

**BEFORE THE ENVIRONMENT COURT
I MUA I TE KOOTI TAIAO O AOTEAROA**

UNDER the Resource Management Act 1991

IN THE MATTER of appeals under Clause 14 of the First Schedule of the Act

BETWEEN **TRANSPOWER NEW ZEALAND LIMITED**
(ENV-2018-CHC-26)

FONTERRA CO-OPERATIVE GROUP
(ENV-2018-CHC-27)

HORTICULTURE NEW ZEALAND
(ENV-2018-CHC-28)

(Continued next page)

**WILL SAY STATEMENT OF PETER CALLANDER ON BEHALF OF
SOUTHLAND REGIONAL COUNCIL IN RELATION TO TOPIC B1**

GROUNDWATER

19 November 2021

Judicial Officer: Judge Borthwick

Respondent's Solicitor
PO Box 4341 CHRISTCHURCH 8140
DX WX11179
Tel +64 3 379 7622
Fax +64 379 2467

WYNNWILLIAMS

Solicitor: P A C Maw
(philip.maw@wynnwilliams.co.nz)

ARATIATIA LIVESTOCK LIMITED
(ENV-2018-CHC-29)

WILKINS FARMING CO
(ENV-2018-CHC-30)

**GORE DISTRICT COUNCIL, SOUTHLAND DISTRICT
COUNCIL & INVERCARGILL DISTRICT COUNCIL**
(ENV-2018-CHC-31)

DAIRYNZ LIMITED
(ENV-2018-CHC-32)

H W RICHARDSON GROUP
(ENV-2018-CHC-33)

BEEF + LAMB NEW ZEALAND
(ENV-2018-CHC-34 & 35)

DIRECTOR-GENERAL OF CONSERVATION
(ENV-2018-CHC-36)

SOUTHLAND FISH AND GAME COUNCIL
(ENV-2018-CHC-37)

MERIDIAN ENERGY LIMITED
(ENV-2018-CHC-38)

ALLIANCE GROUP LIMITED
(ENV-2018-CHC-39)

FEDERATED FARMERS OF NEW ZEALAND
(ENV-2018-CHC-40)

HERITAGE NEW ZEALAND POUHERE TAONGA
(ENV-2018-CHC-41)

STONEY CREEK STATION LIMITED
(ENV-2018-CHC-42)

THE TERRACES LIMITED
(ENV-2018-CHC-43)

CAMPBELL'S BLOCK LIMITED
(ENV-2018-CHC-44)

ROBERT GRANT
(ENV-2018-CHC-45)

**SOUTHWOOD EXPORT LIMITED, KODANSHA
TREEFARM NEW ZEALAND LIMITED, SOUTHLAND
PLANTATION FOREST COMPANY OF NEW ZEALAND**
(ENV-2018-CHC-46)

**TE RUNANGA O NGAI TAHU, HOKONUI RUNAKA,
WAIHOPAI RUNAKA, TE RUNANGA O AWARUA & TE
RUNANGA O ORAKA APARIMA**
(ENV-2018-CHC-47)

PETER CHARTRES
(ENV-2018-CHC-48)

RAYONIER NEW ZEALAND LIMITED
(ENV-2018-CHC-49)

**ROYAL FOREST AND BIRD PROTECTION SOCIETY
OF NEW ZEALAND**
(ENV-2018-CHC-50)

Appellants

AND

SOUTHLAND REGIONAL COUNCIL

Respondent

Introduction, qualifications and experience

- 1 My name is Peter Francis Callander. My qualifications will be set out in full in my evidence in chief, however, in brief: I am a Technical Director of Water Resources, with a specialisation in groundwater, for the environmental consulting firm Pattle Delamore Partners Ltd. I hold the qualifications of BSc (Geology) from the University of Auckland and MSc (Earth Sciences) from the University of Waterloo (Canada).

Code of conduct

- 2 I have read the Code of Conduct for Expert Witnesses in the Environment Court Practice Note 2014 and agree to comply with it. The contents of this statement are within my area of expertise. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed in this statement.

Scope of will say statement

- 3 I have prepared this will say statement in anticipation of facilitated expert conferencing.
- 4 This statement addresses Issue 17 of Topic B1 and the changes sought by Wilkins Farming Company Limited (**Wilkins**) to Appendix L.5. Specifically, those changes are:
 - (a) To increase the primary allocation limits in Table 4 of Appendix L.5 .1 for the Upper Mataura and Wendonside groundwater zones;
 - (b) To remove the Garvie Aquifer from the Wendonside groundwater zone and reinstate it as a separate confined aquifer zone in Appendix L.5.2.

Increased primary allocation limits

- 5 In my evidence, I intend to say:
 - (a) Groundwater does not exist in isolation from surface water. Simply specifying an allocation volume that is less than the amount of recharge does not necessarily represent a sustainable allocation limit. When considering how much groundwater to allocate, in addition to the percentage of recharge, consideration also needs to be given to the effect that allocation may have on surface water

resources and other values related to ecology, water quality, and the maintenance of groundwater pressure.

- (b) The Upper Mataura and Wendonside groundwater zones (including the Garvie Aquifer) occur in locations where groundwater interacts with, and contributes to the flow of, the Mataura River. The Mataura River is subject to a Water Conservation Order and the current estimates by Southland Regional Council are that groundwater abstractions may be reducing flow in the Mataura River by an amount that is inconsistent with the Water Conservation Order. This is a factor that should be taken into account when considering any change to groundwater allocation limits in the Upper Mataura and Wendonside areas.
- (c) The proposed Southland Water and Land Plan (**pSWLP**) sets the primary groundwater allocation limit at 35% of the rainfall recharge on the aquifer. This is an initial allocation based on the abstraction limits proposed by Ministry for the Environment in their 2008 document for their Proposed National Environmental Standard on Ecological Flows and Water Levels. The discussion of Issues within the pSWLP notes that, "*The primary allocation thresholds in this Plan are therefore intended to be precautionary, with fixed allocation limits to be developed and implemented within the FMU sections of this Plan over time*".
- (d) Dr Sklash is Wilkins' groundwater expert. He proposes that additional allocation should be allowed based on runoff from the hills that border the Upper Mataura and Wendonside groundwater zones. His calculation uses the same approach as the pSWLP uses for rainfall infiltration occurring directly onto the groundwater zone. To apply that calculation to the runoff from the hills seems inaccurate, although he provides some reasons why that inaccuracy may be on the conservative side. But there is also uncertainty as to how much of this runoff actually enters the aquifer as the timing and spatial distribution of that runoff is quite different to the rain that falls directly onto the groundwater zone.

- (e) Southland Regional Council have advised me that the current state of allocation relative to these limits for the Upper Mataura and Wendonside groundwater zones is as follows:

Table 1. Current and Proposed Groundwater Allocations		
	Upper Mataura	Wendonside
Current Consented Abstraction Totals (million m ³ /year)	2.90	8.57*
pSWLP Allocation Limit (million m ³ /year)	10.4	9.56
Allocation Limit proposed by Dr Sklash (million m ³ /year)	33.7	16.7
Note: * This allocation total is for the Wendonside zone, including the Garvie Aquifer		

- (f) The increase in allocation limits proposed by Dr Sklash for the Upper Mataura and Wendonside groundwater zones is significant. It would also seem unnecessary to contemplate such a large increase if there is not much pressure on the currently proposed allocation limits.
- (g) In my view, any increase in the allocation would need to be justified by a much more careful consideration of this extra recharge source, including the rate of groundwater throughflow and storage for each groundwater zone and potential implications for both groundwater and surface water resources arising from the increased allocation limit. The opportunity to consider any potential change to the primary allocation can be raised during the development of the water management approaches for the relevant Freshwater Management Unit (FMU), which will be a more appropriate forum than the current pSWLP appeals process.

Garvie aquifer

6 In my evidence, I intend to say:

- (a) The Garvie Aquifer is a zone of permeable gravelly strata that underlies the Wendonside groundwater zone. The Garvie Aquifer

is thought to discharge via diffuse seepage into springfed streams and the Waikaia River, all of which contribute surface water flow to the Mataura River.

- (b) Aquifer tests on bores that abstract water from the Garvie Aquifer show that the strata overlying that aquifer shows signs of a leaky connection to the overlying Wendonside strata. On this basis, I consider that the Garvie Aquifer is best defined as semi-confined. The pSWLP notes that for semi-confined aquifers the, *“allocation will be managed as part of that established for adjacent, hydraulically connected groundwater resources”*. Under such circumstances I consider it is sensible to combine the Garvie Aquifer into the Wendonside groundwater zone.



Peter Francis Callander

19 November 2021