



7. The evidence of Mr. Lewthwaite places a lot of emphasis on the safety of the Lower Waimakariri intake structure because this area of the Waimkariri River is a highly used and valued recreational area. The exception is signs which are suggested as mitigation on all three intakes.
8. Mr. Lewthwaite also gave evidence regarding intakes that have been in place and been “safe” for the life of their operation, such as the RDR and the Waiau.
9. However, in my view, all three intakes have the same threat to public safety. It is dangerous to assume that over the duration of the consents, that the other two intakes will not also have the same degree of public use as the Lower Waimakariri intake has at present. Both rivers will be changed and this will potentially alter how the public uses the rivers and the locations. I am also concerned that an intake structure capable of drawing 40m<sup>3</sup>/s is larger than anything that exists in our rivers at present.
10. Mr. Lewthwaite also refers to the fact that this issue will be addressed further in the Operations and Maintenance Plan to be developed by CPWT.
11. I find it very difficult to rely on a plan that is yet to be developed as suitable mitigation, and whilst a buoy line, for example, may not be suitable mitigation in these rivers, the point is that I have not seen anything definite from the applicant (apart from a proposed plan) as to what measures will be taken to address the issue of public safety at intakes, and what design features the intakes will have.
12. Submitters from the Whitewater Canoe Club, Arawa Canoe Club and the New Zealand Recreational Canoeing Association presented evidence further highlighting concerns with the safety of intake structures for paddlers and swimmers, particularly the use of steel grills, which can act as “sieves” but also the velocity of water entering the intake meaning that an average paddler would be unable to back paddle and remove themselves from pull of water towards an intake.
13. I am not an expert in the design of intake structures, but I am aware that there are safety features that can be incorporated into the design of an intake, as described in Paragraph 4 of this Brief of Evidence (taken from Mr. Lewthwaite), albeit options such as education and escape devices are more passive options for mitigation rather than addressing the design of the intake structure itself.
14. However, until such time as a final mitigation plan and design has been completed, it is not possible for interested parties or the Canterbury Regional Council to assess the proposed mitigation and design and therefore its merits in relation to potential safety.

### **The frequency and extent of works required to keep the scheme operational**

15. Concern has been raised as to the frequency and extent of works required to keep the scheme operational.
16. In the AEE, the applicant stated that *“river training works would be needed from time to time at the Rakaia and Upper Waimakariri intake sites. They might also be needed less frequently at the Lower Waimakariri intake site... It can be expected that river training might have to be performed on average about ten times a year at each site.”*<sup>1</sup>

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<sup>1</sup> Page 3-69 to 3-70.

17. I am of the opinion that an average of ten times a year is an acceptable frequency of works. This is not a frequency that suggests works occurring on a daily basis! However, no estimate is given in respect of the duration of the works.
18. Heavy machinery such as bulldozers and diggers would be required to carry out the works. Whilst this is a relatively severe form of river intervention, it means that the works can be carried out much more quickly and effectively, therefore reducing the overall frequency and duration of works, compared with less severe methods.
19. Should the commissioners chose to grant the consents, mitigation could be proposed which limits the frequency and duration of any works, and to also to “avoid” certain times of year such as during recreational events. The extent of works can also be limited.
20. Examples of such conditions are as follows:
  - The duration of works shall be limited to not greater than four hours per day, and two consecutive days.
  - Works shall not be carried out on public holidays, during <name of event> and for up to 24 hours before and after the <name of event>.
  - Works shall only occur between the hours of 7am and 6pm inclusive.
  - Works shall only occur no more than 50 metres upstream and downstream of the intake site and no more than 30 metres into the river from the intake site at any given time.
  - In relation to the Rakaia River, works shall only occur on one intake at any given time.
21. In a braided river system, which is dynamic, river works will always be required to maintain infrastructure in the bed such as intakes, and the frequency and duration of works required will vary in any given year depending on a number of factors, the most dominant being natural events.

### **Conclusions and recommendations**

22. In terms of safety, I still believe that there is not enough detail in the applicant's proposal in relation to mitigation and design of the intakes to assess the potential effect of safety at the intake sites.
23. The Canterbury Regional Engineer advised of his preference for the Upper intake site in relation to effects on the flood and erosion protection system on the Waimakariri River, whereas from a landscape perspective, the Canterbury Regional Council preferred the lower site. And, other submitters, such as the landowners adjacent to the Upper intake site would prefer the Lower intake to be constructed.
24. I do not believe that changing the location of an intake completely to attempt to reduce the frequency and duration of works is sensible, as one year, the new location may require less works, but the in the following year, the river has experienced a flood event, and the dynamics of

the river system have completely changed, and the new location now requires more works than before. From the perspective of an applicant, if one site is preferred, then this should be pursued.

25. It is also noted, safety and maintenance are only two aspects that are to be considered when "choosing" a preference. It would be unwise to make such a recommendation on these two aspects in isolation without giving consideration to concerns raised by the Canterbury Regional Engineer adjacent landowners and recreational and interest groups.
  
26. The two rivers are dynamic in more ways than one. They are dynamic because each river has different values for every person. For some, the bank of the river is home, and for others it is a weekend playground, and for every value, there is a different need or want associated with it. And in a dynamic system, it is very difficult to meet the needs and wants of everyone..
  
27. I have not heard anything to date that result in my opinion veering towards one intake over another. Therefore, unless one intake site "stands out" as being preferable for a particular reason, then both options should be left open to the applicant.

**Appendix A – Table 2 of Mr. Potts Evidence to the Waitaki Plan Hearing Committee**

**Appendix B – Main Stem Waitaki River Existing Calculations**

<b>Consent ID</b>	<b>Applicant</b>	<b>Annual Volume</b>	
CRC000042.1	Mr. & Ms A P & H E Turner-Heaton & Scott	341280	
CRC012445	Mr. & Mr.s P G & W E A Reid	764467	
CRC012641	Mr. & Mr.s R J & R M Irving	819072	
CRC012812	Mr. & Mr.s E M & S A Ross	3139776	
CRC021158	Normanvale Limited	682560	
CRC022002	Mr. & Mr.s B W & T F Hore	122861	
CRC030182.1	Meridian Energy Limited	3139776	
CRC940497B.3	Meridian Energy Limited	887328	
CRC950119	Mr. C R Cairns	2046816	
CRC960030.1	Station Peak Partnership & Wainui Farm Limited	5263500	
CRC961298	Mr. & Mr.s A W & S J Gibson	1800000	
CRC980921.1	Aviemore Irrigation Co Limited & Meridian Energy Ltd	13704768	
CRC981733	Mr. N O Dogterom	1500000	
CRC992778.1	Mr. & Mr.s T W & J K Allan	1638144	
CRC952210	Maerewhenua District Water Resource Company Ltd	26697600	
CRC021235.1	D D Chalmers & Kokoamo Farms Limited	1143737	
CRC921659	Mr. A J Nicol	157680	
CRC962093.1	Tynningame Trust	300326	
CRC020744	Mr. WN Cameron	3071520	
CRC031246	Mr. & Mr.s AW & SJ Gibson	1255910	
CRC962259	Clarkefield Holdings Limited	1774656	
CRC021286.2	K & D Farms	696211	
CRC020869	ER Rutherford	45049	
CRC012648	KM Pavletich	1228608	
CRC012637	Haricott Investments Limited	324889	
	<b>TOTAL</b>	<b>72546534</b>	<b>m3/year</b>
		<b>72.55</b>	<b>million m3 year</b>

**Appendix C – Main Stem of the Waitaki River - Applications in process**

<b>Resource Consent</b>	<b>Applicant</b>	<b>Annual Volume Proposed (m3/yr)</b>	<b>Area Proposed (ha)</b>
<b>Waitaki River</b>			
CRC041002	Mr. W N Cameron	647700	102
CRC041003	Mr. W N Cameron	381000	60
CRC032177	Hakataramea Valley Irrigation Inc	11142000	1797
CRC061399	Waitaki Orchards Limited	111810	7.5
CRC061919	Clarksfield Holdings (1996) Limited.	757500	162
CRC070328	Enterprising Properties Limited	490500	90
CRC071327	Mr. A L & Mr.s G K Trainor	51840	8
CRC012051	Westmere Estate Limited	2666515	197
CRC041004	Maerewhenua District Water Resource Company Limited	5868270	936
CRC061931	Clarksfield Holdings (1996) Limited.	73750	11.8
CRC063815	Mr. E R Rutherford	706250	125
CRC070329	Enterprising Properties Limited	21287	18
CRC073124	Clarksfield Holdings (1996) Limited.	287500	46
CRC073237	Torach Farm Limited	1225000	200
	<b>TOTAL</b>	<b>24430922</b>	<b>3760.3</b>
		<b>24.4</b>	
		<b>Million Cubic Metres per Year</b>	<b>Hectares</b>

**Appendix D – Tributaries Applications in Process**

<b>Resource Consent</b>	<b>Applicant</b>	<b>Annual Volume Proposed (m3/yr)</b>	<b>Area Proposed (ha)</b>
CRC031592	R H & J Robertson Family Trust	354250	65
CRC021585	Star Holdings Limited	1168952	600
CRC032220	Foveran Station Limited	3657000	690
CRC981376	Hakataramea Station 1990 Limited	1148180	0
CRC051279	Mr. M W Hutton	42,000	100
CRC011989	Padkins Creek Community Race	756000	130
CRC050940	Mr. & Mr.s R G & Z L Pringle	612,000	120
CRC050957	Mr. & Mr.s R G & Z L Pringle	0	0
CRC051767	RPNZ Properties Limited	252000	48
CRC040988	Mr. N J Small	946080	275
CRC062067	Warnbro Enterprises Limited	266212	190
CRC951084.3	New Zealand Deer Farms Limited	245250	115
CRC950464.2	Hakataramea Station 1990 Limited	1148180	105
CRC951776.5	Star Holdings Limited	0	0
CRC071114	Mr. & Mr.s R W & M E Sutton	0	0
CRC040446	Mr. & Mr.s R J & J M Meikle	144300	26
CRC051768	RPNZ Properties Limited	212000	40
CRC051769	RPNZ Properties Limited	216000	40
CRC040992	Mr. B W Nowell	13067	40
	<b>TOTAL</b>	<b>10527471</b>	<b>2584</b>
		<b>10.53</b>	<b>hectares</b>
		<b>Million cubic metres per year</b>	