

APPLICANT: OTAMATAPAIO STATION (1993) LTD

REPORT OF HAIDEE MCCABE

Consent ID	Description	Table 3 Location
CRC012047*	To divert up to 200 litres per second of water and a maximum volume of 17,280 cubic metres per day from the Otamatapaio River, at or about map reference NZMS 260 H40: 774-195, approximately 5.7 km south-west of Lake Benmore. To take and use water at usually 140L/s but up to 200l/s for irrigation and stock water for the irrigation of 200 hectares of pasture and winter crop for stock at Otamatapaio Station. A 35 year duration is sought.	All other rivers and streams
Activity Status		
<p><u>Rule 2, Table 3 WCWARP:</u> No allocation limit is specified for "all other stream", and the minimum flow has been determined as the 1 in 5 year, 7 day low flow required in the WCWARP.</p> <p><u>Rule 6, Table 5 WCWARP:</u> The proposed annual volume is within the allocation limit for "Upstream of Waitaki Dam, but not upstream of the outlets of the glacial lakes.</p> <p><u>Overall status:</u> Any activity that complies with Rules 2 and 6 is a discretionary activity as per Rule 15.</p>		
Consent ID	Description	
CRC012727*	To maintain a diversion and intake structure in the bed of the Otamatapaio River, at or about map reference NZMS 260 H40:774-195, approximately 5.7km south west of Lake Benmore, at Otamatapaio Station, SH 83. A 35 year duration is sought.	
Activity Status		
<p><u>TRP:</u> There is no operative regional plan so S77C of the RMA applies, and the activity is discretionary.</p> <p><u>Overall status:</u> Discretionary</p>		
Consent ID	Description	
CRC012049*	To discharge by-wash water into Clarkes Creek at a maximum rate of 200l/s, at or about map reference NZMS 260 H39:783-233, approximately 1.9km south-west of Lake Benmore, at Otamatapaio Station, SH 83. A 35 year duration is sought.	
Activity Status		
<p><u>TRP:</u> There is no operative regional plan so S77C of the RMA applies, and the activity is discretionary.</p> <p><u>Overall status:</u> Discretionary</p>		

1 PROPOSAL

1. Otamatapaio Statio (1993) Ltd (hereon in referred to as "the applicant"), farm Otamatapaio Station, adjacent to SH83, between Omarama and Otematata. Part of the property borders Lake Benmore.
2. The applicant seeks the renewal of existing use rights WTK690251 A, B, C and D, which authorised the diversion and taking of water from the Otamatapaio River at a maximum rate of 370L/s but usually at a rate of 140l/s for stock, domestic, irrigation and power generation purposes. Plus to discharge water to Clarkes Creek at a maximum rate of 370L/s but usually at a rate of 140l/s.
3. The applicant over the years has subsequently reduced water requirements and seeks 140L/s for irrigation and stock water when flows in the Otamatapaio River are above the minimum flow of 200l/s, and up to 200L/s when flows are in excess of 600l/s. When the minimum flow applies, 30l/s is still required for stock and domestic requirements.
4. The applicant has owned the property since 1993, purchasing the property with established border dyke irrigation from the existing take point on the Otamatapaio River and feeding into several tiers of water races. The current border dyke operations include 50Ha of old and 20ha of new border dykes. Given the various race levels border dyke by-wash is collected and used again in the lower races.
5. A 76Ha pivot was commissioned in 2004 which is fed from the main race into a pipe for gravity irrigation. This was installed to commence converting the property to spray irrigation to improve efficiency. A irrigation development plan is waiting to be implemented on renewal of this consent, with a five year period for for conversion to spray.The intake was sucessfully upgraded prior to 2000, to allow flows to be manually controlled by two slide gates to regulate flows and a water meter has been operating since 2002.
6. Stock water is currently raced to the paddocks with the irrigation water but also during the winter when the irrigaiton is not operating.
7. Excess water from the race system is discharged into Clarkes Creek which subsequently discharges at Sailors Cutting into Lake Benmore. With the upgrade to spray irrigation, in time this discharge will reduce to fairly much stock water only or water in the race system when an irrigator shuts down.

1.1 Timeline and Summary of Significant Amendments made to the Applications

Timeline	CRC012047*, CRC012049* and CRC01277*
Date of Lodging	29 March 2001
First Notifiable Date	4 March 2003
First Notified	5 July 2003
WCWARP Notifiable Date	15 December 2006
Public Notification	4 August 2007

8. The applications were lodged in March 2001, seeking the renewal of existing use rights WTK690251 A, B, C and D. The application applied to divert and take upto 370l/s for stock, domestic, irrigation and power generation purposes. An irrigation area of up to 243ha was also applied for which was in excess of the background material relating to the historical consents but which was consistent with the volumetric rates in the consent being renewed and reflected what was actually occurring.
9. Additional consents were also applied for, related to this activity. Some of these have since been removed but still being pursued is the land use consent for works at the intake for the structure (CRC012727*).
10. Otamatapaio also applied for consent to take water for irrigation purposes directly from Lake Benmore (CRC021330).These applications were adjourned part heard at the time the Upper Waitaki

applications were called in and accordingly do not form part of these hearings. These lake take consents at Glenburn and at Otamatapaio are largely to irrigate new areas on the lake side of State Highway 83. However they are integrated into the overall farm management plan for irrigation. Importantly, the "lake take" consent dovetails into this consent to provide for supplementary water at times when river flows do not provide sufficient supply. Derogation approvals for this activity have already been obtained from Meridian Energy for these new areas.

11. In December 2006, an annual volume of 3,139,500 cubic metres per year for irrigation purposes was proposed for an irrigation area of 345Ha. The flowrate was reduced to 200l/s for irrigation and 50l/s for stock water. It indicated that further work was proposed on irrigation efficiency in relation to this seasonal volume. Furthermore a minimum flow was recognised to be required (200-250l/s) and further investigations were occurring.
12. In December 2008, an annual volume of 1,496,760 cubic metres per year for irrigation purposes and 946,080 cubic metres for stock water was proposed (total of 2,442,840 cubic metres). Furthermore a flow rate of 200l/s but usually at a rate of 140l/s plus 30l/s for stockwater.
13. In an email dated 3rd July 2009 to Ms Penman, further clarification was provided on the fact that 200ha was considered a replacement even though this exceeded the WTK consent area. The reason being was that the flowrate and volume required was considered well within the existing consent. However this applicant was using the water more efficiently in order to meet WCWARP efficiency requirements. Furthermore clarification was provided that the usual rate of water required was 140l/s for irrigation and stock water purposed with up to 200l/s during high river flows.
14. It has also been proposed to accept the minimum flow for the Otamatapaio River for "all other rivers and stream" as defined in Table 3 of the WCWARP. Further correspondence was provided on the 28th July 2009, setting out this minimum flow and that flows would be managed between the applicant and Bog Roy Station between 450l/s and the minimum flow of 200l/s.
15. In an email dated 6th August 2009 it was clarified that up to the full 200l/s would only be taken when the Otamatapaio River was above 600l/s at the minimum flow site. The take of 140l/s was required as a result of extensive consultation with Bog Roy Station to resolve historic issues, to correspond to irrigation demands and to reflect the hydrology work carried out to date.
16. During this process further minor details of the application have been redefined and clarified.
17. No other changes have been made to the applications.

2 BACKGROUND INFORMATION

2.1 Property Details

18. The property details have been presented in Ms Scanlans' evidence

2.2 Water Source

19. The Otamatapaio River drains the Hawkdun and St Cuthbert Range, directly into the southern side of the Ahuriri Arm of Lake Benmore at Sailors Cutting. The Otamatapaio River has a catchment area above SH83 of 185km². Corbies Creek also contributes to the Otamatapaio catchment.
20. The catchment altitude ranges from 360m up to 1850m, and the upper catchment has snow on the shady faces for much of the winter months and therefore low flows in the catchment are usually experienced in winter.
21. There are significant flow losses down the system below the Foot Bridge; however the losses are the greatest approximately 200 metres downstream of the Corbies Creek confluence where often in the summer months the river bed is completely dry.
22. The Otamatapaio supports fisheries common to high country rivers. These include common and upland bullies, common river galaxias, rainbow and more predominantly brown trout.

2.3 Derogation Approval

23. Derogation approval was received on the 22nd July 2009 – Appendix D

3 COMMENTS ON SUBMISSIONS

24. These applications were notified in July 2003 and a total of 12 submissions were received.
25. These applications were again notified in December 2003, as part of the "ministerial call-in". A total of 314 submissions were received.
26. A summary of the 2007 submissions is as follows:

Resource Consent	Submissions in support	Submission in opposition	Neutral
CRC012047	2	17	2
CRC012049	2	13	2
CRC012727	2	13	2

27. Details of the submissions made in response to all applications that were publically notified at the same time in 2003 and 2007 are contained in CRC Report 1, Appendix 5. I have reviewed this report and adopt it as a true and accurate summary of the submissions received.

Submitter	Issues	Support/neutral/oppose
KJ, DK and SR Anderson, Bog Roy Station	Bog Roy has also applied to continue to take and use water for irrigation and stock water from the Otamatapaio River and Corbies Creek, a tributary. The submitters abstraction point is located downstream of the applicant's abstraction point. Concerns were raised over the applicants rate of divert and take, flow sharing regime and insufficient flows at their own intake.	Oppose – recently withdrawn
Fish and Game NZ	F&G submitted that without abstractors flows in the river of less then 300l/s and subsequent dry/ephemeral would only occur 3% of the time). Important fish spawning tributary and abstraction may be affecting continuous flows to Lake Benmore	Oppose
Meridian Energy Ltd	Concerned about water quality, water metering and reasonable use	Oppose
Te Runanga o Waihao and Ngai Tahu	Cultural significance of the area to Ngai Tahu Whanui	Oppose

Department of Conservation	Water Quality and its effects on species, habitats and ecosystems including cumulative effects of this; fish passage; impact of the proposed activities on the natural character of rivers, wetlands, lake and their margins; entrainment of unwanted plants and animals e.g. didymo; duration; limits of the Waitaki Water Allocation Plan	Oppose
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28. Several submission raised concerns in relation to 370l/s which has subsequently been reduced to a usual rate of 140l/s which is now considered consistent with submissions.
29. The applicant and Bog Roy Station have agreed to a minimum flow and are committed to flow sharing, having signed a Memorandum of Understanding (MOU) on the 23rd September 2009. Submissions have subsequently been withdrawn.
30. Fish and Game support the proposed minimum flow of 200L/s, which has been calculated as the 5Y7DLF for the Otamatapaio River.
31. Furthermore the applicant clarified recently in an email to F&G dated 26th August 2009, the above mitigation (minimum flow and flow sharing amongst water users) and identifying significant changes made to the application. Feedback was sought but had not been received at the time of writing this evidence.
32. The above information has also been provided to DOC during the course of consultation and was clarified in an email dated 11th August 2009. Feedback was sought but has not been received.

4 CRC011940 - TAKE AND USE CONSENT

5 ASSESSMENT OF ENVIRONMENTAL EFFECTS

5.1 Effects on other water users

Effects on other water users	
Comments	<p>This is the renewal of an existing water right. No increase in rate or weekly volume (as currently authorised) is being sought, and the applicant has proposed a minimum flow in accordance with Table 3 of the WCWARP. A Memorandum of Understanding, including a flow sharing regime has been signed by all water users in the catchment.</p> <p>The CRC reporting officer for these applications agrees that effects on other water users are minor</p>

33. As part of this resource consent hearing, KJ, DK and SR Anderson of Bog Roy Station are seeking the renewal of resource consent (CRC012017*) to take 110l/s for irrigation and stock water from the main stem of the Otamatapaio River below the Corbies confluence.
34. Furthermore Bog Roy Station, Otematata Station and Rostriever Station also seek to renew water resource consent to take and use 110L/s from Corbies Creek, a tributary of the Otamatapaio River (CRC012017), for irrigation and stockwater.
35. Otematata Station also seeks consent to take water from the Glen Bouie Stream which is a tributary of the Corbies Creek.
36. Boraman Consulting Ltd installed a flow recorder on the Otamatapaio River in 2004. This information has been used to determine the required minimum flow on the Otamatapaio River and has also been used to develop a flow sharing arrangement between the water users.

37. The applicant and Bog Roy Station have a long history with the Otamatapaio River main stem and how the resource has been used, and each had submitted opposing applications.
38. Since then considerable work has gone into improving relations between the two properties and all water users have agreed to work together to manage the Otamatapaio River catchment flows in the range of 450L/s to 200L/s (the range when reductions would need to be implemented to maintain flows above the minimum flow for as long as possible).
39. This has been formalised with a Memorandum of Understanding (MOU) which has been signed off by all Otamatapaio River catchment. Furthermore the opposing submissions between the applicant and Bog Roy Station have been removed.
40. A telemetered water level recorder at the Foot Bridge will be operated amongst the water users.
41. Mr Boramans evidence deals with issues in relation to the location of the minimum flow site, flow-sharing arrangements and appropriate conditions as per the S42a report and Report 2B.
42. This proposed takes sit within the area defined as defined as Upstream of Waitaki Dam, but not Upstream of the outlets of the Glacial Lakes in Table 5 of the WCWARP. This table sets a cumulative allocation of 275 million m3/year for this area.
43. Report 3 – Annual Allocations to Activities (Rule 6 Table 5) acknowledges that the granting of the applications subject to this hearing will not result in the cumulative allocation limit being exceeded.
44. All water users are fully committed to ensuring flow-sharing works (MOU) and conditions as per Mr Boramans evidence have been developed for the minimum flow and flow-sharing. Mitigation is proposed restricting the rate of take and volume per week and the volume proposed is within Table 5 requirements. Given this, effects on other users are considered to be minor.

5.2 Effects on Ecosystem values

Effects on ecosystems values	
Comments	<p>The applicant has proposed a minimum flow in accordance with Table 3 of the WCWARP.</p> <p>The applicant is proposing to upgrade the existing irrigation system within a 5 year time frame, at which point and a fish screen will be installed in accordance with recommended guidelines.</p> <p>The CRC reporting officer for these applications agrees that effects on ecosystems are minor provided the fish screen is suitable.</p>

45. The applicant proposes to accept the minimum flow required under the WCWARP for the Otamatapaio River which is “all other rivers and streams”. This minimum flow was developed to ensure that the aquatic values of the stream are protected.
46. Boraman Consulting Ltd installed a flow recorder on the Otamatapaio River in 2004. This information has been used to determine the required minimum flow for the WCWARP of 5 year 7 day low flow and will also be used to develop a flow sharing arrangement between the water users.
47. The minimum flow determined is 200 l/s at the Foot Bridge on the Otamatapaio River upstream of the abstractions. Details of the hydrology are included in Mr Boramans evidence.
48. The minimum flow has been agreed with the Canterbury Regional Council and Fish and Game. This minimum flow is consistent with the WCWARP. From verbal communications with DOC it is understood that they also accept this minimum flow.
49. The Reporting Officer identifies concerns raised by F&G, however as identified above, the minimum flow is agreed to and the applicant has substantially reduced the abstraction to usually 140l/s and up to 200l/s when flows exceed 600l/s in the Otamatapaio River

50. Consequently the total level of abstraction proposed for the Otamatapaio River main stem is now 250l/s when flows are less than 600l/s, leaving more water for instream aquatic values.
51. A water level recorder is already installed on the Otamatapaio River but telemetry will also be added to enable compliance with the minimum flow and flow sharing arrangements. The take itself will also be appropriately metered
52. The demand for irrigation during the shoulder seasons is generally less with irregular watering leaving more water instream. Flows instream at this time are also usually higher therefore higher flowrates in the river are usually experienced during shoulder seasons.
53. The Reporting Officer identifies a submerged gallery fish screen which was amended by the applicant to a fish screen within the existing race in July 2009.
54. The intake is proposed to be fish screened in accordance with "Fish Screening: good practice guidelines for Canterbury, NIWA Client Report: CHC2007.092, October 2007".
55. The applicant considers given the conditions of minimum flow and flow-sharing arrangement to manage the flows above the minimum flow for all water users and fish screen, the effects on the ecosystem values are minor.

5.3 Effects of inefficient water use

Reasonable and Efficient Use Seasonal Volumes and Land Use	
Land Use	Mixed (sheep and beef cattle)
Area to be irrigated (hectares)	200ha within 345ha command area
Method of application	Spray
Efficiency of application	80%
Daily application depth	5mm
Return period	3-7 days
Return period application depth	15-35mm
Soil profile available water	60mm to 100mm (T Webb)
Effective Irrigation Season Rainfall	175mm
Seasonal volume as per Irricalc (m³/year)	1,617,400 m ³ /year (809mm/season)
Seasonal volume required (m³/year)	1,496,760 m ³ /year (748mm/season)
Volume to be included in Table 5 (WAP) allocation	1,496,760 m ³ /year (748mm/season)

Comments	<p>The proposed irrigation annual volume for the current system is based on a design system capacity of 1500mm/ha/year for 73ha, for a 155 day irrigation season. The irrigation season length is that determined by Mr Rob Potts as the average number of days in the Upper Waitaki Catchment for a border dyke irrigation system.</p> <p>The proposed irrigation annual volume is based upon the derogation approval provided by MEL which is justified by Irricalc.</p> <p>The proposed stock water annual volume take and use, has been determined using Schedule WQN11 of the NRRP. The proposed stock water volume is 946,080 cubic metres and has been based on a divert of 30 l/s to enable the water to get to the end of the race system including race losses. Excess water is discharged into Clarkes Creek prior to it entering Lake Benmore</p> <p>The CRC reporting officer for this application does not agree with the proposed irrigation annual volume for the spray system.</p>
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56. The proposed application depth of 15-35mm per return period is less than 50% of the water holding capacities expected. This is considered to be an efficient use of water and the irrigation systems will be determined and managed to ensure compliance with the varying soil types at different locations.
57. Given the increased area to 200ha, the proposed volume can be used more efficiently and is justified by Irricalc which allows a volume of 1,617,400 cubic metres per year, exceeding the annual volume proposed of 1,496,760 cubic metres.
58. Policy 16 (c) of the WCWARP defines two alternative approaches for determining appropriate annual volumes for irrigation. These are as follows:
- i) soil-moisture measurements, local rainfall and evapotranspiration modeling for the 1-in-5 year dry season (the year for which seasonal demand is exceeded in 20 percent of years);
 - or
 - ii) the difference between peak total seasonal demand as shown in Table A1, Environment Canterbury Report U05/15 and the effective summer rainfall exceeded 80 percent of the time from an approved rainfall site.
59. The first method described is a soil water balance approach, and the second is more commonly referred to as Schedule WQN9v2.
60. Irricalc is a soil water balance approach developed by Aqualinc Research Ltd, who carried out the modeling for this application. This method is a daily accounting system of the water entering and exiting the soil within the root zone of a particular crop.
61. Furthermore, Irricalc models the effect of all of the factors mentioned in Policy 16(a), namely land use, soil water-holding capacity and spatial variability, spatial and temporal rainfall and potential evapotranspiration variability, as well as irrigation system operation and management.
62. The model inputs are attached to this report as Appendix F.
63. Over the years the applicant has substantially reduced their rate of take (notified at 250l/s for irrigation and 50l/s for stock water) and consequently seasonal volume proposed. This has been reduced to 140l/s usually for irrigation and stockwater but up to 200l/s when flows in the Otamatapaio River exceed 600l/s. This is consistent with Policy 15, 18 and 28 of the WCWARP in terms of efficiency and effectiveness of use.
64. Up to 200l/s is required to be taken during higher flows for storage purposes. The usual rate of 140l/s (which also includes stockwater/losses) is required which equates to a daily application rate for 200ha of less than 5mm/day. Efficiency of water use is considered to be provided for by ensuring less than 50% of PAW is applied.
65. Policy 28 recognises the value of investment of the existing consent holder, and this has to be given consideration, however, policy 28 also requires a consent holder to take all reasonable attempts to meet the efficiency expectations of the plan. The applicant has reduced water requirements and

proposes to upgrade all the system to spray within 5 years of which 72ha has already been converted to spray.

66. Policy 21 of the WAP requires all water takes to be metered. The intake has been flow metered since 2002 and proposed to continue to do so, to ensure that this application is consistent with this policy.
67. **Stockwater:** The applicant has applied to divert and discharge stockwater **and domestic** flowrates as part of the renewal of this consent application given this is a race system which has been reduced to 30l/s (including race loses).
68. The head race for this system may still be utilised in the future consequently the stockwater rate and volume of 946,080 cubic metres is still required.
69. **Conveyance Efficiency:** Policy 19 of the WCWARP encourages the piping or otherwise sealing of water distribution systems to minimise water losses. The main headrace is still proposed to be utilized and operate within 10% race losses which are considered reasonable.
70. Furthermore with the conversion to spray irrigation and a troughed system, water will be distributed by pipe from at least the head race, to use the water efficiently and utilise the gravity available, as implemented with a pivot already.
71. Given there are now seasonal volumes to be imposed on the irrigation and stockwater, it is certainly in the applicants best interest to use this water as efficiently and effectively as possible. This will be considered during the upgrade of the system as to whether the headrace will remain or subsequently be piped. However the applicant will have to work within the consented volumes.
72. The Reporting Officers figures concluded are inconsistent with previous details provided given 1,228,000 m3 for irrigation and 946,080m3 for stock and domestic water was previously identified.
73. An irrigation volume is proposed which is considered to meet Policy 16 of the WCWARP plus stock and domestic water is considered appropriate and are both in accordance with derogation approval. The applicant has commenced improving conveyance efficiency which will also be improved further to piping during the spray conversion and therefore the effects of inefficient water use are considered minor.

5.4 Effects of the use of water on water quality

Water Quality	
Comments	<p>The CRC reporting officer for these applications is not currently satisfied that effects of water quality on a local or basin wide level are minor.</p> <p>Cumulative effects on water quality have been addressed by Mackenzie Water Resources Limited (MWRL) and are summarized below.</p> <p>Local effects have also been addressed below</p>

74. The property, according to the MWRL Water Quality Study, is located within the Otamatapaio and Ahuriri groundwater and surface water catchments. For this property, the Lake Benmore mitigation requirements are the most stringent and are accounted for in the overall property threshold from the MWRL Study.
75. The calculated nutrient mitigation requirement of the receiving environments determined in the MWRL Study has identified the N and P thresholds for the property. These are shown in the table below.
76. "OVERSEER® has been RUN by a QUALIFIED person to model the N and P outputs from the proposed farming system. The results of the model have been incorporated in to the table below. This table shows that the applicant can meet the property thresholds which are the most restrictive.

	Nitrogen Threshold	Phosphorous Threshold
MWRL Water Quality Study Property Thresholds	22,466	588
OVERSEER® Outputs	16,747	291

77. The applicant is committed to implementing the "Mandatory Good Agricultural Practices" set out within the Farm Environmental Management Plan (FEMP) (see Appendix E). Implementing these practices ensure that the OVERSEER® results are validated. This along with ensuring that the property thresholds of the WQS (set out in the table above) are not exceeded will ensure that the cumulative effects of the use of water for irrigation on water quality are no more than minor.
78. Whilst the applicant is within their property thresholds, the MWRL Study identified that the applicant still has to consider specific on farm effects and the impacts these activities could have on the local receiving environment. This requires a specifically developed FEMP to identify and implement appropriate mitigation measures set out in the draft attached (see Appendix E).
79. At a workshop held in Twizel in August 2009, the applicants met with Ms Melissa Robson of GHD Limited. A "desk top" on farm risk assessment was undertaken. This is considered to be the "starting point" of the FEMP.
80. The workshop identified potential on farm risks specific to each farm along with possible mitigation measures. The on farm risks identified during the desktop risk assessment need to be verified by an appropriately qualified person who has carried out a site visit. It is anticipated that this will occur should the application be granted. Desktop risks and draft mitigation measures already identified have been outlined in the evidence of Ms Scanlan.
81. For Otamatapaio Station, the desktop risk assessment was detailed in the evidence of Ms Scanlan
82. As part of the proposed FEMP audits measures and actions in case of non-compliance are proposed, including water quality sampling to detect change once the FERA has been completed as part of finalizing the FEMP. Baseline sampling has commenced so there is a starting point and to assist setting triggers to ensure the effects on water quality are no more than minor.
83. The applicant intends to convert to spray within a 5 year period and has proposed this by way of consent condition.
84. Given that the N and P thresholds from the MWRL Study can be met, and the applicants' commitment to addressing on farm risks with the implementation of the FEMP, the effects of the use of water on water quality for both the local receiving environment and cumulative effects are considered to be minor.

5.5 Effects on Landscape

Effects on Landscape	
Comments	<p>Landscape effects have been addressed by UWAG's Landscape Architect, Mr Andrew Craig, who considers that this proposal will have a minor effect on landscape values.</p> <p>The CRC reporting officer for these applications considers that effects are acceptable with appropriate mitigation.</p>

85. Mr. Andrew Craig is a landscape architect who is providing general and specific recommendations on behalf of UWAG clients to this hearing. His conclusions reflect that the general effects on the Mackenzie landscape of these further applications within the basin will be significantly less than

minor. I adopt his recommendations to the committee. In terms of the specific placement of the irrigation structures associated with this application, I confirm the following:

- a) Given this is a replacement application, the area of land concerned is already irrigated and part of a substantially modified rural environment, whereby cultivation and grassing, new fencing, and a commencement to upgrade to spray irrigation has already occurred.
- b) An existing pivot already operates in the vicinity of SH83 (since 2004). The buffer distance from the SH83 is approximately 25mtrs at the closest point
- c) The towable pivot infrastructure is used to irrigate two areas of land and with the pivot point located some 350mtrs from the main road means the irrigators cannot be "parked" alongside SH83.
- d) There is no irrigation proposed under this consent on the north east side of SH83, therefore not beside the lake. The command area is to the south east of SH83
- e) The land area of concern is located within "Rural Scenic" under the Waitaki District Plan of which the applicant has received a Certificate of Compliance for the irrigation system, including the proposed spray system for centre pivots and hard hose guns (Appendix G)
- f) The surrounding ridgelines will not be affected by the irrigation development particularly given the applicant has a defined area that can be irrigated.

5.6 Effects on People, Communities and Amenity Values

Effects on People, Communities and Amenity Values	
Comments	The CRC reporting officer for these applications considers that effects are acceptable with mitigation in terms of landscape.

- 86. The applicant has proposed appropriate minimum flow condition for the water body in accordance with Table 3 "all other streams and rivers" from which they have applied to take and use water. The minimum flow in Table 3 is set to protect in-stream values and effects on other users; particularly given a flow sharing regime has been agreed with all users of the Otamatapaio catchment. It has an "environmental" focus. The minimum flow is considered to adequately protect people, community and amenity values within the rivers specific to each applicant.
- 87. The activities all occur in a rural setting, where the dominant land use is pastoral farming, given that the proposed activities all occur on private farmland; as such the use of water is unlikely to adversely affect amenity values.
- 88. The Sailors Cutting camp ground is located on the north side of SH83 but irrigation has occurred alongside this since 2004 without any adverse effects.
- 89. The WCWARP sets an annual allocation "cap" for agricultural and horticultural activities within defined areas (Table 5) which in Section 5.2 is considered to be met. The applicant has proposed an annual allocation limit for their own resource consents for the use of water.
- 90. Water quality is addressed in Section 5.5 in terms of cumulative and individually and with the draft FEMP and landscape has been considered with Section 5.6
- 91. Therefore, given the applicant's commitment to ensuring efficient use of water on their properties, to the minimum flow and flow-sharing regime to protect in-stream values and other users, it is considered that effects on people, communities and amenity will be minor.

5.7 Effects on Tangata Whenua Values

92. Te Runanga O Ngai Tahu submitted on all applications in the catchment, seeking that all applications be declined.
93. The primary reasons for this were that the applications were considered to be inconsistent with the policies and objectives of the WCWARP, and also at odds with the cultural objectives of the RMA.
94. This application is considered to be within the allocation limits and in accordance with the minimum flows of the WCWARP. Te Runanga O Ngai Tahu had considerable input into the creation of the WCWARP.
95. An update of the Otamatapio proposal since notification and other users of the Otamatapio catchment was forwarded to Mr Paul Horgan on the 26th August 2009. A response was received on the 27th August which acknowledged the improvements made by the application and that it was unlikely they would be specifically challenging this given it was a replacement application but are more interested in the catchment based cumulative effects.
96. However, it is acknowledged that Te Runanga O Ngai Tahu have a significant relationship with the Waitaki Catchment. As such, appropriate minimum flow conditions, and management of water quality effects by way of implementation of the FEMP, is proposed by the applicant to ensure that the potential effects on the environment, including tangata whenua values are minor.

6 CRC012727* LAND USE CONSENT - ASSESSMENT OF ENVIRONMENTAL EFFECTS

97. The potential effects considered to be relevant to this activity are as follows:

6.1 Effects on flood carrying capacity and bank erosion

98. The intake structure consists of a concrete wing-wall and 2 slide gates located on the true left of the Otamatapaio River. It is located in a position where the river comes to a natural bend and deflects away to carry on downstream, with the structure itself being located further back from the river bank
99. Given the structures location, it does not impede the flood carrying capacity given the main river channel is not obstructed in anyway by the structure. In the past this structure has not impeded any flood flows and has withstood numerous flood events and the river has a large area of river fans to carry such flows.
100. Furthermore there is no evidence of any erosion or increased bank instability since the structure has been operating.
101. The intake was installed prior to 2000, and only maintenance is required in the future plus ensuring flowing water to the intake location.
102. The SH83 Bridge is located some 5km downstream and over 1km from Bog Roys intake which are both not considered effected by the activities given the distance.
103. On completion of works in-stream, the area shall be re-levelled to blend with the natural river environment.
104. Given this, effects on flood carrying capacity and erosion of Otamatapaio River are considered to be minor which the Reporting Officer concurs with.

6.2 Effects on instream values and water quality

105. Works on the intake are undertaken on an as needed basis, but since it installation prior to 2000, it has only been maintained on a few occasions. The intake is not located in the main river flow.
106. The proposed intake structure should not impede fish passage given the location further back from the river bank and therefore the main channel is not obstructed in any way.
107. The intake is proposed to be fish screened in accordance with "Fish Screening: good practice guidelines for Canterbury, NIWA Client Report: CHC2007.092, October 2007".
108. It is acknowledged that the in-stream works can cause a temporary discoloration of the water and particularly from the perspective of aquatic ecosystems that may be present in the stream; such sedimentation can have an impact on sensitive times such as spawning.
109. Sedimentation can also affect downstream users taking water for domestic or stock water purposes.
110. Works on the intake structure are likely to only be needed once or twice per year or after flood events when sediment levels are naturally high anyway.
111. The most common approach to reducing sediment levels during works is to avoid undertaking works within flowing water. Thereby avoiding the possibility of increasing levels of suspended sediment contained within the waterway. Therefore if the intake is being replaced the water flow can be temporarily diverted around this area until the work is completed to reduce continuous increased sediment levels.
112. The main reason this application is considered discretionary is because the sediment requirements associated with permitted status may not be met. Therefore it is not considered appropriate that such a permitted status condition is attached to this consent (remove Condition 13 proposed).
113. At times, redirection of surface flow is required upstream of the intake (e.g. after a flood event if the river changes course) and the applicant is now proposing to limit this work to 50mtrs upstream of

the intake whereby water will need to be re-diverted to the intake. Works related to this may need to occur in flowing water.

114. Given the proposed measures, effects on instream values and water quality are able to be effectively mitigated.

6.3 Effects on amenity, people, communities and Tangata Whenua values

115. The proposed intake abstraction point is located over 5km upstream from SH83
116. The intake has been operating since 2000 in future the only works required will be maintenance.
117. In relation to Tangata Whenua values, accidental recovery protocol has already been proposed by the applicant. Furthermore email correspondence with Ngai Tahu, has indicated the land use consent has not been raised as a concern associated with the water permit.
118. The Reporting Officer considers the effects on Tangata Whenua values are minor given effects on water quality are minor. Given the works are for maintenance only and the mitigation proposed, the effects on amenity, people, communities and Tangata Whenua values are considered minor.

7 CRC012049* DISCHARGE CONSENT - ASSESSMENT OF ENVIRONMENTAL EFFECTS

119. The potential effects considered to be relevant to this activity are as follows:

7.1 Effects on flood carrying capacity and bank erosion

120. When water is discharged into a waterway, the flow, and potentially the velocity, of the receiving water body is increased, thereby increasing the volume of water in the water body and potentially scouring the banks where the discharge occurs.
121. This discharge is historical and has been occurring since the 1920's into Clarke Creek. The existing WTK consent is for a flowrate up to 370l/s which has now been reduced to 200l/s. This stream therefore has the capacity to manage this discharge given how long it has been operating without any evidence of erosion as agreed by the Reporting Officer.
122. In time once this system is upgraded, the discharge will be very minimal if not, non-existent.
123. This discharge is the majority of the main flow of Clarkes Creek, other than small waterways that flow into this at times of high rainfall. During high rainfall events irrigation will not be occurring so the discharge should only be stockwater.
124. Given this, flood carrying capacity and erosion from the discharge of water is considered minor.

7.2 Effects on instream values and water quality

125. The water that is discharged into Clarkes Creek is excess water that is diverted as well as irrigation by-wash water from the border dyke system. With the upgrade to spray irrigation, in time this discharge will reduce to fairly much stock water only or water in the race system when an irrigator shuts down.
126. As part of the Farm Environmental Risk Assessment carried out for this property, the existing wetland/swamp area was identified to act as a filter type system for by-wash water. This is located below the hill area border dykes and again prior to Clarkes Creek entering Lake Benmore. This effectively polishes the water by a process of nutrient and sediment removal, and it is these contaminants in the water that affect water quality and ecosystems. Further details are provided in the draft FEMP, Appendix E, Section 3.2.
127. As part of the proposed FEMP audits measures and actions in case of non-compliance are proposed, including water quality sampling to detect change. Baseline sampling has commenced so there is a starting point and to assist setting triggers to ensure the effects on water quality are no more than minor.
128. Given this, effects on water quality and ecosystems are considered to be minor, as concurred by Reporting Officer

7.3 Effects on amenity, people, communities and Tangata Whenua values

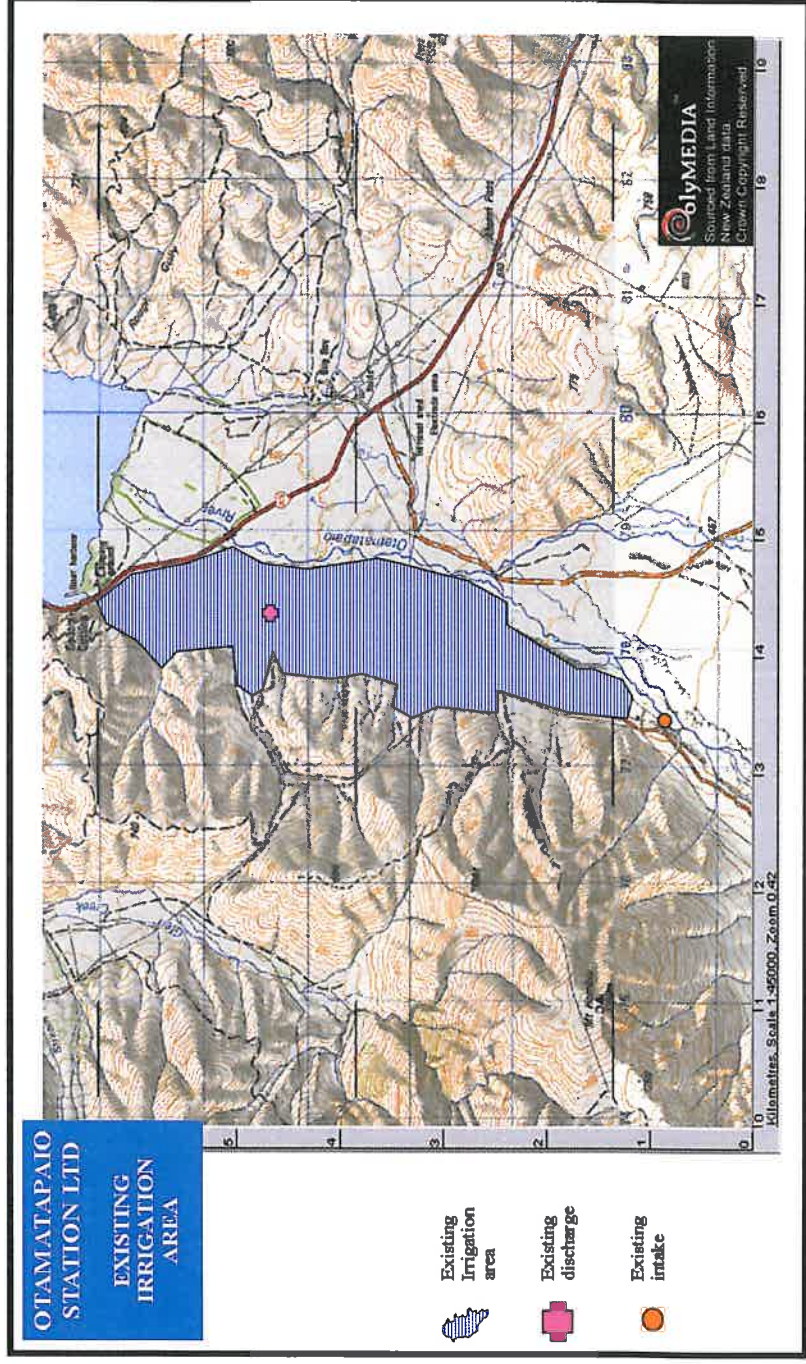
129. When water is discharged there is the potential to cause adverse effects on other users of the water body due to the contamination of the water, or create an unsightly plume that may affect amenity.
130. In this case, the receiving water body is Clarkes Creek and subsequently Lake Benmore. The volume discharged is a very small volume of water in proportion to the volume of water in the lake and will reduce further once the full spray system is operational.
131. This has been occurring since the 1920's and the effects are decreasing with the system upgrade as already discussed in the sections above.
132. Water will be polished through wetlands areas, prior to its discharge and this will ensure that any nutrients and sediment are removed. Furthermore the implementation of the FEMP also deals with water quality as identified in the previous section.

133. Therefore, effects on amenity, people, communities and Tangata Whenua values are minor.

8 CONCLUSIONS

134. The potential effects associated with the take and use of water, and the related ancillary landuse and discharge activities have been assessed, taking the concerns of submitters into account, and are considered to be minor.

APPENDIX A: IRRIGATION COMMAND AREA PROPOSED



APPENDIX B:

Photo A: Existing borderdyke irrigation



Photo B: Existing pivot irrigation



Photo C: Existing water race



Photo D: Existing intake in the foreground, flow recorder can be seen



APPENDIX C: PROPOSED CONDITIONS

CRC Proposed conditions used with track changes

Please note that conditions relating to water quality and FEMP are still to be added

Table 3: Recommended draft conditions for water permit CRC012047		
No.	Condition Code ¹	Details
Divert & Take		
1	WP01 (modified)	<i>Name of waterbody:</i> Otamatapaio River <i>Map reference:</i> NZMS 260 H40:774-195
Rate & Volume		
2		<p>Water may be diverted as follows:</p> <p>1.1.1 at a rate not exceeding 30 litres per second at any flow in the Otamatapaio River;</p> <p>1.1.2 at rate not exceeding 140 litres per second when river flows in the Otamatapaio River are less than 600 litres per second but greater than 200 litres per second; and</p> <p>1.1.3 at a rate not exceeding 200 litres per second when river flows in the Otamatapaio River are greater than 600 litres per second; and</p> <p>1.1.4 with a volume not exceeding 2,442,080 cubic metres between 1 July and the following 30 June.</p> <p><i>Refer to evidence of Dave Boraman for amended condition</i></p>
Use		
3	WP04	<p><i>Type of irrigation:</i> Border-dyke and spray irrigation</p> <p><i>Number of hectares:</i> 200 hectares</p> <p><i>Use:</i> crops and pasture for grazing stock excluding milking dairy cows</p> <p><i>Do not wish to exclude specific stock type. FEMP will ensure N and P discharges are not exceeded.</i></p> <p><i>Plan No:</i> "CRC012047" (Attachment 1)</p>
4		An annual volume not exceeding 716,800 cubic metres per year shall be used on the 112ha area identified as "Crossover irrigation area" on attached plan "CRC012047" Attachment 1 in conjunction with CRC021330, if granted.
5	WP05	Efficiency of use
6	WP06	Backflow preventer

¹ See Report 1, Appendix 6 for condition code and wording.

Mitigation		
7	WP07	<p>Name of waterbody: Otamatapaio River</p> <p>Map reference: NZMS 260 H40:759-168</p> <p>Minimum flow: 200 litres per second</p> <p>Flow graph: See Report 2A</p> <p><i>Refer to the evidence of Mr Boraman for amended consent condition</i></p>
8	WP09	<p>Fish screen – or gallery with minimum depth below river of 2 metres</p> <p><i>Gallery intake not proposed</i></p>
9		The consent holder shall ensure water races used to convey water diverted in terms of this permit are well maintained to minimise losses.
10		The consent holder shall cease irrigation using border-dyke systems and convert the property to spray irrigation within 5 years from the date of commencement of this consent.
Measuring & Metering		
11	ME03	Open channel
12	ME04	<i>Datalogger required as per MIC/MEL Conditions</i>
13	ME05	
14	ME06	
15	ME07	Waterway: Otamatapaio River
16	WP08	<p>Waterway: Otamatapaio River</p> <p>Map reference: NZMS 260 H40:759-168</p> <p>To be used with ME03-05</p>
Administrative Conditions		
17	AD01	
18	AD02	<p>Number of working days: 5</p> <p>Month 1: March</p> <p>Month 2: July</p> <p>Waterbody: Otamatapaio River</p> <p>Cross reference to Condition: 7</p>
19	AD04	Lapse date

Table : Recommended draft conditions for discharge permit CRC012049		
No.	Consent Code ²	Details

² See Report 1, Appendix 6 for condition code and wording.
Otamatapaio Station (1993) Ltd for CRC012047, CRC012727 and CRC012049

Scope		
1	DP01	<p><i>Waterbody from:</i> Irrigation race</p> <p><i>Waterbody to:</i> Clarks Creek</p> <p><i>Map reference:</i> NZMS 260 H40:783-233</p> <p><i>Discharge rate:</i> 200 litres per second</p> <p><i>Plan:</i> "CRC012049"</p> <p><i>Other:</i> The water shall by irrigation bywash water and excess stock and domestic water.</p>
Operation and Maintenance		
2	DP02	<i>Waterbody:</i> Clarks Creek
3	LU13 modified	The discharge shall not occur in a manner likely to cause erosion of, or instability to, the banks or bed of the Clarks Creek; or reduce the flood-carrying capacity of the waterway
4	DP03	
5	DP04	<i>Not considered necessary</i>
Administrative Conditions		
6	AD03	Review
7	AD04	Lapse date
Table 2: Recommended draft conditions for CRC012727		
No.	Consent Code	Details
Scope		
1	LU01	<p>(a) Maintain a twin pipe intake structure in the bed of Otamatapaio River, including excavation of gravel and sediments,</p> <p>(b) Only be necessary to maintain adequate flow of water to irrigation intake.</p>
Location		
2	LU02	<p><i>Cross reference to Condition:</i> 1</p> <p><i>Name of watercourse:</i> Otamatapaio River</p> <p><i>Map reference:</i> NZMS 260 H40:774-195</p> <p><i>Plan:</i> "CRC012727" (Attachment 1)</p>
Limits of Works		
3	Non-standard	Any gravel, sand and other natural material excavated as part of the works authorised by this consent during the disturbance of the bed of Otamatapaio River, must be deposited on, or near to, the excavation site, and shall be reshaped and formed to a state consistent with the surrounding natural riverbed.
4	Non-standard	Maintenance works shall be carried out as soon as practicable after a flood or fresh event when sediment levels in the Otamatapaio River are naturally high and shall take no more than one day to complete

5	Non-standard	If complete replacement of the intake is required, the stream shall be diverted around the works site for a period of up to 3 days to minimise the work required in flowing water.
6	Non-standard	Any works to divert water shall not result in a diversion of more than 50 metres in length.
Erosion Protection		
7	LU10	
8	LU11	<i>Waterbody:</i> Otamatapaio River
9	LU12	
10	LU13	<i>Waterbody:</i> Otamatapaio River
Prior to Construction		
8	LU08	
9	Non standard	The Canterbury Regional Council Compliance Monitoring Officer shall be notified of the intention to carry out works and their intended type and scope at least 48 hours prior to the commencement of work.
10	LU31	Bird survey
During Construction		
11	LU14	<i>Waterbody:</i> Otamatapaio River
12	LU18	
13	LU21	Not considered appropriate as per evidence
14	LU23 modified	All practicable measures shall be undertaken to minimise vehicles and machinery entering Otamatapaio River.
15	LU22	
16	LU26	
17	LU24	
18	LU25	
Accidental Discovery Protocol		
19	LU09	
Upon Completion		
20	LU28	
21	Non standard	On completion of works, the area shall be restored to its original condition as far as practicable.

Administrative Conditions		
22	AD03	
23	AD04	