**BEFORE THE CANTERBURY REGIONAL COUNCIL**

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| **In the matter of** | The Resource Management Act 1991 |
| **Between** | **CANTERBURY REGIONAL COUNCIL** |
| **And** | **ORARI WATER SOCIETY INCORPORATED**<br>Submitter |

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# EVIDENCE OF KERI JOY JOHNSTON – HEARING THREE
# ORARI-OPIHI-PAREORA SUB CHAPTER (SECTION 14)

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## Introduction

1. My name is Keri Joy Johnston. I have eleven years' experience in the field of natural resources engineering and resource management, primarily in water resources and irrigation.

2. I hold a Bachelor of Engineering in Natural Resources Engineering from the University of Canterbury. I am a Professional Member of the Institute of Professional Engineers New Zealand (MIPENZ) and a Chartered Professional Engineer (CPEng).

3. Upon completion of my degree, I worked for Meridian Energy Limited as a graduate civil engineer, based in Manapouri and Twizel. After twelve months, I accepted a position with Environment Canterbury (ECan) as a Consents Investigating Officer before taking on the role of Environmental Management Systems Engineer with the River Engineering Section of ECan. During my three and a half years with ECan, I was the Consents Investigating Officer for the applications associated with the Canterbury Regional Landfill at Kate Valley, and developed environmental management systems in accordance with ISO 14001 for several units within ECan.

4. I left ECan to join RJ Hall Civil and Environmental Consulting Limited (RJH) as an Environmental Engineering Consultant. I was employed in this position for three and a half years. Work mainly involved the preparation of resource consent applications for all land and water activities, and engineering related works, as well as being a contract Consents Investigating Officer for applications associated with the Central Plains Water Trust and the Ashburton Community Water Trust.

5. Since 2007, I have been a director and principal of Irricon Resource Solutions, a resource management and environmental engineering consultancy.

6. Even though this is a regional council plan hearing, I have complied with the code of conduct for expert witnesses contained in the Environment Court's Practice Note dated 31 March 2005 when preparing this evidence.

## Scope of Evidence

7. My evidence addresses the following topics:

   7.1 Storage in the Orari Catchment; and

   7.2 The "B" Block Minimum Flow in the Orari Catchment.

   7.3 Comments on the plan and S42A Reports.

8. In preparing this evidence, I have read:

   8.1 The Orari Sub-Chapter of the Proposed Land and Water Regional Plan ("the LWRP");

8.2 The evidence of Mr Richard De Joux (Environmental Consultancy Services) and Mr Greg Ryder (Ryder Consulting Limited), also for Orari Water;

8.3 S42A report by Ms Angela Dean for Environment Canterbury;

8.4 Appendix 3 to the S42A report by Ms Joanne Stapleton and Ms Jen Ritson; and

8.5 Submissions made on the Orari Sub Chapter.

## Background

9. I have had significant involvement with the Orari Steering Committee. I was asked on several occasions to attend the meetings as a technical advisor, and, in conjunction with Ms Susannah Black and Ms Jen Ritson, both of Environment Canterbury, undertook the task of calculating the actual allocation in the Orari and Ohapi catchments. The method used was that specified in the NRRP (and carried forward to the LWRP).

10. As a technical advisor, I was asked to have input into the storage rules for the catchment, particularly in respect of "A" takes to storage, as well as deriving the "B" permit minimum flow.

11. Therefore, I am writing this evidence with first-hand knowledge of the process undertaken to arrive at the proposed Orari plan that you have before you.

12. I would like to reiterate that the Steering Committee has had a very hard job to do. It is a collective of parties from all corners of the catchment, and with competing interests. This means that to reach a resolution that is good for the river as well as for the irrigators and recreational users of the river, all parties have had to "compromise". The process starts out with every one standing in their respective corners and ends with a hand shake in the middle. I think it is important that this is recognised because a lot of hard work has gone into the process to reach the point that we are at today, and in my view, the outcome is accepted by all involved as reasonable.

13. The above point is particularly relevant as the Orari River Catchment is different to most other surface water catchments in the Canterbury Region in that, of a total of 66 consents to take and use water, 50 are hydraulically connected groundwater takes and 16 are direct surface water takes. That is 83% of the consents are groundwater takes.

14. In determining what proportion of groundwater takes are to be included in the surface water allocation, the Jenkins method was used. I note Mr de Joux's comments about the Jenkins method and agree with him. It is an inherently conservative method, and the underlying assumptions of the method mean that it will over-estimate the surface water allocation.

15. For the Orari River catchment, because of the ephemeral nature of the river in its middle reach between SH72 and SH1, only 32 of the 50 groundwater consent are currently subject to any minimum flow restrictions, the rationale being that there

was no need to protect a dry river, and that because they are groundwater takes, even if the takes were to cease, there would be no direct response observed in the river flow. Mr de Joux elaborates on this point and provides further evidence as to why this is actually the case. It is also important to note that these consents are also not subject to any other restrictive conditions such as an annual volume on the take.

16. What this has meant is that the hydrology of the catchment and subsequent proposed management of the groundwater takes (the conjunctive use zone) has been hotly debated. Will minimum flow conditions on these takes have any real benefit to the river? For irrigators, who currently have 100% reliability of supply with no minimum flow restrictions, accepting a reduction in reliability of supply to a modelled 79% took some convincing. This reliability of supply corresponds to a minimum flow of 500L/s at Orari River upstream of Ohapi, with flow sharing as specified in Table 1 of the Orari Plan at three years from the operative plan.

17. This is potentially a massive gain for the river and a significant adverse change for irrigators.

18. It must also be noted that the allocation that was determined was consented allocation. Therefore, it does not include takes that do not require resource consent, such as dairy shed water at the date the plan was notified. This is very important to keep in mind, and I will address this point further later in this evidence.

## "A" Takes to Storage

19. One of the ways that the proposed reduction in reliability was able to be tolerated by the irrigators was the proposal to include rules enabling "A" takes to storage.

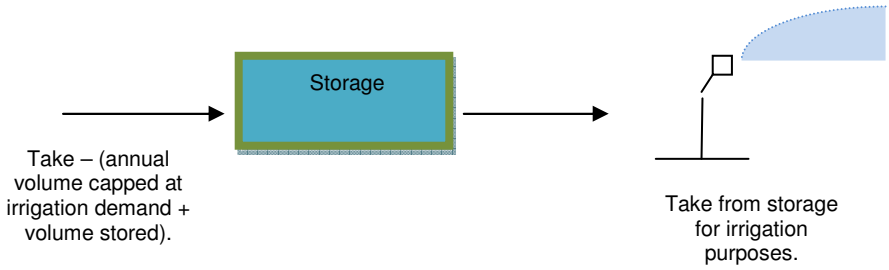
20. The only way to raise reliability of supply levels back up to those pre-plan is to allow irrigators to take into storage when there is little or no irrigation demand. Storage is then used when minimum flow restrictions are in place.

21. With bores as the point of take, the infrastructure immediately limits the ability to take water, in other words, what an irrigator is consented to take is the maximum rate of take the bore will sustain, but it also requires a pump. The cost of constructing storage is in the order of $2.00 to $3.00 per cubic metre of water stored.[1] This assumes relatively standard construction conditions. Therefore, there is a significant cost to irrigators who want to maintain the current levels of reliability of supply and the volume of storage required to achieve this influences the cost. Therefore, it was critical that the storage rules recognised these facts and allowed "A" takes to be taken into storage.[2]

22. Storage is set up as follows:

[1] Pers.Comm Mr Andrew Rae, Rooney Earthmoving Limited

[2] Rule 14.5.1, Section 14 of the notified LWRP, means that out of stream storage, provided it is less than 3 metres deep, and involves a Chartered Professional Engineer, is a permitted activity.




23. Once storage is full, and there is no irrigation demand, water is no longer taken. During the irrigation season, storage is refilled each day once demand is met. When restrictions are in place, the storage volume is then used.

24. I undertook modelling to determine how much storage would be needed for two consent holders in the catchment, under a range of minimum flow scenarios for "A" takes to storage. The scenarios are as follows:

- Allow "A" takes into storage at the same minimum flow regime as the Orari Plan currently specifies;
- Allow "A" takes into storage, but only when flows are greater than the flow sharing threshold of 1,500 L/s.

25. The reason for carrying out the second model at a higher minimum flow is to show the substantial increase in the amount of storage that would be required to achieve 95% reliability of supply, but also to address the perception that allowing A permit water to be taken into storage without imposing a higher minimum flow on such takes, has a large effect on the amount of time that the river spends at low flows.

26. Case Study One has the following details:

- A take of 80L/s from a bore.
- An irrigation area of 206 hectares.
- The consent currently has no annual volume limit.

27. In order to carry out the modelling, I determined that an appropriate annual volume of this consent would be 952,000 cubic metres per year.

28. In order to maintain a level of 95% reliability of supply, allowing this take to go into storage in periods of little or no demand, Case Study One would need 160,000 cubic metres of water stored.

29. Raising the minimum flow works on the basis that water is able to be taken directly for irrigation under the "A" band minimum flows, but it is only able to be taken into storage at a minimum flow of 1,500 litres per second. For Case Study One, this

increases the amount of storage needed for 95% reliability of supply to 350,000 cubic metres, an increase of 219%.

30. In real terms, the increase in storage needed means an increase in the area on farm needed for storage and also the cost of construction. To store 160,000 cubic metres of water requires an area of approximately 6 hectares, with a construction cost in the order of $320,000 to $480,000. This compare with storage of 350,000 cubic metres, if a minimum flow of 1,500 litres per second was imposed, which would reuire an area of approximately 15 hectares and cost in the order of $700,000 to $1,050,000 to construct.

31. Case Study Two has the following details:

- A take of 50L/s from a bore.
- An irrigation area of 90 hectares.
- The consent currently has no annual volume limit.

32. In order to carry out the modelling, I determined that an appropriate annual volume of this consent would be 585,000 cubic metres per year.

33. In order to maintain a level of 95% reliability of supply, allowing this take into storage in periods of little or no demand, Case Study Two would need 120,000 cubic metres of water stored.

34. For the second model, to achieve a 95% reliability of supply, Case Study Two would require 310,000 cubic metres of storage, an increase of 258%.

35. In real terms, the increase in storage needed means an increase in the area on farm needed for storage and also the cost of construction. For 120,000 cubic metres of water stored, this requires an area of approximately 5 hectares, with a construction cost in the order of $240,000 to $360,000. With the higher minimum flow for takes to storage, storage of 310,000 cubic metres would be required, taking up an area of approximately 11 hectares and costing in the order of $610,000 to $930,000 to construct.

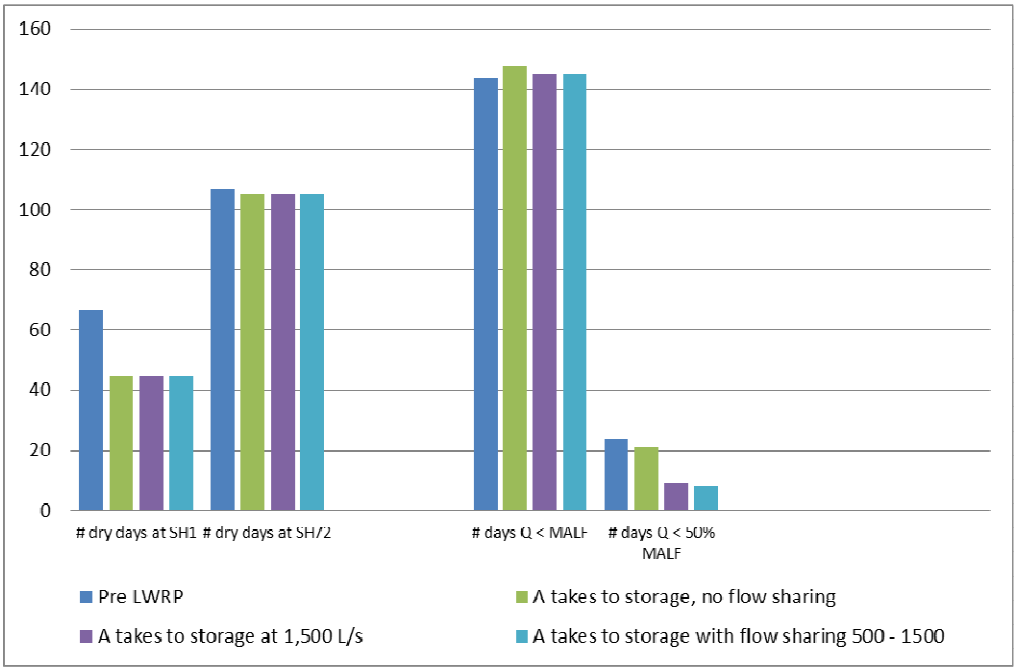
36. What the modelling showed was that the amount of storage needed is not linear - in Case Study One the amount of storage is 842 cubic metres per hectare irrigated, compared with 1,356 cubic metres per hectare for Case Study Two.

37. It also showed that the increase in storage required with an increase in minimum flow for takes to storage is greater than 200%. To put this into context, it also means that the volume of water that needs to be abstracted from the river also increases. In Case Study One, I determined that the annual volume needed to irrigate 206 hectares was 955,000 cubic metres. If the required reliability of supply is factored (being 95%), then the desired annual volume is 904,400 cubic metres. Therefore, to fill storage as well, the total annual volume required is 904,400 cubic metres plus the volume stored. Allowing the “A” takes into storage at the same minimum flow means that 1,064,400 cubic metres is actually abstracted. If water is only able to be taken into storage at a higher minimum flow, this increases to

1,254,000 cubic metres because more storage is required. Cumulatively, for every consent holder who opts to construct storage to maintain reliability of supply, this adds up in terms of the land area involved for this scale of storage to be constructed, as well as the cost of construction.

38. I must reiterate again that the proposed minimum flow combined with the flow sharing regime, is a massive gain for the river, and allowing "A" takes into storage under this same flow regime is the key factor that makes the proposed minimum flow regime "acceptable" to farmers.

39. Modelling carried out by Ms Jen Ritson of ECan (page 55 of Appendix Three of the S42A report) assessed a range of storage options.




40. From the modelling, it was determined that:

- The number of dry days improves under all storage options from the Pre LWRP model, and in fact, there is no variation at all between the four storage options considered.

- Allowing A takes to storage with no flow sharing has the most impact on low flows, where the number of days the river is less than MALF worsens when compared to the Pre LWRP model.

- For flows less than 50% of MALF, again, the A takes to storage with no flow sharing is the "worst" of the storage options considered, but is an improvement on Pre LWRP.

- There is only one day's difference between "takes to storage at 1,500 L/s" and "flow sharing with storage".

41. Therefore, the modelling showed that, from the river's perspective, there was little to no difference between allowing "A" takes to storage options considered, but from a farmer perspective, there is a significant difference in the amount of storage needed to achieve the desired levels of reliability of supply. This explains why the flow regime proposed in Table 15 under 3 years from Operative is acceptable to the existing irrigators

## How the "B" Minimum Flow and Allocation Was Determined

42. As stated earlier in this evidence, the Orari River is different because of the high proportion of groundwater abstractions. In general "B" blocks are water harvesting blocks – taking a high rate of take into storage at high river flows. Groundwater bores effectively make a "B" take unviable because the rate of take simply cannot be ramped up high enough to take advantage of the high river flows – infrastructure limits this.

43. However the steering committee did not want there to be no "B" block. The provision of a "B" block means that if there are further changes to the minimum flows, then another band of water is available to assist in maintaining reliability of supply levels. It also enables the catchment to look at future community storage project, and a "B" block increases the viability of such an option.

44. There is no guidance in the LWRP as to how a "B" block minimum flow and allocation should be determined; therefore, we looked to the NRRP for this guidance.

45. Schedule 2 of the NRRP specifies the following method for determining a "B" allocation and minimum flow (taken directly from the NRRP):

> *The "B" permit allocation limit shall be determined as follows:*
>
> *(i) find the "A" allocation block and the current "A" allocation total and use the amount which is greater;*
>
> *(ii) determine 35% of the mean flow and 50% of the median flow, and use the amount which is greater; and*
>
> *(iii) subtract the amount to be used in (i) from the amount to be used in (ii). This is the "B" allocation limit.*
>
> *If "B" permits are to be issued, they shall be subject to a higher minimum flow (versus that for the "A" allocation block) that protects both the instream values and the reliability of supply for "A" permit holders. Discretion can be applied in determining this at the time of a resource consent application but a consistent approach should be applied within a catchment. For guidance the following approach is provided.*
>
> *(i) find the minimum flow (as above);*
> *(ii) find the "A" allocation limit (as above); and*
> (iii) *if the minimum flow site is downstream of water permits which in combination are entitled to take 90% or more of the water that can be abstracted from the "A" and "B" allocation blocks, provide*

*for a flow equivalent to half the "A" allocation block to remain in-stream above the minimum flow before "B" permits can be exercised. This is the "B" permit minimum flow; or*

*(iv) if the minimum flow site is upstream of water permits which in combination are entitled to take 10% or more of the water that can be abstracted from the "A" and "B" allocation blocks, provide for a flow equivalent to one and a half times the "A" allocation block to remain in-stream above the "A" Block minimum flow before "B" permits can be exercised. This is the "B" permit minimum flow.*

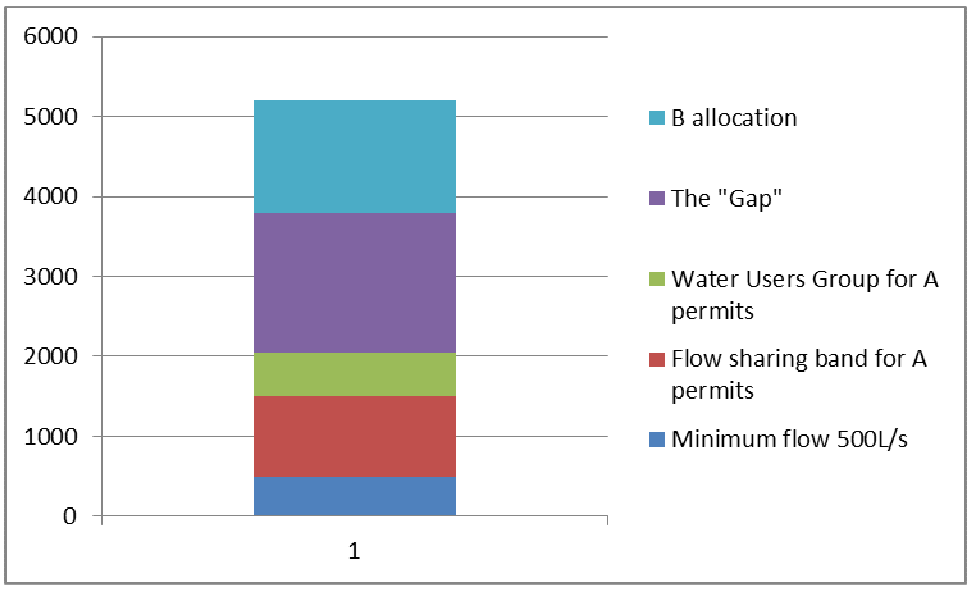
46. For the Orari, the "B" allocation is not able to be accessed until three years after the plan is operative. At this time, the minimum flow for "A" permits is 500 litres per second and the allocation is 1,400 litres per second.

47. However, the 1:1 flow sharing band between flows of 500 litres per second and 1,500 litres per second means that, in real terms, the minimum flow is actually 1,000 litres per second (the mid-point of the flow sharing band). As the minimum flow site is downstream of nearly all abstraction, using the NRRP methodology, this would mean a "B" minimum flow of half the "A" allocation above the minimum flow = (1,400 / 2) + 1,000 minimum flow = 1,700 litres per second.

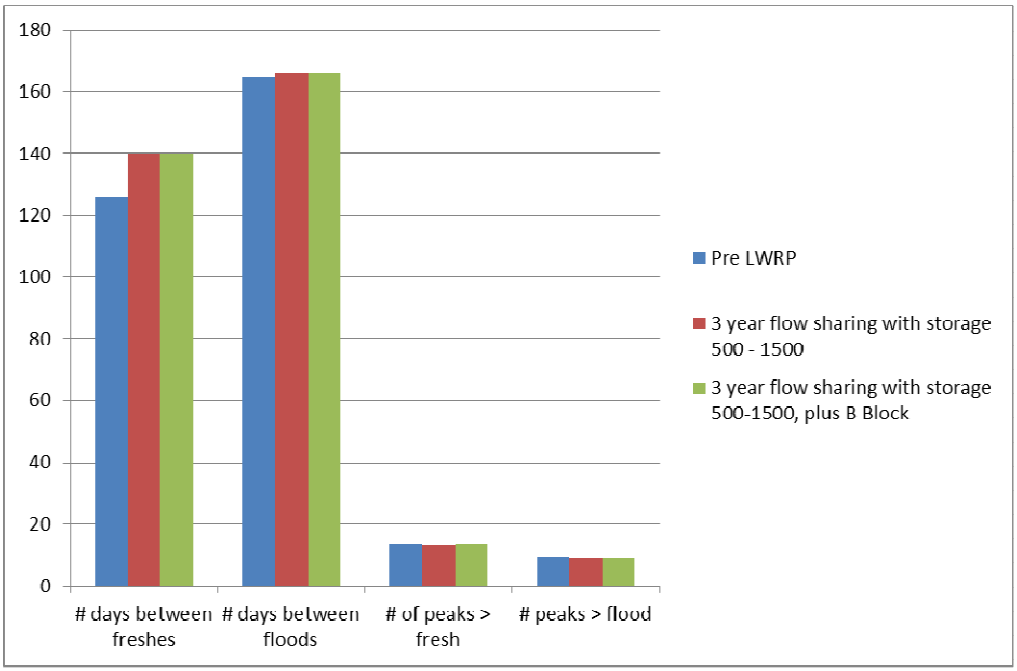
48. In terms of allocation, the greater is 50% of the mean flow at Upstream of Ohapi and this is 1,946 litres per second. Subtracting the "A" allocation leaves only 546 litres per second available as "B" allocation. This is where the predicament lies. In order to have a larger allocation block, the minimum flow needs to be higher to protect flushing flows and other users (the larger the allocation, the more that can be taken at any point in time and therefore, the larger the effect).

49. Even if the alternate methodology is adopted ((iv) above), the "B" minimum flow would be 3,100 litres per second and it was considered by the steering committee that it should be higher. Jen Ritson (Environment Canterbury) and I therefore adopted an old method, which is to add two times the "A" allocation to the "A" minimum flow and this becomes 3,800 litres per second.

50. Because of the conservative nature of the methodology used to determine the "B" minimum flow, Ms Ritson undertook modelling to determine what could be taken as a "B" allocation without impacting on ecological flushing flows and also on "A" permit holder's reliability of supply. This was 1,400 litres per second and this is the allocation limit for the "B" allocation defined in Table 15 of the Orari Plan.




48. Submitters have raised the concern that a "B" allocation may have an adverse effect on flushing flows. As stated above, the modelling undertaken addressed this, and the results are tabled on Page 33 of Appendix Three of the S42A report. For the purposes of the model, a "fresh" is defined as FRE1.5 (a flow of 1.5 times the median flow) and a "flood" is defined as FRE3 (a flow of 3 times the median flow). The results are as follows:




49. The modelling results show that there is no difference at all between the 3 year flow sharing with storage 500 – 1500 ("A" allocation only), or the "A" allocation as well as a "B" allocation, and therefore, the addition of the "B" allocation has no impact at all on freshes or floods, but the inclusion of such an allocation allows options for the communities of the Orari Catchment in the future to look at a community storage scheme.

**Comments on the Plan and the S42a Recommendations**

A Three Year Lead In Time

50. Submitters have raised the concern that a three year lead in period, as identified in Table 15, is too long. I would like to note that it is not a matter of nothing being done for three years. The minimum flow that takes effect as soon as the plan becomes operative is a monthly variable minimum flow, which is still higher than at present and therefore an improvement on the status quo, especially given many water users have no consent minimum flow restrictions at all.

51. The environmental flow regime specified for three years' time sees a huge reduction in reliability of supply. As discussed in this evidence, storage is the likely answer to offset this, but storage is expensive, and it takes time to construct. Storage also results in needing other infrastructure changes, such as pumps and pipes, and careful thought and consideration needs to be given to these changes. It is simply not practical to expect that existing water users could implement the necessary infrastructure to offset the reduction in reliability in less than this timeframe.

52. There is also the fact that, as highlighted by Mr de Joux in his evidence, the model used is a simple representation of a very complex hydrological system. The recorder site at "Upstream of Ohapi" is relatively new, being just several years old, and as time goes on, the actual flows need to be validated against the modelled flows.

Policy 14.4.8

53. Policy 14.4.8 is specific to the "B" block, and Orari Water Society Incorporated sought an additional clause be added to this policy to ensure that the "B" allocation was managed in a fair and equitable manner. I would like to provide the explanation as to why this amendment was sought.

54. In the Pareora Catchment, a "B" block allocation of 2,500L/s is specified with a minimum flow of 5,000L/s. Even before the Pareora Plan became operative, applications for resource consent to take and use this allocation had been submitted to the Regional Council, and therefore a priority order had been established.

55. The Regional Council then implemented a stacking system of the "B" allocation. This meant that the first application lodged, seeking a take of 1,000 L/s was granted with a minimum flow of 5,000L/s, but the second application was granted with a minimum flow of 6,000 L/s (being the plan minimum flow + the rate of take sought by the first applicant), and with every application, the minimum flow increased accordingly.

56. The Pareora Steering Committee will tell you that this was not the way that they intended for the "B" block to be allocated and managed. Every "B" block consent holder was to have a minimum flow of 5,000 L/s, and would work as a water users group to manage abstraction above this flow. In reality, "B" water is taken into storage, therefore, if the river flows allow, and the first consent holder's pond is full and does not require any water, then that water should be able to be abstracted by the other consent holders.

57. The Orari water users do not want to see a repeat of the Pareora implementation of the "B" block, and sought that clause (c) is added to this policy. This is as follows:

> *(c) The water user group may access any unused water in the B allocation block for use by group members to ensure the efficient and equitable use of the B allocation block.*

58. However, in keeping with the intention of what was sought, but results in a minor wording change, I suggest the following amendment to Policy 14.4.8:

> *To prevent the flow falling below the B allocation Block minimum flows for the Orari mainstem in Table 15 the following restrictions shall be applied and strictly adhered to in respect of the abstraction of surface water and stream depleting groundwater and abstractions from within the Orari conjunctive use zone.*
>
> *(a) In the Orari mainstem, if the water permit is part of a water users group* ***which ensures the equitable use of the B block allocation limit*** *then all takes shall cease when the river falls to the B block minimum flow;*
> *(b) In the Orari mainstem, if the water permit is not part of a water users group, when the flow is above the B block minimum flow but below the B allocation block limit, all permits shall share the available flow above the B block minimum flow and cease when the minimum flow is reached.*

<u>Policy 14.4.9</u>

58. Policy 14.4.9 currently reads:

> *All permits for groundwater takes from the Orari catchment within the conjunctive use zone and where the screen is less than 30m deep shall have minimum flow conditions consistent with the minimum flow sites and allocations in Table 15.*

59. My concern is that not one policy states that all surface water takes in the Orari Catchment must also have minimum flow conditions consistent with the minimum flow sites and allocations in Table 15 – it is certainly inferred, but in my view, it should be explicit. To do this, I suggest that Policy 14.4.9 should be amended to include all surface water takes. It should also be amended to clarify the intention that the takes that were considered should have to comply with the Table 15 flow and allocation regime, were those included in the allocation – and these were primarily consents to take and use water for irrigation purposes. Therefore, I suggest the following wording for Policy 14.4.9:

> *All permits for surface water takes, and for groundwater takes within the conjunctive use zone where the screen is less than 30m deep, which are not permitted, within the Orari catchment shall have minimum flow conditions consistent with the minimum flow sites and allocations in Table 15.*

60. This raises the question about small takes, such as dairy shed wash water, which have previously held permitted activity status. During the course of the development of this plan, it was considered that Rules 5.84 and 5.87 of the LWRP

would mean that small takes, such as those for dairy shed use, would be permitted under Section 5 of the Land and Water Regional Plan. However, ECan's interpretation of this rule is that where a resource consent is held to irrigate on the property, then the permitted rates and volumes are already being exceeded, and therefore, Rules 5.84 and 5.87 simply do not apply.

61. As I stated earlier in this evidence, the effective allocation for the catchment was determined using consented allocation. In my view, ECan's interpretation of Rules 5.84 and 5.87 is incorrect. If these small takes require resource consent as a result of this plan, then there is no allocation available for them. This is a major issue for this catchment which is relying on Rules 5.84 and 5.87 to ensure that these small takes are permitted and therefore not required to comply with the Table 15.

62. I suggest two options. The first is to clarify the interpretation of Rules 5.84 and 5.28 by clearly stating in the panel's report and recommendations that small takes, regardless of larger takes held elsewhere on the property, are permitted by this rule.

63. The second option is to include a permitted activity rule in Section 14 of the LWRP.

Damming of Water

64. The S42A report recommends deleting Rule 14.5.1 which makes the storing of water in a water storage pond a permitted activity. The reason given for this is that Rule 5.128 of the LWRP is sufficient and would also mean that storage of water would be permitted.

65. As Rule 5.128 currently stands, most water storage ponds being built under this rule would not be permitted. A pond must be less than 3 metres of water stored and less than 20,000 cubic metres of water stored to be permitted under this rule. Therefore, the S42A report is incorrect in its assumption. In this catchment, storage is to be incentivised, and if Rule 14.5.1 is deleted, then this objective, as it currently stands, is not met.

66. I gave evidence on Rule 5.128 on behalf of RDRML and Valetta Irrigation Limited. In my evidence, I proposed that Rule 5.128 should be amended to ensure that the majority of water storage ponds under this rule would be permitted.

67. Therefore, I have no objection to Rule 14.5.1 being deleted on the proviso that the submissions in relation to Rule 5.128 are accepted. Should you not accept the submissions on Rule 5.128 supported by my evidence, then Rule 14.5.1 should remain.

Rangitata South Irrigation Scheme

68. Policy 14.4.1 in in regards to the Rangitata South Irrigation Scheme (the scheme). The scheme is under construction now, and will deliver water to 14,000 hectares of land between the Rangitata and Orari Rivers in the coming irrigation season, and it should be noted that less than 20% of the scheme command area is in the Orari Catchment. The scheme is a water harvesting scheme, which takes water from the Rangitata River during high flow events, and stores water in its own head ponds for

distribution. Every shareholder is also required to have on farm storage equivalent to 250 cubic metres for every hectare irrigated by the scheme.

69. The scheme is fully allocated (no shareholding currently available), and therefore, as it stands today, is not an alternative supply of water to those in the Orari Catchment who don't already hold shares. For those few that do hold shares, the reliability of the scheme is yet to be proven, bearing in mind, it is a harvesting scheme and not a "run of river" scheme, and will likely vary greatly from season to season.

70. The S42A report states that "It is anticipated that any consent holder that has access to Rangitata South Irrigation Limited (RSIL) Scheme water will be required to demonstrate that they are using RSIL water prior to gaining the balance of their allocation from the Orari catchment."

71. This policy views the scheme as a viable alternative water source to the Orari Catchment to therefore assist with reducing over-allocation, however, as already stated, the reliability of supply of the scheme is yet to be proven. My concern with the current wording of Policy 14.4.1 is that emphasis will be placed upon a shareholding (and therefore access) in a scheme, rather than the performance of the scheme – just because you hold 100 hectares worth of shares does not mean that you have sufficient water to irrigate 100 hectares; these are two very different things. Also, the availability of shares to landowners in the Orari catchment is limited with only a small percentage of the command area in the Orari Catchment, and as it stands no further shareholding available.

72. The scheme should not be viewed as a means to reduce over-allocation, but the scheme is, however, potentially a way to ease pressure on the Orari catchment at times of low river flows, and also potentially provide better reliability in the face of restrictions. Policy 14.4.2 addresses the issue for those few shareholders in the scheme having access to multiple sources of water, and I consider that this policy is the most relevant to the scheme and its relationship with the water resources of the Orari Catchment, and the S42A report states that the two policies (14.4.1 and 14.4.2) should be read together, but I question the need for Policy 14.4.1 at all, especially given that the scheme will inevitably not alleviate over allocation in the Orari Catchment, and in my view, Policy 14.4.2 on its own addresses the combined access too and use of scheme water as well as Orari Catchment water.

Keri Johnston

14 May 2013