C120/140774

IN THE MATTER of the Resource Management Act 1991

AND

IN THE MATTER of the Resource Consent Applications by A D Aker and others to take water from the Orari River area

BEFORE A CANTERBURY REGIONAL COUNCIL HEARING COMMITTEE

Cr W S Penno - Chairperson
Cr J M Waters
Cr G Twentyman

APPEARANCES

Applicants:

A D & K E Aker	Represented by R T de Joux
G S Brown	
W D Brown	
P A & M L Donehue Farms Limited	
A P Donehue Farms Limited	
R L & E Gould	
A S G Henderson	
Kruize A & J E, Simpson T M trading as Kaumara Partnership	
N E Palmer Ltd	
Poplars Farm Limited	
A G, D M, L J & D R Pye	
N A & D N Ritchie	
A C Sherriff	
A C, N T & M N Sherriff	
B L & Q F Sherriff	
W B Sherriff	
A J & A I Stalker	
E G Trumper	
B J Youngman	
J S Ellery	
I J & J A Kerse	
Mahorall Farms Limited	
I D & E Mowat	
M E Mulligan	
Pinehaven Properties Limited	
H J B Sheed	
B G Stratford	
G H & J M Tepper	
M D Woodley	

Submitters

Central South Island Fish & Game Council
Represented by F Scarf

Department of Conservation
Represented by M J Rutledge

M Simpson

L Burdon

New Zealand Salmon Anglers Association
Represented by R Hobbs

Alpine Dairy Products Limited
Represented by R T de Joux

Consent Authority: W Pascoe
(Section 42 Resource Management Act 1991 Report)

Applications

The applications for decision were as follows:

A D Aker

CRC970461 - to take up to 8430 cubic metres of water per week at a maximum rate of 15.2 litres per second from bores K38/0355 and K38/0356 at or about map references K38:820-675 and K38:820-674 respectively. This application is to replace consent CRC917093.

CRC970463 - to take up to 32400 cubic metres of water per 21 days at a maximum rate of 25 litres per second from an unnamed tributary of the Orari at Aker Road at or about map reference K38:769-686. This application is to replace consent CRC920180.

G S Brown

CRC962377 - to take up to 44710 cubic metres of water per 18 days at a maximum rate of 30 litres per second from bore K38/0027 at or about map reference K38:816-663. This application is to replace consent CRC920474.

CRC962378 - to take up to 29810 cubic metres of water per 18 days at a maximum rate of 30 litres per second from bores K38/0377 and K38/0021 at or about map reference K38:793-669. This application is to replace consent CRC920475.

CRC962376 - to take up to 20070 cubic metres of water per 18 days at a maximum rate of 30 litres per second from the Orari River at or about map reference K38:803-631. This application is to replace consent CRC915080.

W D Brown

CRC962358 - to take up to 8295 cubic metres of water per 20 days at a maximum rate of 32 litres per second from the Orari River at or about map reference K38:802-633. This application is to replace consent CRC916270.

A P Donehue Farms Limited

CRC971307 - to take up to 41472 cubic metres of water per 24 days at a maximum rate of 20 litres per second from the Settlement Road Drain at or about map reference K38:807-640. This application is to replace consent CRC920457.

P A & M L Donehue Farms Limited

CRC970533 - to take up to 28800 cubic metres of water per 16 days at a maximum rate of 25 litres per second from bore K38/0253 at or about map reference K38:814-643. This is an application for a new activity.

CRC970532 - to take up to 28800 cubic metres of water per 16 days at a maximum rate of 25 litres per second from Canal Road Drain at or about map reference K38:819-640. This application is to replace consent CRC920257.

J S Ellery

CRC962558 - to take up to 3280 cubic metres per day at a maximum rate of 45.5 litres per second from bores K37/0120 and K37/0128 at or about map references K37:738-809 and K37:733-800. This application is to replace consent CRC920159.

R L & E Gould

CRC962512 - to take up to 30240 cubic metres per 21 days at a maximum rate of 20 litres per second from Fitzgerald Drain at or about map reference K38:782-677. This application is to

replace consent CRC920254.

A S G Henderson

CRC970541 - to take up to 58385 cubic metres per 21 days at a maximum rate of 32 litres per second from Orari Lagoon Drains at or about map reference K38:827-624. This application is to replace consent CRC920472.

I J & J A Kerse

CRC962360 - to take up to 137895 cubic metres of water per 21 days at a maximum rate of 76 litres per second from bore K37/0684 at or about map reference K37:705-876. This application is to replace consent CRC920307.

Kaumara Partnership (A & J E Kruize & T M Simpson)

CRC970517 - to take up to 16590 cubic metres of water per 30 days at a maximum rate of 32 litres per second from Canal Road Drain at or about map reference K38:819-640. This application is to replace consent CRC920283.

CRC970518 - to take up to 37065 cubic metres of water per 18 days at a maximum rate of 26 litres per second from Canal Road Drain at or about map reference K38:816-643. This application is to replace consent CRC920262.

Mahorall Farms Limited

CRC970546 - to take up to 112320 cubic metres of water per 30 days at a maximum rate of 78 litres per second from bores K38/0022, K38/0656, K38/0658 and K38/0659 at or about map references K38:760-757, K38:755-756, K38:756-753. This application is to replace consent CRC915003.

I D & E Mowat

CRC962478 - to take up to 10110 cubic metres of water per 12 days at a maximum rate of 13 litres per second from bore K37/0122 at or about map reference K38:719-864. This application is to replace consent CRC920347.

M E Mulligan

CRC970159 - to take up to 52230 cubic metres of water per 18 days at a maximum rate of 62 litres per second from bores K38/0255 and K38/0636 at or about map references K38:808-655 and K38:814-655 respectively. This application is to replace consent CRC920557.

CRC970160 - to take up to 9940 cubic metres of water per 8 days at a maximum rate of 30 litres per second from bore K38/0256 at or about map reference K38:823-659. This application is to replace consent CRC920558.

N E Palmer Ltd

CRC962566 - to take up to 52800 cubic metres of water per 14 days at a maximum rate of 70 litres per second from an unnamed tributary of the Orari River at or about map reference K38:765-685. This application is to replace consent CRC915050.

Pinehaven Properties Limited

CRC970525 - to take up to 71280 cubic metres of water per 18 days at a maximum rate of 55 litres per second from bores K38/0655 and K38/0052 at or about map references K38:796-694 and K38:794-692. This application is to replace consent CRC920284.

Poplars Farm Limited

CRC962477 - to take up to 54650 cubic metres of water per 15 days at a maximum rate of 46 litres per second from Coopers Creek at or about map reference K38:791-662. This application is to replace consent CRC920158A.

A J, D M, L J & D R Pye

CRC970883 - to take up to 10835 cubic metres of water per 10 days at a maximum rate of 38 litres per second from Fitzgerald Drain at or about map reference K38:785-690. This application is to replace consent CRC920594.

N A & D N Ritchie

CRC962539 - to take up to 17357 cubic metres of water per 15 days at a maximum rate of 24 litres per second from Fitzgerald Drain at or about map reference K38:783-683. This application is to replace consent CRC920082.

CRC962538 - to take up to 31104 cubic metres of water per 18 days at a maximum rate of 24 litres per second from bore K38/0254 at or about map reference K38:799-764. This application is to replace consent CRC920083.

H J B Sheed

CRC962391 - to take up to 38100 cubic metres of water per 14 days at a maximum rate of 42 litres per second from bores K38/0414 and K38/0415 at or about map references K38:756-768 and K38:776-764. This application is to replace consent CRC920461.

A C Sherriff

CRC970382 - to take up to 42335 cubic metres of water per 14 days at a maximum rate of 35 litres per second from Canal Road Drain at or about map reference K38:827-633. This application is to replace consent CRC917310.

A C, N T & M M Sherriff

CRC970381 to take up to 62210 cubic metres of water per 16 days at a maximum rate of 45 litres per second from Lower Petries Creek at or about map reference K38:801-646. This application is to replace consent CRC920305.

B L & Q F Sherriff

CRC962356 - to take up to 6912 cubic metres of water per 15 days at a maximum rate of 32 litres per second from the Orari River at or about map reference K38:800-633. This application is to replace consent CRC920281.

W B Sherriff

CRC970538 - to take up to 5615 cubic metres of water per 13 days at a maximum rate of 5 litres per second from Upper Petries Creek 1 at or about map reference K38:799-659. This application is to replace consent CRC920264.

CRC970537 - to take up to 19655 cubic metres of water per 13 days at a maximum rate of 17.5 litres per second from bore K38/0652 at or about map reference K38:799-659. This application is to replace consent CRC920263A.

A J & A I Stalker

CRC970445 - to take up to 30240 cubic metres of water per week at a maximum rate of 80 litres per second from Coopers Creek at or about map reference K38:713-869. This application is to replace consent CRC920458.

B G Stratford

CRC970459 - to take up to 36290 cubic metres of water per 14 days at a maximum rate of 30 litres per second from bore K38/0367 at or about map reference K38:798-683. This application is to replace consent CRC920285.

CRC970460 - to take up to 51840 cubic metres of water per 12 days at a maximum rate of 50 litres per second from bore K38/0042 at or about map reference K38:820-705. This application is to replace consent CRC917189.

G H & J M Tepper

CRC970396 - to take up to 11040 cubic metres of water per week at a maximum rate of 30 litres per second from bore K38/0653 at or about map reference K38:748-762. This application is to replace CRC920149.

E G Trumper

CRC970121 - to take up to 30000 cubic metres of water per 14 days at a maximum rate of 38 litres per second from bore K38/0372 at or about map reference K38:784-698. This application

is to replace consent CRC920616.

CRC970122 - to take up to 30645 cubic metres of water per 14 days at a maximum rate of 38 litres per second from Fitzgerald Drain at or about map reference K38:777-693. This application is to replace consent CRC920615.

M D Woodley

CRC970201 - to take up to 51120 cubic metres of water per 18 days at a maximum rate of 52.6 litres per second from bores K38/0378, K38/0379 and K38/0662 at or about map references K38:817-630, K38:817-631 and K38:811-635. This application is to replace consent CRC920488.

B J Youngman

CRC962513 - to take up to 262675 cubic metres of water per 100 days at a maximum rate of 32 litres per second from bore K38/0371 at or about map reference K38:843-640. This application is to replace consent CRC920638.

CRC962514 - to take up to 7560 cubic metres of water per week at a maximum rate of 15 litres per second from bore K38/0370 at or about map reference K38:825-634. This application is to replace consent CRC920636A.

CRC962517 - to take up to 97975 cubic metres of water per 20 days at a maximum rate of 63 litres per second from Canal Road Drain at or about map reference K38:825-634. This application is to replace consent CRC920635B.

CRC962515 - application to discharge up to 7560 cubic metres of water per 7 days at a maximum rate of 15 litres per second into Canal Road Drain at or about map reference K38:825-634. This application is to replace consent CRC920636B.

CRC962516 - application to construct a dam at or about map reference K38:825-634 (adjoining Canal Road for irrigation purposes) - new application.

CRC962533 - application to dam water - this application is to replace consent CRC920635.

HEARING 6, 7 May, Timaru

In consultation with the applicants, it was decided to consider the applications jointly. A water user group was formed to represent the interests of all applicants during the processing of the applications. Mr Richard de Joux, of Environmental Consultancy Services, acted as the group's technical representative, both in the consultation which occurred with the Canterbury Regional Council staff members and investigating officer before the hearing, and at the hearing.

In addition to this the following applicants appeared in support of the user groups applications at the hearing:-

P A Donehue
D W McFarlane
I Kerse
G H Tepper
A S G Henderson
E G Trumper

Orari River Water Users Group - Richard Trevor de Joux

Mr de Joux was retained by the Orari River Water Users Group to prepare and present technical evidence in support of their applications for water abstraction consents. Mr de Joux has prepared a number of papers on the hydrology of the region.

He presented considerable background information in relation to the formation and flow patterns of the Orari River. In describing the general nature of the Orari catchment, Mr de Joux pointed out that surface flow is lost to ground water in the section below the Orari River Gorge to Ohapi Settlement Road. However, gains in surface flow occur from Ohapi Settlement Road to the Coast. He noted that surface flows cease within the Orari River almost every year with the section from Lysaght Road to Ohapi Settlement Road being continuously dry during periods of prolonged drought. In his submission a continuous flow of approximately 6.6 cubic metres per second is required at the Orari gorge to maintain surface flow throughout the river channel, and in the event of a flow as low as 4 cubic metres per second, surface flow ceases below the State Highway 72 Bridge. Even during periods of severe drought permanent flow still occurs within the lower river. He concluded that groundwater levels within the lower catchment are

governed by sea level and that gains in surface river flow occur when the gradient of the riverbed intercepts the shallow unconfined aquifer. He suggested that the flow patterns of the mid Orari River are not influenced by irrigation abstractions because apart from two stock water abstractions there are no authorised abstractions of water from the main stem of the Orari River upstream of Rolleston Bridge. On this basis he concluded that existing abstractions have little or no impact on the occurrence or frequency of zero flows within the Orari River itself.

In relation to Coopers Creek Mr de Joux noted that very limited flow information is available. He suggested that surface flows within Coopers Creek are lost to the surrounding unconfined gravel of the plains and that for this reason continuous surface flow seldom occurred downstream of Palmer Road. Continuous flow only occurs throughout the length of Coopers Creek following periods of higher rainfall within the upper catchment. The lower part of Coopers Creek immediately below Canal Road maintains permanent flow, not through contributions from Coopers Creek itself, but from ground water recharge within the Canal Road Drain. In light of these flow patterns Mr de Joux submitted that Coopers Creek does not have the hydrological storage within its catchment to maintain permanent flow throughout its channels. He further submitted that because of these limitations as a water resource, the imposition of a minimum flow regime in Coopers Creek would achieve little in protecting instream values and would not assist in maintaining downstream flows.

Mr de Joux observed that flow data was also extremely limited for Rhodes Creek, Canal Road Drain and Orari Lagoon. He suggested that flows in drains in the area of the Lower Orari are primarily influenced by ground water levels. Recharge of these creeks is from the surrounding shallow unconfined ground water. He submitted on behalf of the applicants that while these drains do provide a habitat for fish and wildlife the drains are man made and have the primary purpose of maintaining manageable ground water levels.

Mr de Joux discussed the availability of shallow and deep ground water in the catchment. He concluded that bores abstracting water at depths greater than 15 metres would not be hydraulically connected to adjacent surface water bodies. There would, therefore, be no adverse impacts on the surface water resources of the Orari River or its tributaries from bores below 15 metres.

In relation to shallow ground water Mr de Joux submitted that while there is hydraulic connection with shallow ground water takes and the Orari River and its tributaries, any possible stream depletion effects would be minor. The imposition of restrictions on abstractions will not by themselves maintain continuous flows within the middle reaches of the Orari River and its

tributaries, nor would they lead to a resumption of, or an increase in surface flows. In support of this conclusion Mr de Joux suggested that the assumption of creeks in the Orari River catchment fully penetrating the surrounding aquifers is not valid, and thus the Jenkins method is not a useful model in assessing the effects of water abstraction on flows.

In relation to surface water abstractions Mr de Joux pointed out that only two of the applications were to abstract water at an increased instantaneous flow rate and that the applications were only for a 14% increase in irrigated area, with a corresponding 11% increase in instantaneous flow rate and a 29% increase in weekly volume. He submitted that the requested increases were modest in comparison with the available ground water resources in the region.

Submission of Phillip Allan Donehue

Mr Donehue is the chairman of the Orari River Water Users Group and has a farming operation at Clandeboye, running a mixture of dairying and pigs. He submitted that the use of water for irrigation is of critical importance for plant growth and is economically essential to the running of his farm. He outlined the steps taken to ensure that irrigation is as efficient as possible. These steps include taking fortnightly readings to ascertain moisture levels within the soil profile. It was submitted that the use of these readings and the need to avoid power wastage mitigates against inefficient irrigation.

Mr Donehue pointed out that irrigation systems required considerable capital investment, in his case $1,500.00 per hectare. Without irrigation production of milk would be reduced by approximately 30% - 40% and this would have flow on effects on staff employment and the region as a whole.

Submission of D G McFarlane

Mr McFarlane's application is under the name of Pine Haven Properties Limited. His farm is at Orton. His land use is flexible but currently comprises 250 hectares of cropping 30 hectares of black currants 12 hectares of carrots and 1,500 ewes. In addition to this 1,000 dairy cows are grazed during winter. Mr McFarlane also emphasized the expense, both in terms of capital expenditure and running costs, of irrigation. In these circumstances, he submitted, water is only applied when there is an economic benefit, and in combination with sound management practices such as early sowing and lambing, a range of crop maturities and good crop rotation.

Once again the wider community benefits of irrigation were emphasized. Mr McFarlane also pointed out that irrigation has made a considerable difference to the overall environmental attractiveness of the area.

Submission of Ian Kerse

Mr Kerse made a submission in support of his application for a Resource Consent for an increased take. He outlined the intention to extend irrigation over a new adjoining block of land. He emphasized that irrigation would make a huge difference in increasing and guaranteeing production levels.

Mr Kerse pointed out that irrigation on their property so far had been vital in the improvement of the soil health and structure, the maintenance of a good healthy pasture cover, and the establishment of tree shelter plantings which minimise wind erosion and provide habitats for wildlife.

Like the other applicants, Mr Kerse emphasised that inefficient irrigation is avoided. As well as the cost, he pointed out that overwatering tends to leach vital nutrients and inhibit plant growth. Mr Kerse also made the point that the rates applied for were maximum rates and that the average rate of take would actually be much lower.

Submission of G H Tepper

Mr Tepper has a small 44 hectare farm which he and his wife farm intensively. The property grows mainly horticultural crops as well as a herd of up to 100 herd of cattle.

Mr Tepper submitted that irrigation is vital for horticultural production. Once again he pointed out the factors mitigating against overwatering. As well as the expense, in the horticultural situation, overwatering could lead to root rot and fungal growth.

Submission of A F G Henderson

Mr Henderson lives close to the outlet of the Orari into the Orari lagoons. Mr Henderson submitted that the old Orari Lagoon is a very valuable wildlife and fisheries habitat and these must be maintained as such. He also pointed out that many contributing factors affect water

levels and water quality in the old Orari Lagoon. He submitted that his experience over the last 36 years suggested that the effects of water abstraction are minimal.

Mr Henderson suggested that a number of factors affect the lagoon inflow and outflow. These include:-

- Ground water levels to the north of the lagoon; Mr Henderson suggested that much of this ground water flow comes from sources outside the Orari catchment.
- Flows from the North East channel. This major inflow is fed by drains north of Canal Road. These streams are not used for irrigation.
- Settlement Road drain and other side drains.

Outflow is affected by seepage through the beach and outflow through pipes to the river lagoon. Mr Henderson submitted that this outflow is totally dependant on favourable sea and river conditions. The flow at the outlet is determined by the degree to which outflow is constricted by factors such as low river flows or wave action.

SUBMISSIONS

Submissions to the applications were received from the Central South Island Fish & Game Council, New Zealand Salmon Anglers, L Burdon, Alpine Dairy Products Limited and M Simpson.

Alpine Dairy Products Limited ("Alpine Dairy Products")

Alpine Dairy Products was in favour of the consents being granted as applied for. It emphasised that it supported sustainable and uninterrupted uptake of water for irrigation purposes in general and the applicants applications in this particular case. Alpine Dairy Products stressed the social and economic importance of farming under irrigation to the respective applicants, Alpine Dairy Products and the wider South Canterbury community. It was also pointed out that Alpine Dairy Products has taken a number of steps to mitigate the effect on the environment of dairy farming in the area; by dealing with waste water, spillage issues and decreasing the water take from the Canal Road Drain.

Central South Island Fish & Game Council ("Central South Island Fish & Game Council")

The Central South Island Fish & Game Council's submission was presented at the hearing by Mr Frank Scarf, a Fish & Game Officer employed by the Central South Island Fish & Game Council. Mr Scarf noted that little is known about the hydrology of upper Coopers Creek, lower Coopers Creek/Fitzgeralds Drain, Petries Drain, Rhodes Stream/Canal Road Drain and the lower Orari River.

Mr Scarf noted Central South Island Fish & Game Council's concern that while the applications were only for a marginal increase of rate of take, the volume sought would involve a significant increase from the volume taken up to now. Central South Island Fish & Game Council is particularly opposed to any applications which seek allocation above 250 m^3/ha/wk it was submitted by Central South Island Fish & Game Council that any allocation above 250 m^3/ha/wk is contrary to Canterbury Regional Council policy relating to the effective and efficient use of water.

Fisheries Values

Coopers Creek is viewed by Central South Island Fish & Game Council as a suitable area for troutspawning and an excellent nursery stream. Central South Island Fish & Game Council has found it necessary in most years to salvage fish during the low flow season, usually between State Highway 79 and Pitt Road. The Clandeboye Drains also contain ideal spawning sections and provide a nursery habitat for trout. Brown Trout are also present throughout the Lower Orari River and sea run trout trade between the sea and the lower reaches of the Orari up to the Ohapi Creek confluence. During the spawning season these fish venture as far up the Orari as Badhams Bridge to spawn.

Mr Scarf outlined Central South Island Fish & Game Council's concerns about the protection of the fishery. He emphasised that agricultural land use generally has an adverse impact on water quality. Stock access to the banks of tributary streams may result in pugging of stream margins, damage to the bank and disruption to spawning beds and instream ecology. Mr Scarf voiced Central South Island Fish & Game Council's view that riparian management was a necessary mitigation measure to offset the impact of water abstraction.

Central South Island Fish & Game Council was concerned about the over allocation of surface

water and interconnected shallow ground water to irrigation. Mr Scarf made the point that short-term pumping at a high rate may frequently be worse for marine life than a consistent take at a low rate, in that flow levels would fluctuate less where there was a consistent take.

Mr Scarf supported the imposition of a minimum flow regime to protect instream habitat. He suggested that abstraction could be restricted to 50% of consented allocation when flow falls below MALF and that abstraction be totally suspended when this flow falls below a one in five year low flow event.

Department of Conservation

Martin John Rutledge made a submission at the hearing on behalf of the Department of Conservation. He submitted that the Orari together with its tributaries and associated wetlands was a significant habitat for both exotic and native species of aquatic life. There were many potential adverse impacts associated with reduced flows through the area. Mr Rutledge was of the view that there was insufficient hydro geological data to determine the exact nature in relationship of ground water and surface water resources in this area. He also suggested that there was little site specific in stream environmental data to provide an appropriate analysis of adverse effects on the fishery. In light of this he suggested that it could not be concluded that the current levels of abstraction were sustainable in the long term. The Department of Conservation therefore adopts a precautionary approach in the absence of data on potential adverse effects of abstraction. It suggests that a minimum flow regime be put in place with a seven day MALF at the Orari Gorge to be adopted as a benchmark.

Lee Burdon

Lee Burdon presented an oral submission to the hearing committee. She said that she had moved to her property in 1959. She had noticed in recent years that as soon as irrigation began on the Stalkers property the creek through her property dried up within 24 hours. In light of this she was directly opposed to any increased ground and surface water takes from the Upper Coopers Creek area. If any consent was to be given for an increased take she would like to see it restricted to takes for a short period of time.

New Zealand Salmon Anglers Association

Rex Hobbs, on behalf of New Zealand Salmon Anglers, endorsed the submissions of those

submitters advocating caution in granting consents. He particularly endorsed the submission of Frank Scarf for Central South Island Fish & Game Council.

McGregor Simpson

Mr Simpson told the hearing committee how he and his family had a long association with the Arundel area and how he in particular was very familiar with the geology and hydro geology of the area. Mr Simpson has two blocks at Arundel. Water is essential to these blocks and to the agricultural viability of farming in the Arundel area.

Mr Simpson was concerned that any substantial increase in ground water extraction in the Coopers Creek area would deplete water storage systems in Arundel. He suggested that the source of many of the aquifers in the Arundel area is the Orari River. He suggested that there was a correlation between irrigation on Mr Kerse's property and drying up of a creek on his land. He further suggested that any increase in the quantity of surface and ground water taken in the Coopers Creek area had the potential to threaten the water supply in Arundel. Mr Simpson supported consents being issued for existing uses for a short time to allow a total hydro geological and ecological assessment of the effects of abstraction in the area.

SECTION 42 RESOURCE MANAGEMENT ACT 1991 REPORT OF W D PASCOE, REPORTING OFFICER

The Investigating Officer's report under Section 42A of the Resource Management Act 1991 was prepared and presented at the hearing by Warwick Pascoe. The report treated the applications to take surface and ground water and dam water as non-complying activities as defined in Section 2 of the Resource Management Act 1991. Mr Youngman's application to discharge ground water into Canal Road drains (CRC 96515) was also treated as a non-complying activity for which a discharge permit was required under Section 15(1)(a) of the Resource Management Act 1991.

ACTUAL AND POTENTIAL EFFECTS

The Investigating Officer considered that the following would be actual or potential effects arising from the abstraction of surface water and hydraulically connected ground water:

- Depletion of the availability of water out of stream/out of aquifer and in stream uses.
- Flow variability.
- Depletion of aquatic and riparian habitat availability and quality.
- Depletion of the assimilative capacity of the water body.
- Completion of ground water recharge.
- Effects on the mauri of a water body (eg reduced water quality and desecrated wahi tapu and wahi taonga).
- Reduction of recreational opportunities.
- Depletion of mahiki kai and resulting impact on the exercise of kaitiakitaka by runaka.
- Increased productivity of agricultural land with the possible corresponding increase in non-point source discharges into water bodies and stock impact on the banks of waterways.
- Increased duration, frequency and intensity of low flows.
- Exposure of the river bed.
- Lowering of the water table.

The Investigating Officer considered that the main or potential effects, arising from the abstraction of ground water in the Orari catchment (other than that from hydraulically connected ground water, which is covered under surface water abstractions above) were as follows:

- Reduction in water levels (drawdown) in neighbouring wells.
- Seawater intrusion of the aquifer from over abstraction.
- De-watering of the aquifer with excess abstraction.

- Contamination of the aquifer from improperly sealed/screened wells.

Mr Pascoe noted with regard to ground water applications, that there was only one application for a new ground water abstraction.

Mr Pascoe discussed the hydraulic connection between ground water takes on applicants' properties, particularly that of Mr Kerse and the likely stream depletion effects in the surrounding area. Using the best method currently available (the Jenkins method) Mr Pascoe concluded that stream depletion effects from the Kerses' well are likely to be negligible at distances greater than three kilometres from the well.

The Investigating Officer considered that the main, actual and potential effects arising from Mr Youngman's application to discharge ground water into Canal Road drain being granted were:

- The possible contamination of the surface water body by contaminated ground water.
- A change in the flow regime of Canal Road drain.
- Possible impacts on the aquatic eco system.
- Possible impacts on the cultural value of the resource.
- An improved ability to irrigation Mr Youngman's adjoining property.
- Possible impacts on takata whenua values (specifically from mixing water from different water bodies).

Although water quality data from the Clandeboye area is limited, the Investigating Officer concluded after discussions with water quality scientists that there were no specific concerns relating to this activity.

The Investigating Officer considered that the main actual or potential effects of Mr Youngman's application to construct a temporary dam and dam water in the Canal Road drain being granted are:

- The impedance of fish passage.
- Erosion of the bank when water flows around the sides of the dam.
- Reduction in aesthetic values.
- Impacts on the aquatic eco system arising from sand bag material deterioration.
- An improved ability to irrigate the land adjoining the dam.

The Investigating Officer concluded that water abstractions for irrigation purposes in the middle and lower Orari are of great importance to local farming communities but that the Orari catchment as a whole and the river mouth and lagoons in particular have in stream values worth protecting. There is only limited geological hydrological and ecological data for the area and while there is some concern about potential adverse effects from abstractions, no one method of setting minimum flows or a minimum flow regime is likely to be appropriate to all the water bodies in the catchment. The imposition of a minimum flow regime is not likely to be appropriate to all the water bodies in the catchment. Deciding whether or not to impose a minimum flow regime, and, if one is imposed, deciding on the minimum flow level requires a weighing up of various competing demands for the resource. A close examination of any potential or adverse effects was required in completing the weighing up process. In the Investigating Officers opinion this examination could not be fully undertaken with the information available immediately before the hearing.

The Investigating Officer considered that sufficient information had only been supplied to enable recommendations to be made in relation to the following applications:

- CRC 962377 (Brown G S).
- CRC 970460 (Stratford B G).

These applications were to take ground water from deep wells which on the basis of available information are considered separate from surface water bodies and would not therefore adversely affect other water uses. The Investigating Officer recommended that the applications be granted for a duration of 20 years:

- CRC 962533 (Youngman B J)

  The Investigating Officer recommended that this application be granted subject to a condition requiring fish passage to be maintained and a condition requiring unimpeded water passage when irrigation is not occurring. The Investigating Officer further recommended that the application be granted only for a duration of five years because in his opinion granting a consent to dam Canal Road drain effectively created an "occupancy" which could not be revoked through the review process.

- CRC 962516 and CRC 962151 (Youngman B J)

  The Investigating Officer recommends that both of these applications, to place a dam on the bed of Canal Road drain and to discharge water into Canal Road drain, be granted.

The Investigating Officer recommended that any decision on all of the remaining applications be deferred until such time as an assessment of effects consistent with Section 88(6) of the Resource Management Act 1991 is provided.

COMPLIANCE WITH POLICY STATEMENTS

The Proposed Regional Policy Statement

Part II and in particular Chapter 9 of the proposed Regional Policy Statement sets out the issues, objectives and policies relating to the management of the regions water resources.Those issues, objectives and policies were considered by the Committee. In deliberating on this issue the Committee had to recognise the competing demands on the resource in this case. On the one hand there are the abstractors who wish to irrigate their land. The Committee recognises the immense importance of irrigation in agriculture in this South Canterbury area. The applicants submissions before the Committee emphasised both the importance of irrigation to the individual farmer and the very important flow on effects to the South Canterbury economy. The Committee recognises the vital part that irrigation has to play in fostering social, economic and cultural values in the South Canterbury community.

The Committee also had to consider the competing demand of instream users and those who advocate the preservation of instream values for their natural character and their ecological life supporting capacity. These interests were represented at the hearing by Central South Island

Fishing & Game Council, the Department of Conservation and the New Zealand Salmon Anglers Association. The Committee recognises the Orari River systems value as an aquatic ecosystem and a significant habitat of indigenous and exotic marine life.

The Committee was also required to consider the interests of other instream users and those who drain or divert water. Water is a limited resource and the Committee must consider the effect of abstraction of surface and ground water in one particular area on other users of the resource.

ISSUES

In light of the issues and objectives set out in the proposed regional plan the Committee was required to consider a number of issues including the following:-

- Efficient Allocation
- Hydraulic connection between ground water takes and flows and impact on other water uses.
- Need for riparian management.
- Appropriate duration of consents if granted.
- Degradation of instream values.

Efficient Allocation

Mr Scarf had submitted on behalf of Central South Island Fish & Game Council that historically the South Canterbury Catchment Board had imposed a maximum abstraction rate of 250 m^3/ha/pw. The North Canterbury Catchment Board has used a maximum rate of 300 m^3/ha/pw. Mr de Joux submitted that 300 m^3/ha/pw was an appropriate maximum abstraction rate in this particular catchment.

The Committee considers that while 250 m^3/ha/pw was considered an appropriate maximum abstraction rate by the South Canterbury Catchment Board, this figure has never been formally adopted by the Canterbury Regional Council. Since the formation of the Canterbury Regional

Council wider issues have been taken into account when considering each individual case. The allocated limit has always depended on the circumstances and environment of the take. A number of factors must be taken in to account, including; the moisture holding potential of the soil, the nature and purpose of irrigation in the area and the abundance of the resource. The Committee noted that there is a possibility of a benchmark figure being set in the natural resources regional plan, but that because of the variety of different conditions present in Canterbury there would always be the need for a discretion for the Consent Authority to determine the appropriate allocated level.

The Committee noted the applicant's submissions that the cost of irrigation, and the potential detrimental effects to the land of over irrigation, mitigated against inefficient allocation. The Committee also noted that irrigation enabled high value yields of production in the catchment area and that these high yields depended on strategic irrigation. As in the Ohapi Creek catchment there is a complimentary mix of land uses in the catchment area. Water demands for cropping farmers is largely limited to the spring and early summer growing season with demand decreasing during late summer and autumn, when the water is required by pastoral farmers. The demand for pastoral farmers declines in autumn when the fish spawning season begins.

Hydraulic Connection and Stream Depletion

The Committee accepts that shallow water ground takes will inevitably have some effect on nearby streamflows, especially in the mid section of the catchment where the flow goes through a shallow unconfined aquifer. However, the balance of evidence presented suggested that it was unlikely that there was any hydraulic connection between ground water abstractions in the Upper Coopers Creek area and other properties more than three kilometres away. On this basis the Committee concludes that groundwater abstractions on the Kerse's property have little or no effect on ground and surface water flows in and around Arundel.

Riparian Management

The issue of riparian management was not discussed at length at the hearing. The Committee considers that the development of a natural resources regional plan will assist in this area. It is reluctant to impose conditions requiring riparian management, especially where it could be argued that there is little or no direct connection with the consent being applied for.

Appropriate Duration

The Committee is conscious that it is desirable from the applicants point of view to have consents issued for as long as possible. The Committee is also mindful of the fact that water consents have recently been issued in the Ohapi Creek catchment area which adjoins and shares some of the same characteristics of the Orari catchment. It is for this reason the Committee has determined that the expiry date of the consents now issued is to be the same as that for those issued for the Ohapi. The consents will therefore be issued for 33 years expiring on the 7th day of December 2030. The provisions of section 128 of the Resource Management Act 1991 allow the Council to review conditions of the consents should circumstances change or new information come to light.

DECISION

The Committee had regard to the actual and potential effects on the environment of allowing these activities, the Regional Policy Statement and the other relevant considerations listed in section 104(1) of the Resource Management Act 1991 in reaching its decision. There are no relevant objectives or policies in the Transitional Regional Plan, so section 105(2)(b)(ii) is not applicable. This means that the Committee may only grant the consents applied for if it is satisfied that the adverse effects on the environment will be minor. The Committee accepts that there will inevitably be some detriment to instream values associated with ground and surface water abstractions from the Orari River system. Any detriment needs to be weighed very carefully against the positive aspects of irrigation. Placing undue restriction on irrigation would have an enormous and very serious impact on the region's social and economic welfare. The Committee is satisfied that the adverse effects on the environment of the ground and surface water takes applied for will be minor. On that basis the Committee considers that the consents should be granted.

The Committee accepts the investigating officer's suggestion that because of the variety of factors and considerations that need to be taken into account, it is difficult to establish one minimum flow figure for the whole length of the Orari and its tributaries. Any minimum flow regime would need to take into account all the competing factors, and set appropriate levels and appropriate measurement points on the Orari and its tributaries. The Committee believes that there is not enough data to do this at this stage. This is particularly the case for the mid Orari and its tributaries. The Committee acknowledges the need to establish some base line data with

regard to minimum flows.

The Committee is wary of overcommitting the resource. It notes that two applicants have revised their applications to bring them in line with the allocated rate of the user group as a whole. The Committee is of a view that some of the other takes applied for require adjustment to bring the allocative rate to an acceptable level. It also notes that the increased takes applied for will frequently mean that more land is irrigated and therefore the economic benefit of irrigation will be increased. The Committee has therefore decided to grant the consents to take water applied for, with some minor adjustments, subject to the conditions listed below.

With regard to B J Youngman's application to construct a dam (CRC962516), application to dam water (CRC962533) and application to discharge water (CRC962515) (all non-complying activities), the Committee had regard to the actual and potential effects on the environment of allowing these activities, the Regional Policy Statement and the other relevant considerations listed in section 104(1) of the Resource Management Act 1991. The Committee is satisfied that the actual and potential effects on the environment of allowing this activity will be minor and that it ought to exercise its discretion and grant the consents applied for subject to the conditions specified below.

The term of each consent shall be 33 years so that each consent will expire 7 December 2030.

CONDITIONS

Surface Water Takes

The following conditions apply to all surface water take consents:-

1. The rate at which water is taken shall not exceed the {rate in litres per second (*L/s*)} with a volume not exceeding {volume in cubic metres (m^3)} in any period of {the number of consecutive days} specified in respect of each consent under the subheading " Table A Specific Conditions" below.

2. A fish screen shall be operated and maintained on the intake to ensure fish are prevented from passing in to the intake.

3. When requested in writing by the Canterbury Regional Council the hours and rate at which water is taken shall be recorded to within an accuracy of 10%. A copy of the records shall be provided to the Canterbury Regional Council when requested.

4. The Canterbury Regional Council may annually, on the last working day of June, serve notice of its intention to review the conditions of this consent for the purposes of:-

   a. dealing with any adverse effect on the environment which may arise from the exercise of the consent and which is appropriate to deal with at a later stage; or

   b. complying with the requirements of a relevant rule in an operative regional plan.

5. Charges set in accordance with Section 36 of the Resource Management Act 1991 shall be paid to the Canterbury Regional Council for the carrying out of its functions in relation to the administration, monitoring and supervision of Resource Consents and for carrying out its functions under Section 35 of the Act.

GROUNDWATER TAKES

The following conditions apply to all groundwater take consents:-

1. The rate at which water is taken from the bore(s) {bore number(s), diameter in millimetre and deep metres} shall not exceed {the rate in l/s} with a volume not exceeding (combined) {volume in cubic metres} in any period of {the number of consecutive days} specified in respect of each consent under the subheading " Table A Specific Conditions" below.

2. When requested in writing by the Canterbury Regional Council, the hours and rate at which the water is taken shall be recorded to within an accuracy of 10%. A copy of the records shall be provided to the Canterbury Regional Council when requested.

3. The Canterbury Regional Council may annually, on the last working day of June, serve notice of its intention to review the conditions of this consent for the purposes:-

   a. dealing with any adverse effect on the environment which may arise from the exercise of the consent and which is appropriate to deal with at a later stage; or

b. complying with the requirements of a relevant rule in an operative regional plan.

4. Charges set in accordance with Section 36 of the Resource Management Act 1991 shall be paid to the Canterbury Regional Council for the carrying out of its functions in relation to the administration, monitoring and supervision of Resource Consents and for carrying out its functions under Section 35 of the Act.

Table A Specific Conditions

Applicant's Name	Application No	Rate Litres per second (L/S)	Volume - Cubic metres (m^3)	Consecutive Days
A D Aker	CRC970461	15.2	8,430	7
	CRC970463	25	30,000	21
G S Brown	CRC962377	30	44,710	18
	CRC962378	30	29,810	18
	CRC962376	30	20,070	18
W D Brown	CRC962358	32	8,295	20
A P Donehue Farms Limited	CRC971307	20	41,472	24
P A & M L Donehue Farms Limited	CRC970533	25	28,800	16
	CRC970532	25	28,800	16
J S Ellery	CRC962558	45.5	3,280	Daily
R L & E Gould	CRC962512	20	30,240	21
A S G Henderson	CRC970541	32	58,385	21
I J & J A Kerse	CRC962360	76	137,895	21
Kruize A & J E, Simpson T M trading as Kaumara Partnership	CRC97517	32	16,590	30
	CRC970518	26	37,065	18
Mahorall Farms Limited	CRC970546	78	112,320	30
I D & E Mowat	CRC962478	13	10,110	12
	CRC970159	62	52,230	18
	CRC970160	30	9,940	8
N E Palmer Ltd	CRC962566	70	52,800	14
Pinehaven Properties Limited	CRC970525	55	71,280	18

Poplars Farm Limited	CRC962477	46	54,650	15
A J, D M, L J & D R Pye	CRC970883	38	10,835	10
N A & D N Ritchie	CRC962539	24	17,357	15
	CRC962538	24	31,104	18
H J B Sheed	CRC962391	42	38,100	14
A C Sheriff	CRC970382	35	42,335	14
A C, N T & M M Sheriff	CRC970381	45	62,210	16
B L & Q F Sheriff	CRC962356	32	6,912	15
W B Sheriff	CRC970538	5	5,615	13
	CRC970537	17.5	19,655	13
A J & A I Stalker	CRC970445	80	30,240	7
B G Stratford	CRC970459	30	36,290	14
	CRC970460	50	51,840	12
G H & J M Tepper	CRC970396	30	11,040	7
E G Trumper → transferred to ↓ J R BOWEN →	CRC970121	38	30,000	14
	CRC970122	38	30,645	14
M D Woodley	CRC970201	52.6	51,120	18
B J Youngman	CRC962513	32	262,675	100
	CRC962517	63	94,285	20
	CRC962514	15	7,560	7

Surface Water Takes from the Unnamed Tributary of the Orari ("Aker Creek") CRC 970463 and CRC 962566

Although this stream eventually feeds the lower Orari, the original origin of the water appears to be the Ohapi catchment. The Committee therefore felt that it was appropriate for the surface water takes from this stream to be subject to the same minimum flow regime as the Lower Ohapi takes. Consents CRC 970463 and CRC 962566 are therefore subject to the following conditions:

1. The taking of water in terms of this permit shall cease whenever the flow in the Ohapi Creek at Brown Road (K38: 812-619), as estimated by the Canterbury Regional Council, falls below 570 l/s.

2. The taking of water in terms of this permit shall be reduced to ½ of the maximum abstraction rate for the respective permits listed in the table above, whenever the flow in the Ohapi Creek at Brown Road (map reference K38: 812-619), as estimated by the Canterbury Regional Council, falls below 1,000 l/s.

   PROVIDED THAT whenever the Canterbury Regional Council, in consultation with a water users committee representing all water users who are subject to this condition, has determined upon a water sharing regime which restricts abstraction from the Ohapi Creek in accordance with the minimum flow of part 1 of this condition, then the taking of water in accordance with that determination shall be deemed to be in compliance with this condition.

Discharge of Water into Water
(B J Youngman CRC962515)

1. The rate at which water is discharged shall not exceed 15 l/s with a volume not exceeding 7,560 m^3 in any period of seven consecutive days.

2. The Canterbury Regional Council may annually, on the last working day of April, serve notice of its intention to review the conditions of this consent for the purposes of:-

   a. dealing with any adverse effect on the environment which may arise from the exercise of the consent and which is appropriate to deal with at a later stage; or

   b. complying with the requirements of a relevant rule in an operative regional plan.

3. Charges, set in accordance with Section 36 of the Resource Management Act 1991, shall be paid to the Regional Council for the carrying out of its functions in relation to the administration, monitoring and supervision of Resource Consents and the carrying out of its functions under Section 35 of the Act.

Construct Dam
(B J Youngman CRC962516)

1. The dam shall be constructed in accordance with details submitted with the consent application, dated 4 June 1996.

2. All practicable measures shall be undertaken to minimise adverse effects on property, amenity values, wildlife, vegetation and ecological values.

3. All reasonable measures shall be undertaken to minimise the disturbance of the bed of the stream.

4. The construction of the dam shall not prevent the passage of fish.

5. The Canterbury Regional Council may annually, on the last working day of April, serve notice of its intention to review the conditions of this consent for the purposes of:-

   a. dealing with any adverse effect on the environment which may arise from the exercise of the consent and which is appropriate to deal with at a later stage; or

   b. complying with the requirements of a relevant rule in an operative regional plan.

6. Charges, set in accordance with Section 36 of the Resource Management Act 1991, shall be paid to the Regional Council for the carrying out of its functions in relation to the administration, monitoring and supervision of Resource Consents and the carrying out of its functions under Section 35 of the Act.

Dam Water
(B J Youngman CRC962533)

1. The volume of water dammed shall not exceed 200 m^3.

2. The height of dammed water shall not exceed 0.3 metres above the stream bed level.

3. The damming of water shall not prevent the passage of fish.

4. Water shall not be dammed when abstraction is not occurring.

5. The Canterbury Regional Council may annually, on the last working day of April, serve notice of its intention to review the conditions of this consent for the purposes of:-

   a. dealing with any adverse effect on the environment which may arise from the exercise of the consent and which is appropriate to deal with at a later stage; or

   b. complying with the requirements of a relevant rule in an operative regional plan.

6. Charges, set in accordance with Section 36 of the Resource Management Act 1991, shall be paid to the Regional Council for the carrying out of its functions in relation to the administration, monitoring and supervision of Resource Consents and the carrying out of its functions under Section 35 of the Act.

E G Trumper CRC970121 and CRC970122

Additional condition on both consents as follows

The taking of water in terms of this consent {number} and consent {number} shall not exceed a combined rate of {rate} litres per second and a combined volume of {volume} cubic metres in any period of {days} consecutive days.

Dated this 18th day of July 1997

.....
W S Penno (Chairperson)