



MEMORANDUM

TO The Commissioners for the Rakaia Selwyn Groundwater Review Hearing

DATE 8 June 2009

CC Tania Harris, Consents Reviews Manager

FROM Jacqui Todd

PROJECT No. ENCANCAN034

CLARIFICATION OF MATTERS IN RELATION TO OVERVIEW SECTION 42A REPORT (INCLUDING ADDENDUM)

The Rakaia Selwyn Groundwater Review Hearing commenced on 2 June 2009 and I presented my Overview Section 42A report (15 May 2009) and Addendum to the Overview Section 42A report (21 May 2009). During the presentation of my report the Hearing Commissioners requested clarification on a number of matters and the purpose of this memorandum is to summarise the matters raised, together with providing the clarification requested.

1) Surface water management.

I have been asked to provide additional information on the following aspects of ECan's management of surface waterways in the Rakaia Selwyn Groundwater Allocation Zone:

- Level of current surface water allocation (including hydraulically connected groundwater takes) for the lowland streams.
- Acceptable minimum flow regime identified for lowland streams.
- Flow duration statistics showing occurrence and magnitude of low flows.

This information has been sought from ECan but will not be available in time to present to the Commissioners when the hearing resumes on 8 June. It will be provided as soon as it becomes available, and before 29 June when the issue of minimum flows and stream depletion will be considered at the hearing.

2) Irrigation Efficiency and apparatus.

I have been asked to clarify whether Environment Canterbury (ECan) has a list of irrigation apparatus and associated efficiencies.

Irrigation efficiency has been discussed in a report prepared for ECan titled "Efficient and Reasonable Use of Water for Irrigation" (Lincoln Environmental, 2002) and a copy of the report will be provided to the Commissioners.

Information on application efficiencies is also available in of Irrigation New Zealand Inc's Irrigation Code of Practice and Irrigation Design Standards which is available on their website¹. Table 12 of the Code of Practice summarises average application efficiencies and ranges for typical irrigation systems used in New Zealand and this is attached as Appendix A.

3) Drawdown effects on springs and the 0.1 metres (m) drawdown threshold for applying minimum flow restrictions.

I have been asked to clarify the basis for assessing drawdown effects on springs and the threshold for applying minimum flow restrictions (as discussed in paragraph 102 of my Overview Section 42A Report). Where the drawdown effect on a spring was assessed, any predicted drawdown effect greater than 0.1 m was considered to be an effect that required management through a minimum flow restriction.

¹ <http://www.irrigationnz.co.nz/media/CoP.pdf>



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This is based on Policy WQN20(e)(ii) in Chapter 5 of the Proposed Natural Resources Regional Plan (PNRRP) in relation to assessing drawdown effects on bores. The proposed threshold in the PNRRP is 0.05 m (Variation 1), however Council Officers have recommended to the Hearing Panel for the PNRRP that the threshold be 0.1 m (recommended in Officer Report No. 7). Decisions have not been released by the Hearing Panel for this chapter of the PNRRP.

4) Three year rolling average.

The concept of a three year rolling average in relation to the annual volume limits on consents was proposed in submissions on Chapter 5 of the PNRRP, and therefore it is part of the PNRRP process.

It is my understanding that Council Officers have not recommended that it be included in the NRRP but have suggested that it may be able to be introduced at a later date as part of a management regime for a particular groundwater zone (under Schedule WQN3) if it is determined to be workable for that zone.

5) Lynton Dairies Ltd resource consent and annual volume limit.

I have been asked to clarify whether the method used to determine the annual volume limit for resource consent CRC02271 provided for more or less water than that determined using Schedule WQN9 of the PNRRP.

It is stated in paragraph 191 of the Environment Court decision on this consent (Decision No. C108/2005) that the volume calculated under Schedule WQN9 was 5.50 million cubic metres per year (Mm^3/yr). This is greater than the volume allocated to the consent ($3.64 Mm^3/yr$) which was calculated by taking 50 % of the continuous maximum abstraction for 150 days.

6) Number of existing consents in the Rakaia Selwyn Groundwater Allocation Zone (RSGAZ) with minimum flow restrictions.

Based on data obtained from ECan's resource consent database, there are 34 existing groundwater consents in the RSGAZ which are tagged as having a minimum flow condition.

7) Recommended condition for consents where annual volume is reduced to reduce stream depletion effects.

As outlined in the Addendum to the Overview Section 42A report consent holders have been advised that reducing the annual volume of water taken under a consent will reduce the predicted stream depletion effect. Therefore in some cases consent holders may wish to reduce the annual volume of water taken under their consent to avoid being subject to a minimum flow condition. Should consent holders wish to take this option, Mr Don Rule has agreed that ECan officers would recommend that the consent holders retain the ability to take the full annual volume again should a minimum flow condition be considered unnecessary in the future (if it is demonstrated that the groundwater take is not having a stream depletion effect on the waterway).

Legal advice from ECan Solicitors is being sought over the wording of such a condition, and the exact wording of the condition has not yet been finalised. More time is required to write this condition, as it is not a straightforward condition. The condition will be provided to the Commissioners and all consent holders affected by the proposed minimum flow conditions as soon as possible, and before 29 June when the issue of minimum flows and stream depletion will be considered at the hearing.

8) Summary of resource consents under review.

Below is a summary of the consents under review and some additional information which I consider may be useful for the Commissioners, based on questions that were asked during the presentation of my Section 42A reports at the hearing on 2 June.

- There are 531 consents are under review. These are held by 422 consent holders.



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75 consents are within Cluster Group One

115 consents are within Cluster Group Two

119 consents are within Cluster Group Three

86 consents are within Cluster Group Four

116 consents are within Cluster Group Five.

- 12 consents under review are held by Dairy Holdings Limited. These consents are not included in the cluster groups.
- 8 consents under review are held by the Selwyn District Council for community water supply. These consents are not included in the cluster groups.
- 203 of the consents under review have a proposed annual volume in excess of 357,000 m³ /yr and therefore have a condition recommending telemetry for data recording and transfer.

9) Annual volume allocations

The following are approximate figures for the annual volume allocations for the resource consents under review.

- The resource consents currently under review have an existing full annual volume allocation recorded in ECan's resource consents database of approximately 138,701,999 m³ /yr.
- The resource consents currently under review have a proposed full annual volume allocation of 149,810,027 m³ /yr. This is an increase of 8.1% on the existing allocation.

10) Consent holder responses to conditions

Further to the information outlined on page 25 of my Overview Section 42A Report about consent holder responses to the proposed conditions:

- A request for a 3 year rolling average was received on 27 consents
- The request for the annual volume to be allocated from 31 December to 1 January each year was received on 15 consents.
- Approximately 100 consent holders requested a change to the maximum rate of take to 0.6L/s/ha

Attachments: Appendix A Irrigation Equipment Efficiencies.



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References

Irrigation New Zealand Inc. March 2007. Irrigation Code of Practice and Irrigation Design Standards.

Lincoln Environmental. Efficient and Reasonable Use of Water for Irrigation. Report No. U01/69 prepared for Environment Canterbury.

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APPENDIX A Irrigation Equipment Efficiencies

Approximate application efficiencies for various irrigation methods¹

SYSTEM TYPE	AVERAGE E_a (%)	EFFICIENCY (%)
Linear move	85	80-93
Centre-pivot	85	85-94
Side roll	80	70-85
Hand shift	80	65-85
Travelling gun	70	60-75
Fixed boom (low pressure)	75	70-80
Fixed boom (medium pressure)	80	79-88
Rotary boom	80	70-85
Solid set sprinklers	80	75-85
Microsprinkler	85	80-90
Drip (point source)	90	75-95
Dripline	90	75-95
Border-strip	60	50-80

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¹ Taken from Table 12 of Irrigation New Zealand Inc's Irrigation Code of Practice and Irrigation Design Standards.