

Proposed Plan Change 4B (Groundwater allocation)

Regional Plan: Water for Otago

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17 May 2014



Introduction

The Otago Regional Council has prepared Proposed Plan Change 4B (Groundwater allocation) to the Regional Plan: Water for Otago. Proposed Plan Change 4B:

- Clarifies the mechanism for avoiding over-allocation in the aquifers of Otago;
- Simplifies the wording of existing policy without changing the already established principles of groundwater allocation.

This document should be read in conjunction with:

- Section 32 Report – Evaluation Report; and
- The Regional Plan: Water for Otago operative as at 1 May 2014.

Amendments to the Regional Plan: Water as a result of Proposed Plan Change 4B are shown as follows: (additions underlined, deletions ~~struck-out~~).

This proposed plan change will have legal effect from 17 May 2014 in accordance with Section 86B(3) of the Resource Management Act 1991.

Any person may make submissions on this proposed plan change. You may do so by sending written submissions to the Otago Regional Council. The submission must use the form provided, as required by clause 6, Schedule 1 of the Resource Management Act 1991. Copies of this form are available by phoning the Council on 0800 474 082, or can be found on the ORC website www.orc.govt.nz.

In your submission, please clearly state the provision(s) you are submitting on.

On-line at	www.orc.govt.nz follow links to Proposed Plan Change 4B		
Email to	policy@orc.govt.nz		
Post to	Otago Regional Council Private Bag 1954 Dunedin 9054		
Fax to	(03) 479 0015		
Deliver to	Otago Regional Council, 70 Stafford Street William Fraser The Station, First Floor Dunedin Building Cnr Shotover and Camp Dunorling Street Streets Alexandra Queenstown		

If you have any questions concerning this process:

Telephone (03) 474 0827;
 0800 474 082

Submissions close at 5pm on Tuesday 17 June 2014.

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* Regional Plan: Water for Otago operative as at 1 May 2014.

6

Water Quantity



6.1 to 6.3 [*Unchanged*]

6.4 Policies applying to the management of the taking of water

6.4.0 to 6.4.10 [*Unchanged*]

Groundwater Takes

~~6.4.10A To enable the taking of groundwater by:~~

6.4.10A Enable the taking of water allocated as groundwater by Policy 6.4.1A, by:

- (a) Determining the volume available for taking as the maximum allocation limit less the assessed maximum annual take for an aquifer calculated using Method 15.8.3.1; and**
- (b) Applying aquifer restriction levels where specified in Schedule 4B.**

6.4.10A1 Define the maximum allocation limit for an aquifer as:

- (a) That specified in Schedule 4A; or**
- ~~(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)(b) For aquifers other than those not in Schedule 4A, the greater of:**
 - (1) A limit which is 50% of the calculated mean annual recharge; or**
calculated under Schedule 4D,

and, beyond that maximum, avoid allocating for a consumptive use any water not previously taken under a resource consent.

- ~~(2) The sum of consented 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% 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.~~

~~**6.4.10AA Where an application is received to take groundwater within the maximum allocation volume and Policy 6.4.10A(a)(i)(2) or (a)(ii)(2) applies to the aquifer, to grant no more water than has been taken under the existing consent, except in the case of a registered community drinking water supply where an allowance may be made for growth that is reasonably anticipated.**~~

~~**6.4.10A2 Where an application is received to take groundwater by a person who already holds a resource consent to take that water, grant no more water than has been taken under the existing consent, in at least the preceding five years, when:**~~

(a) The take is from an aquifer where the assessed maximum annual take exceeds its maximum allocation limit; or

(b) The take results in the assessed maximum annual take of an aquifer exceeding its maximum allocation limit,

except in the case of a registered community drinking water supply where an allowance may be made for growth that is reasonably anticipated.

Explanation

~~This policy intends that in aquifers where water is only available from within the maximum allocation volume under a new consent for the same activity for which an existing consent is held, only water actually taken under that existing resource consent will be considered for the new consent.~~

~~In the new consent, a consent holder may benefit from using water actually taken in the past more efficiently.~~

~~A registered community drinking water supply, in terms of this Policy, is a drinking water supply serving a community of more than 25 people for more than 60 days a year. In the case of such supplies, consent may be granted for more water than has been taken under the existing consent where there is evidence that growth is reasonably anticipated.~~

~~In all cases, the effect of seasonal extremes will be considered.~~

~~Evidence of the rate, volume, timing and frequency of water taken under the existing consent is required, such as metering or measuring data. Where there is limited or no such data available, any relevant supporting evidence may be presented, for example a description of existing circumstances and use. Infrastructure present or photography showing irrigated land may also indicate how much water has been taken and when.~~

Principal reasons for adopting

~~This policy is adopted to assist in the reduction of the maximum allocation volume under Policies 6.4.10A(a)(i)(2) or 6.4.10A(a)(ii)(2) to reflect the amount of water actually being taken. This policy also intends that the taking of groundwater is not constrained by resource consent holders who are underutilising the groundwater allocated to them, improving efficiency of water resource use.~~

6.4.10A3 *[Moved from Policy 6.4.10A(b) and (c)]* **Avoid in any aquifer:**

(a) Contamination of groundwater or surface water; and

(b) Permanent aquifer compaction.

6.4.10AB to 6.7.8 *[Unchanged]*

W A T E R Q U A N T I T Y

12

Rules: Water Take, Use and Management



12.0 Applications for taking water

12.0.1 Prohibited activity: No resource consent will be granted

12.0.1.1 *[unchanged]*

12.0.1.2 *[unchanged]*

12.0.1.3 ~~An~~ The application to take groundwater for a consumptive use within the maximum allocation volume in an aquifer where Policy 6.4.10A(a)(i)(2) or (a)(ii)(2) applies, by a person who does not hold the existing resource consent to take that water, is a **prohibited** activity from an aquifer where the assessed maximum annual take:

(i) Exceeds the aquifer's maximum allocation limit; or

(ii) Would exceed the aquifer's maximum allocation limit as a result of this take.

is a **prohibited** activity, unless all of the water taken:

(1) Is allocated as surface water under Policy 6.4.1A; or

(2) Is taken for dewatering at a site to allow a construction or structure maintenance activity.

~~12.0.1.4 An application to take groundwater within the maximum allocation volume, where that take would cause the maximum allocation volume of an aquifer to exceed the limits in Policy 6.4.10A(a)(i)(1) or (a)(ii)(1), is a **prohibited** activity.~~

The Otago Regional Council will, upon request, advise the applicant of the aquifer's current allocation status before any application is made.

Principal reasons for adopting

~~These rules are adopted to expressly prohibit more water being allocated as primary allocation, or for groundwater within the maximum allocation volume, when the allocation already exceeds or would exceed the catchment or aquifer limit. Sections 124A-C of the Act cannot apply where no application can be received. Any further taking of surface water or connected groundwater must be from supplementary or further supplementary allocation, in order to assist in maintaining the aquatic ecosystem and natural character of source water bodies. The taking of groundwater beyond maximum allocation volumes is considered only where that take is immediately returned to the aquifer or connected surface water body.~~

12.1 to 12.2.3.1A *[unchanged]*

12.2.3 Restricted discretionary activities: Resource consent required

12.2.3.2A Except as provided for by 12.0.1.3 and 12.2.3.1A, the taking and use of groundwater is a **restricted discretionary** activity, if:

(a) The volume sought is within:

- (i) The maximum allocation ~~volume~~ limit identified in Schedule 4A; or
 - (ii) 50% of the ~~calculated~~ mean annual recharge calculated under Schedule 4D, for any aquifer not ~~specified~~ identified in Schedule 4A; or
 - (iii) That volume specified ~~on~~ in an existing resource consent ~~granted before 10 April 2010, or the take applied for is a volume equal to or less than that on the existing consent~~ where the assessed maximum annual take of the aquifer exceeds its maximum allocation limit; and
- (b) It is subject to any aquifer restriction levels identified in Schedule 4B; and
 - (c) Where the rate of surface water depletion is greater than 5 l/s, as calculated using Schedule 5A:
 - (i) Primary surface water allocation is available; and
 - (ii) For the Waitaki catchment, allocation to activities set out in Table 12.1.4.2 is available.

The matters to which the Otago Regional Council has restricted the exercise of its discretion are set out in Rule 12.2.3.4.

...

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~~ limit for the aquifer; and
- (iA) The assessed maximum annual take for the aquifer; and
- (ii) The mean annual recharge of ~~that~~ the aquifer; and
- (iii) The effect of the take on the hydrodynamic properties of the aquifer and the vulnerability of the aquifer to compaction; and

...

R U L E S : W A T E R T A K E , U S E A N D M A N A G E M E N T

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Methods other than Rules



15.1 to 15.8.2.2 [unchanged]

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, w~~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.

METHODS OTHER THAN RULES

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

The assessed maximum annual take sums only those consents allocated as groundwater under Policy 6.4.1A(c) and (d).

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.

METHODS OTHER THAN RULES

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Schedules



4. Schedule of specified restrictions on the exercise of permits to take the allocation and restriction regime for groundwater

4A to 4C *[unchanged]*

4D Matters to be considered in calculating mean annual recharge

For any aquifer not included in Schedule 4A the setting of the maximum allocation limit will involve calculating the mean annual recharge of the aquifer (see Policy 6.4.10.A1(b)). The mean annual recharge is a statistical value based on the past climate, aquifer hydrology, soil properties, irrigation practice and other factors with direct influence over groundwater recharge.

This schedule sets out the matters to which consideration will be given when calculating the mean annual recharge of an aquifer.

4D.1 Sources of aquifer recharge

Sources of aquifer recharge may include:

- (a) Land surface recharge due to rainfall excess.
- (b) Land surface recharge due to irrigation excess, which should be based on the application of irrigation at an efficient rate.
- (c) Land surface recharge due to intermittent runoff flowing over the land surface.
- (d) Surface water recharge due to river infiltration.
- (e) Surface water recharge due to wetland, pond or lake infiltration.
- (f) Through-flow from any other aquifer.

The mean annual recharge can arise from a single recharge source or a combination of recharge sources, in which case the mean annual recharge is based on the combined recharge from all relevant sources.

4D.2 Methods for calculating aquifer recharge

Methods for calculating aquifer recharge from various recharge sources may include:

- (a) Daily soil moisture balance for the calculation of land surface recharge.
- (b) Daily soil moisture balance for calculation of irrigation recharge.
- (c) Differences between surface water flows measured at different flow monitoring sites for the determination of bed infiltration passing to an aquifer.
- (d) Direct measurement of land surface recharge using subsoil measuring devices such as lysimeters.
- (e) Calibrated recharge estimation using unsaturated zone matric potential or saturated zone water table height fluctuation.
- (f) Environmental tracers such as isotopes (radioactive or stable) and conservative anions.
- (g) Groundwater computer modelling, especially where calibration and parameter estimation can be used to constrain initial estimates of surface water contributions and land surface recharge.

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Glossary

Allocation limit ~~or allocation volume~~

The maximum flow or quantity of water in a water body, which is able to be allocated to resource consents for taking.

Assessed maximum annual take

The sum of the takes of groundwater as calculated by Method 15.8.3.1.

Maximum allocation limit

The quantity of groundwater as established under Policy 6.4.10A1.

Mean annual recharge

The quantity of groundwater recharge as calculated by Schedule 4D.

Registered community drinking water supply

A drinking water supply, which is registered under Section 69J of the Health Act and serves a community of more than 25 people for more than 60 days a year.

Table of minor and consequential changes

Plan Provision	Detail of proposed change								
Page numbers	Update page numbers.								
Footers	Change footer to read “ <u>Regional Plan: Water for Otago (Updated to <date to be inserted>)</u> ”.								
Title page	Change the date to read “ <u>Updated to <date to be inserted></u> ”.								
ISBN number	Obtain new ISBN numbers for Regional Plan: Water for Otago.								
Chronicle of key events	<p>Add the following to the end of table:</p> <table border="1"> <thead> <tr> <th>Key event</th> <th>Date notified</th> <th>Date decisions released</th> <th>Date operative</th> </tr> </thead> <tbody> <tr> <td><u>Plan Change 4B (Groundwater allocation) to the Regional Plan: Water</u></td> <td>17 May 2014</td> <td><Date to be inserted></td> <td><Date to be inserted></td> </tr> </tbody> </table>	Key event	Date notified	Date decisions released	Date operative	<u>Plan Change 4B (Groundwater allocation) to the Regional Plan: Water</u>	17 May 2014	<Date to be inserted>	<Date to be inserted>
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<u>Plan Change 4B (Groundwater allocation) to the Regional Plan: Water</u>	17 May 2014	<Date to be inserted>	<Date to be inserted>						
Table of contents [on page viii]	<p>Update page numbers.</p> <p>Reference to Maximum Allocation Volume: Volume <u>Limit</u>;</p> <p>Add the following: <u>4D Matters to be considered in calculating maximum annual recharge</u> <u>20.67</u></p>								
Table of contents [on page 20-2]	<p>Reference to Maximum Allocation Volume: Volume <u>Limit</u>;</p> <p>Add the following: <u>4D Matters to be considered in calculating maximum annual recharge</u> <u>20.67</u></p>								
section 1.4	<p>Proposed Plan Change 4A builds on the groundwater management system of taking water within a maximum allocation volume <u>limit</u>, established...</p> <p><u>Proposed Plan Change 4B (Groundwater allocation) clarifies groundwater allocation provisions. It was notified on ..., and a total of ... submissions and ... further submissions were received. Following the hearing, decisions on submissions received were released on Plan Change 4B was made operative on</u></p>								

MINOR AND CONSEQUENTIAL CHANGES

Plan Provision	Detail of proposed change												
Index to policies in 6.4	<p>Delete reference to Policies 6.4.10A and 6.4.10AA, which this Plan Change deletes.</p> <p>Replace the above with the following: <u>6.4.10A System for groundwater allocation and restriction levels</u> <u>6.4.10A1 Defining the maximum allocation limit</u> <u>6.4.10A2 When a groundwater take will be no more than under an existing consent</u> <u>6.4.10A3 Avoiding aquifer contamination and compaction</u></p>												
Policy 6.4.10.AC	<p>Both references to maximum allocation volume: maximum allocation volume <u>limit</u></p>												
Schedule 3A: Schedule of human uses of particular aquifers	<p>Correct the following incorrect map number for the Papakaio Aquifer:</p> <table border="1"> <thead> <tr> <th>Aquifer</th> <th>Map</th> <th>Values</th> </tr> </thead> <tbody> <tr> <td>Lower Waitaki Plains Aquifer</td> <td>C9 C10</td> <td>– Human consumption without treatment – Stock drinking water supply and farm dairy water.</td> </tr> <tr> <td>Papakaio Aquifer</td> <td>D4 C9a</td> <td>– Irrigation</td> </tr> <tr> <td>North Otago Volcanic Aquifer</td> <td>C10</td> <td>– Irrigation</td> </tr> </tbody> </table>	Aquifer	Map	Values	Lower Waitaki Plains Aquifer	C9 C10	– Human consumption without treatment – Stock drinking water supply and farm dairy water.	Papakaio Aquifer	D4 C9a	– Irrigation	North Otago Volcanic Aquifer	C10	– Irrigation
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Papakaio Aquifer	D4 C9a	– Irrigation											
North Otago Volcanic Aquifer	C10	– Irrigation											
Schedule 4	<p>All references to Maximum Allocation Volume: Maximum Allocation Volume <u>Limit</u></p>												
Schedule 4B	<p>Ettrick Basin: Calder Bore should read “<u>Cemetery Bore</u>”.</p>												
Schedule 4C	<p>Note at foot: Reference to Policy 6.4.10A should read “Policy 6.4.10A<u>1</u>”.</p>												
Plan Maps: Map Index for section C	<p>Amend “Map C Index – Aquifers, Groundwater Zones and Groundwater Protection Zones” to update the relevant Policy number references.</p>												
Plan Maps: Map C16	<p>Delete every reference to Kuriwao Basin Aquifer. <i>There is no aquifer at this location.</i></p>												
Plan Maps: Map Index for section D	<p>Amend “Map D Index – Aquifer Water Take Restriction Areas and Monitoring Bores” to update the relevant policy number references.</p>												