



Keri Johnston

Introduction

Brief of evidence:

- The effects of taking water on public safety;
- The effects of bywash discharges on public safety;
- The effects of bywash discharges on flood carrying capacity and erosion of the receiving waterbody and on artificial structures;
- The effects of works on natural and physical resources, ecosystems, habitats and species;

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- The effects of works on flood carrying capacity and erosion of the bed and banks of water bodies and on artificial structures;
- The effects of works on amenity values, people and communities;
- The effects of discharging stormwater, sediment and hazardous substances to land and water during construction;

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- The effects of discharging contaminants, principally dust, to air during construction;
- The effects of dam failure;
- The efficient use of water for irrigation purposes.

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Supplementary Brief of Evidence:

- Safety of intake structures and options for safe design for both tunnel and channel intakes; and
- The frequency and extent of works required to keep the scheme operational.

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I have reviewed the evidence of:

- Walter Leithwaite and Cliff Tipler (URS)
- CRC (Canterbury Regional Engineer)
- Submitter groups (kayakers/canoers)
- Landowners (Primarily Taege)

Presentation

Of the effects I have assessed, in this presentation, further comment will be provided on the following.

- The safety of intake structures;
- In stream river works; and
- Efficient use of water.

The other effects I addressed in evidence have been sufficiently covered by the applicant.

Safety of Intake Structures

Concern:

- Lack of design detail regarding safety features of the intakes, and therefore, if the effect could be mitigated.

Applicants response Aug 2008:

- Undertaking to work with groups, such as kayakers, in the design phase of the project to ensure that the intakes are “safe”.

Safety of Intake Structures

Comment:

- It is difficult to finalise the design at this stage of the project.
- An undertaking to address the effect has been made by the applicant.
- This still needs to be reflected in conditions of consent, and submitters such as the kayaking/canoe clubs need to advise that they are happy with this solution.
- This undertaking requires input from “third parties” and therefore will not work without the commitment of those groups.

In-stream River Works

Issue:

- The duration, frequency and extent of works required to keep the scheme operational.

Comment:

- In braided river systems, in-stream works will always be required to facilitate the diversion of water into intakes and protect and maintain the structure itself.
- The applicant has commented that the expected frequency of works is in the order of 10 times per year.

In-stream River Works

Comment cont:

- In my view, for rivers such as the Waimakariri and Rakaia, this is reasonable, and is consistent with other schemes such as the RDR.
- In relation to the extent and duration of works, this will vary in any braided river system depending on factors such as duration and size of flood events, and duration of low flow events.
- It only takes one good flood to alter a braided river – braids will move, material will move.

In-stream River Works

Comment cont:

- The location of intakes incorporate many other considerations such as fall available, race length needed, the overall end point, as well as the practicality of the site including works needed to maintain the operation of the intakes.
- Re-location of the intakes would still need to satisfy the other considerations...
- Re-location of the pre-tense of “lesser” works could be false and one flood event could change the “riverscape” and alter everything!

In-stream River Works

Comment cont:

- Conditions of consent can be imposed that limit the timing and duration of works, and specify an area within which works can occur.
- In my view, this is a satisfactory approach.

Efficient Use of Water

Issue:

- Efficient use of the water over the scheme area.
- Annual volume? Should this be imposed as a condition of consent?

Comments:

- Individual consents to take and use water are held by shareholders within the scheme command area.
- How scheme water and individual consents will be used dealt with is an issue that has been recognised by the applicant.

Efficient Use of Water

Comments cont:

- Allocation of surface water is not done on an annual volume basis in Canterbury as it is done with groundwater.
- Based on an overall estimation of “rate of take”.
- An annual volume is a mechanism for ensuring water is used efficiently.
- Annual requirement for scheme will vary based on number of properties being supplied, area, and property specific characteristics such as land use, soil type, and rainfall.

Efficient Use of Water

Comments cont:

- An annual allocation for the scheme would need to be based on “maximum” or “worst case” parameters and may not reflect actual and reasonable need.
- This is better addressed on a property by property basis and can be achieved by way of conditions on consent.
- The following condition was placed on the consent for Glenroy Irrigation Scheme and similar “types” of conditions proposed for HDIS, MDWRC and Haka Valley Irrigation Ltd in the Lower Waitaki.

Efficient Use of Water

Condition:

1. The consent holder shall, within 6 months of the first exercise of this consent, submit a Water Use Management Plan (the Plan) to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Officer. The purpose of this plan will be to promote the reasonable and efficient use of water within the Glenroy Community Irrigation Scheme (the Scheme) as a whole, as well as on individual shareholder properties within the scheme. The plan will describe:
 - the operation and monitoring of the Scheme intake from the Rakaia River and the distribution of water to the shareholder properties.
 - the monitoring of the volume of water delivered to individual shareholder properties.
 - a two year programme of evaluation of the operation of individual shareholder on-farm operations, commencing upon submission of the plan to Environment Canterbury.

The Plan shall include:

- The area irrigated;
- The Profile Available Water of the soils that occur on the property;
- Quantification of local rainfall and evapotranspiration;
- A description of the irrigation system, its pumping rate and return period;
- A demonstration that the irrigation system achieves the following objectives:

Efficient Use of Water

Condition cont:

2. That the volume of water used for irrigation does not exceed that required for the soil to reach field capacity; and
 - Avoid leakage from pipes and structures; and
 - Avoid the use of water onto non-productive land such as impermeable surfaces and river or stream riparian strips.
3. The results arising from the implementation of the Plan required in accordance with Condition (1) shall be used to develop a maximum annual volume for the use of water.
4. The annual volume, along with a report summarising the information and methods used to determine the volume, shall be provided to the Canterbury Regional Council, Attention RMA Compliance and Enforcement Manager, within 6 months of the completion of the audits required by condition (1)(c).