (including seawater intrusion);
(f) The effects of taking groundwater on the aquifer (including results of computer modelling, where available);
(g) Demand for water and existing water uses, including community water supplies;
(h) Environmental, social, cultural, recreational and economic benefits of taking and using water; and
(i) Any other relevant matter in giving effect to Part 2 of the Resource Management Act.

4C.2 When setting restriction levels in Schedule 4B for an aquifer, consideration will be given to the following matters:

(a) Physical properties of the aquifer;
(b) Variance of groundwater levels in the aquifer;
(c) The amount and characteristics of recharge to the aquifer;
(d) The proposed or existing maximum allocation volume;
(e) Interaction with surface water bodies and their values;
(f) Any actual or potential effect of drawdown on groundwater quality; and
(g) The environmental, social, cultural and economic effects of the restriction level on existing users of groundwater from the aquifer.

Note: For aquifers not included in Schedule 4A, refer to Policy 6.4.10A for determining a maximum allocation volume.

Glossary

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Annual renewable yield *[Repealed – 1 March 2012]*

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Regional Plan: Water
Maps