

**IN THE MATTER OF** The Resource Management Act  
1991

**AND**

**IN THE MATTER OF** Review of resource consent  
conditions for groundwater takes  
within the Rakaia Selwyn  
Groundwater Allocation Zone.

## **Addendum to Overview Section 42A Report**

by

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## Addendum to Section 42A Officer's Report

Date of Hearing: 2 June – 3 July 2009

### **INTRODUCTION**

1. This is an addendum to my Overview Hearing Report ('the overview report') of 15 May 2009 which provided an overview of the review of resource consent conditions for groundwater takes within the Rakaia Selwyn Groundwater Allocation Zone (RSGAZ). Since the writing of the overview report discussions have occurred between Mr Don Rule (Director of Resource Planning and Consents at Environment Canterbury (ECan)) and consent holders about the consent condition changes recommended in the overview report and the supplementary reports for each consent under the review process. The purpose of this addendum is to provide the Commissioners with information about those discussions.
2. Mr Rule has attended a series of meetings with consent holder representatives in the past two months to respond to issues raised by the consent holders about the condition changes recommended by ECan Officers. As a result of those meetings, Mr Rule, on behalf of ECan, has provided consent holders with proposed changes to the recommended consent conditions relating to the annual volume limit, minimum flow restrictions and review provisions (explained below). While no agreement has been reached at this time, Mr Rule has advised consent holder representatives that if agreement can be reached with consent holders over these conditions, and consent holders propose the condition changes for their consent, ECan Officers would support such changes. However the discussions on these conditions that have occurred between Mr Rule and consent holders are recognised as not binding on the Commissioners who will make the decision on the consent condition changes.
3. The proposed changes to the recommended conditions are intended to:
  - (a) Cap actual water use in the catchment and progressively reduce it over time.
  - (b) Provide an alternative set of conditions that will enable consent holders, if they chose to propose them, to maintain their business through a five year transition.
  - (c) Provide flexibility where an acknowledged limitation in the data presently available may unfairly penalise existing consent holders. The five year period provides a window to ensure adequate data for decision making is collected and available at the end of the period.
4. The proposed changes to the conditions are outlined below.

### **PROPOSED ALTERNATIVE TO ANNUAL VOLUME CONDITION**

5. A limit on the amount of water that can be taken annually is recommended in the supplementary report for each consent, for all consents under review. A number of consent holders have provided feedback to ECan Officers that the annual volumes proposed using the Schedule WQN9v3 method are not sufficient to meet annual water requirements. They have proposed a higher annual volume limit based on an alternative method of calculating water requirements, referred to as the Aqualinc method, which is discussed in the overview report.
6. ECan Officers have not received sufficient information about how the annual volumes have been calculated using this method to provide comment on its suitability in determining annual volume water requirements. However, to address concerns raised by consent holders about the annual volume limits originally recommended by ECan

Officers (in the supplementary report for each consent), Mr Rule has discussed with consent holder representatives a potential change to the condition limiting the annual volume. The proposed change to the recommended condition is intended to:

- Provide a greater amount of water for a five year period to allow less efficient irrigation systems to become more efficient, and to provide for a change in land use from arable to intensive pasture (which results in an increase in the annual volume calculated under the current Schedule WQN9 methodology).
  - Allow for changes in the methodology for determining an annual volume limit that is compliant with the relevant objectives and policies in the Proposed Natural Resources Regional Plan (PNRRP).
7. The proposed higher annual volume includes a base allocation (calculated using the Schedule WQN9v3 methodology) and an additional water allowance up to a maximum limit which would in many cases be equivalent to the annual volume limit calculated using the Aqualinc method. The additional water is intended to allow for irrigation systems which have an irrigation efficiency which is less than 80%, as the Schedule WQN9v3 method assumes an irrigation efficiency of 80%. For consent holders who use the water to grow crops, the higher limit also provides additional water as the higher annual volume limit is calculated as if the land use is intensive pasture (Schedule WQN9v3 calculates a higher annual volume for intensive pasture use than it does for arable use).
8. It is my understanding that the absolute cap on the annual volume in most cases will be the volume calculated using the Aqualinc method. At the time of writing this report, all of the differences between the volumes calculated by the two different methods are not fully understood, and therefore it is not possible to fully explain how the additional water is determined (i.e. explain the difference between the Aqualinc method annual volume and the Schedule WQN9v3 annual volume). It is hoped that these differences will be understood and the method for calculating the additional volume agreed to between ECan Officers and consent holders before the hearing for the consent reviews commences.
9. At the end of the five year period, the annual volume limit would reduce to the base allocation unless the consent holder can demonstrate that a higher volume of water is required (but still consistent with the relevant NRRP objectives and policies as outlined in the overview report).
10. The additional water is intended to provide for a transitional period when consent holders can improve irrigation efficiencies and monitor water use to determine how much water is actually required for the required land use on that property. It is not intended that the additional water provided is available to be transferred to other properties. Therefore, the condition specifies that the only water that can be transferred to another property is the PNRRP policy compliant base allocation applying at the time of transfer. If a transfer occurs, the annual volume reduces to the applicable base allocation for the remainder of the consent duration.
11. The draft wording circulated by Mr Rule is outlined below.

*(a) For five years following commencement of this consent the annual volume taken shall not exceed [base volume + land use allocation + inefficiency allowance] cubic metres between 1<sup>st</sup> July and the following 30<sup>th</sup> June;*

*PROVIDED THAT if the use of water occurs on any property other than that shown in the attached Plan [referenced] then the volume that may be taken between 1st July and the following 30th June for the remaining term of this consent shall not exceed [base volume] cubic metres, UNLESS the consent holder provides information demonstrating, to the satisfaction of*

the Chief Executive of the Canterbury Regional Council, that this volume is less than the volume required to provide, on average, for a system with an irrigation efficiency of at least 80%:

- (i) the full seasonal allocation in eight years out of 10; and
- (ii) 60% or more of the full seasonal allocation in 19 years out of 20

For the avoidance of doubt, [base volume] cubic metres (or the higher volume demonstrated above) is the sum total of water taken and used on the property shown in the attached Plan [referenced] AND any water transferred to be taken and/or used on another site.

(b) Following the five year period referred to in part (a) of this condition the volume of water that may be taken shall reduce to [base volume] UNLESS the Consent Holder provides a report, prepared by a Certified Irrigation Evaluator in accordance with the INZ Irrigation Evaluation Code of Practice dated February 2006, demonstrating, to the satisfaction of the Chief Executive of the Canterbury Regional Council, that the irrigation application efficiency is at least 80% and [base volume] is less than the volume required to provide, on average and for the land use existing five years after commencement of this consent:

- (i) the full seasonal allocation in eight years out of 10; and
- (ii) 60% or more of the full seasonal allocation in 19 years out of 20

The new volume shall then be the lower of the volume set out in part (a) of this condition, or the volume provided under part (b) of this condition.

(c) If the application efficiency described in Policy WQN17(2)(b) of the Proposed Natural Resources Regional Plan; or the supply reliability described in Policy WQN14(7) of the proposed Natural Resources Regional Plan are different in the Proposed or Operative Natural Resources Natural Plan in existence five years after the commencement of this consent, then the later application efficiency and supply reliability policies shall replace those set out in parts (a) and (b) of this condition

## **PROPOSED ALTERNATIVE MINIMUM FLOW CONDITION**

12. Consent holders have also expressed concern that the recommended minimum flow restrictions will be too onerous in some cases, and affect the viability of the consents. Consent holders have expressed concern that:
  - The model used for calculating stream depletion is very conservative and may predict that some water takes are having a stream depletion effect when this may not be the case. ECan Officers agree that the model is conservative, although the level of conservatism is disputed.
  - There are some waterways which are subject to minimum flow restrictions for much of the irrigation season.
13. Recognising that the recommended minimum flow conditions could impose a significant restriction on existing consent holders, Mr Rule has proposed an alternative condition for some consent holders which requires the consent holder to reduce their weekly volume by a half when minimum flow restrictions apply, rather than ceasing the take altogether.
14. The alternative minimum flow condition is an option that Mr Rule is proposing for consents where:
  - The relevant well is greater than 15 metres (m) in depth, and the predicted stream depletion effect on a waterway is less than 10 litres per second (L/s).

- The drawdown effect on a spring is predicted to be less than 0.1 m using the Theis method and a less conservative storativity value of 0.01.
15. These criteria were determined by an ECan Groundwater Hydrologist, who considers that in these cases, the associated wells are likely to be having less of an effect on the waterway, and therefore a less restrictive minimum flow provision is considered acceptable. While it will reduce the positive impact on flows in the associated waterway, reducing the water taken to half the weekly volume is still likely to have a positive effect compared to the existing situation where these consents are not subject to any restriction during times of low flows.
  16. The proposed alternative minimum flow condition would apply for a five year period, to allow the consent holder time to consider other options, such as drilling a new well which is at a sufficient depth to not be in hydraulic connection with the waterway, and therefore not subject to minimum flow conditions, or undertake tests to demonstrate that the well is not having a stream depletion effect on the waterway.
  17. It is also my understanding that ECan is going to carry out streambed conductance tests on waterways in the RSGAZ within the next five years, which would allow stream depletion effects to be recalculated using the less conservative Hunt Method (as discussed in the overview report).
  18. The original recommendation by ECan Officers that the minimum flow conditions do not take effect until 2011 remains.
  19. The draft wording circulated by Mr Rule is outlined below.
    - (a) *From 1 September 2011 to 1 September 2014, the taking of water in terms of this permit from bore [bore no] shall reduce to [half consented weekly volume] whenever the flow in [waterway], as estimated by the Canterbury Regional Council at [min flow site] (at or about [grid ref]) falls below [minimum flow] litres per second.*
    - (b) *From 1 September 2014 the taking of water in terms of this permit from bore [bore no] shall cease whenever the flow in [waterway], as estimated by the Canterbury Regional Council at [min flow site] (at or about [grid ref]) falls below [minimum flow] litres per second.*
  20. In addition to the alternative condition below, consent holders have been advised by Mr Rule that it is possible to reduce the predicted stream depletion effect by reducing the annual volume of water that can be taken annually for groundwater takes which have been estimated to have a moderate degree of hydraulic connection (in accordance with Policy WQN3 of the PNRRP, and explained in the overview report). This is because the stream depletion effect calculated for these takes is based on the volume of water that can be taken over 150 days, and reducing the volume of water that can be taken will therefore reduce that predicted effect. The reduction in the predicted stream depletion effect is directly proportional to the reduction in the annual volume.
  21. In reducing the annual volume and consequently the predicted stream depletion effect, some consent holders may be able to reduce the predicted stream depletion effect to below 5 L/s, and a minimum flow restriction would no longer be recommended for that consent. For wells greater than 15 m in depth, some consent holders with higher predicted stream depletion effects may be able to reduce the predicted depletion effect to below 10 L/s, making them eligible for the proposed alternative minimum flow condition discussed above, where the consent holder only has to reduce the weekly take by a half, rather than cease taking altogether.

22. Consent holder representatives and Mr Rule have discussed the implications of a reduced annual volume, should the minimum flow condition be removed at a later date. In particular, it was considered during discussions that should consent holders choose this option, the reduced annual volume should only apply as long as the minimum flow condition is required. Should the minimum flow condition be removed from the consent at a later date, the annual volume should default back to the original annual volume limit. Mr Rule has advised consent holder representatives that he could support this approach in principle, but at the time of writing this report a condition to that effect has not yet been written.

## REVIEW CONDITION

23. Mr Rule has also discussed with consent holder representatives the possibility of amending the recommended condition which provides for ECan to review the consent conditions again at a later date. The amendment would provide for a five year period where ECan would not serve notice of review, with the exception that ECan would retain the ability to review the consent for the purpose of varying the annual volume limit ('adaptive management') on any given year.
24. Should the Commissioners decide to accept this proposed change, suggested condition wording is provided below.

### Condition 1

*The Canterbury Regional Council may, once per year, on any of the last five working days of March or July, serve notice of its intention to review condition (x) of this consent for the purpose of varying the annual volume in any irrigation season to deal with any effects on the environment on a seasonal basis.*

### Condition 2

*After five years from the commencement of this consent, the Canterbury Regional Council may, once per year, on any of the last five working days of March or July, serve notice of its intention to review the conditions of this consent for the purpose of dealing with any adverse effect on the environment which may arise from the exercise of the consent and which it is appropriate to deal with at a later stage.*

## CONCLUSION

25. I have outlined my understanding of the proposed changes to the consent conditions that Mr Rule has presented to consent holders in recent weeks. Discussions with consent holders about the proposed changes are on-going. Should agreement be reached between consent holders and ECan Officers over these conditions and consent holders wish to propose the condition changes discussed above, it is my understanding that they would advise the Commissioners of this at the hearing for the consent condition reviews. Where agreement has been reached and consent holders do propose these changes, ECan Officers would amend the recommendations in the supplementary reports for each of the affected consents accordingly, but it is noted that the changes discussed between Mr Rule and the consent holders are not binding on the Commissioners.
26. Mr Rule is available to attend the hearing for the consent reviews to answer any questions the Commissioners may have about these proposed changes.

