

In the matter of:

The Resource Management Act 1991

and

In the matter of:

CRC011989

To divert water at a rate not exceeding 110 litres per second fr
Kirkliston Stream for domestic and stock-water purposes.

Applicant:

Padkins Creek Community Race



BRIEF OF EVIDENCE OF KERI JOY JOHNSTON



INTRODUCTION

1. I hold a Bachelor of Engineering (honors) 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).
2. 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.
3. I left ECan to join RJ Hall Civil and Environmental Consulting Limited (now GHD Limited) as an Environmental Engineering Consultant. I was employed in this position for the previous three and a half years. Work mainly involved the preparation of resource consent applications for all land and water activities, and engineering related works.
4. I am now a director of Irricon Resource Solutions, a resource management and environmental engineering consultancy. I am also currently the contract Consents Investigating Officer for applications associated with the Central Plains Water Trust and the Ashburton Community Water Trust.
5. I acknowledge that I have read the code of conduct for expert witnesses contained in the Environment Court's Practice Note dated 31 March 2005. I have complied with it when preparing the following evidence, and agree to comply with it when giving evidence before the hearing commissioners.

APPLICATIONS BEING SOUGHT

Consent ID	Description	Table 3 Location
CRC011989	To divert water from Kirkliston Stream, at a rate not exceeding 110L/s, with a volume not exceeding 66, 528 cubic metres in any period of seven consecutive days.	All other streams

BACKGROUND INFORMATION

6. This application was lodged on 29 March 2001 more than six months prior to the expiry of resource consents WTK691210A – H and WTK691217A - B.
7. The Padkins Community Race has been in existence since 1886, with modification over time. Fourteen households rely on the water for domestic purposes, and supplies stock water to approximately 20, 000 animals.
8. The WTK consents originally referred to irrigation as a possible use of water, however, most of the properties supplied by the scheme now hold individual irrigation consents. The remaining properties do not irrigate at present, and therefore this part of the consent was not being exercised.
9. There are too many properties reliant on the scheme for domestic and stock water purposes, and therefore, and it is very valuable to the community for this reason. Given that the use of water in the

Hakataramea Valley and the potential impact of this on water quality, the applicant no longer wishes to pursue the use of water for irrigation purposes.

10. This is a permanent diversion (all year round), and only water that is needed for domestic and stockwater purposes is used once the diversion has occurred.
11. It is noted that historically, a number of discharge consents were held by the scheme, but now the only discharge points that are relevant are actually branches in the race system, where the flow is split and a portion diverted down another arm of the race. The race system even appears on topographical maps further emphasising its place in the Valley and the length of time it has been in existence – it is now part of the natural landscape.

SUBMISSIONS

12. 24 submissions were received on each of these applications. Of these, 11 were in opposition, 11 were in support and 2 neither support or oppose.
13. Details of submissions received have been detailed in the Brief of Evidence prepared by Ms Anthony and myself, and I have not repeated this in this report.
14. There were nine submissions specific to this application.
15. Mr. S Taylor and Mr. G Hay are concerned about effects on existing users. As this is an application to renew an existing water right, effects on existing users should not be any different to the status quo.
16. Mr. G McCaw, PS Cleave, AM Cleave, TB Petrie, I McCaw and J Abelen all support the renewal of the existing water right.
17. Star Holdings also submitted on this application supporting the renewal of the right for domestic and stock-water, but was concerned about the impact of the irrigation component could have on their own water rights downstream. As the irrigation component of this application is no longer being pursued, Star Holdings is now fully in support of the application.

DESCRIPTION OF THE ENVIRONMENT

18. Kirkliston Stream is a tributary of the Hakataramea Valley, with a catchment area of approximately 5 km² above the Padkins Community Race diversion.
19. It is ephemeral in its lower reaches for most of the year.

PLANNING SUMMARY

20. For domestic and stock-water, Rule 2 clause 2 applies and the activity is exempt from a minimum flow.
21. Domestic use is within the allocation limit under Rule 6 for Town and Community Supply activities.
22. Stock water is defined as agricultural and horticultural use under Rule 6, and therefore, is in the allocation limit set for this activity. The allocation for this activity is considered by the Canterbury Regional Council to be over allocated, however, this is a renewal of a historic take and the use of water is for domestic and stock-water purposes, and the allocation sought is considered to be reflective of “reasonable and efficient” use.

ASSESSMENT OF ENVIRONMENTAL EFFECTS

Effects on other water users

23. There are two other water users on Kirkliston Stream. These are the Hakataramea Water Supply Scheme and Montara Properties.
24. The applicant and Hakataramea Water Supply Scheme work together with regards to sharing the flow as the two intakes are in close proximity to each other.
25. Montara Properties are approximately 2km downstream of the applicant's take.
26. CRC011989 is within the "all other streams" category of Rule 2, Table 3 of the WAP, and therefore no allocation limit is set for this stream.
27. However, given this consent is for a straight renewal, effects on these two users will be no different to that of now.

Effects of inefficient water use

28. The applicant is proposing to divert 110L/s for domestic and stock water supply.
29. The scheme currently supplies 8 properties with stock water and 14 households with domestic water.
30. The Ministry of Health gives guidance on the requirements per household for domestic water. This is 2,000 litres per household per day. For 16 households, this equates to 32,000 litres per day, or 11,680 cubic metres per year. This is considered to be reasonable and reflective of actual use.
31. Schedule WQN11 of the PNRRP gives guidance on stock water requirements. It is very difficult to quantify stock water requirements as in any given year, the type of stock and numbers will ultimately change depending on climatic conditions (and thus the amount of feed available) and the demand for the stock type.
32. In paragraph 71 of the S42a report for this application, reference is made to guidelines prepared by the Ministry of Agriculture and Forestry, and 6L/head/day has been used to determine stock water requirements, with a total of 120,000 litres per day.
33. It is noted that in the letter written to the CRC on 5 December 2004, when this volume was provided, that it is noted that 6L/head/day is based on sheep.
34. Stock in the valley is a mixture of beef cattle, dry dairy cows, sheep and deer, and this is evident throughout the application.
35. In December 2002, the applicant supplied stock number to the CRC. These were:
 - 20,975 ewes;
 - 2,023 deer;
 - 18 horses; and
 - 429 beef cattle.
36. Schedule WQN11 allows 45L/animal/day for beef cattle and for 429 beef cattle, this equates to 19,305 litres per day.

37. Schedule WQN11 allows 3L/animal/day for breeding ewes, and for 20, 975 breeding ewes, this equates to 62, 925 litres per day.
38. Schedule WQN11 does not specify a stock water requirement for deer, but for horses, its 35 L/animal/day and this equates to 70, 805 litres per day for 2, 023 deer and 630 litres per day for 18 horses. In total this is 153, 665 litres per day.
39. I am therefore of the opinion that 120, 000 litres per day for stock water is too light, and that it is highly variable depending on the type and number of animals being grazed by the properties at the time.
40. It is noted that no more than that which is essential for drinking and stock-water will be taken from the race.
41. And, even since 2002, there has been a “shift” away from sheep and there are more beef cattle on the properties.
42. I have spoken with the properties supplied by the scheme, and they have provided an estimate of the type of stock and numbers carried. These are as follows:

Star Holdings (5 properties)	Ewes	5600	SU ¹	6, 720
	Ewe Hogget's	1800	SU	2, 160
	Beef Cattle	750	SU ²	4, 500
	Deer	250	SU ³	500
				<u>13, 880</u>
Montara Properties	Ewes	7500	SU	9, 000
	Ewe Hogget's	1800		1800
	Beef Cattle	250		<u>1375</u>
				12, 175
Hillside	Ewes	250		250
	Ewe Hogget's	50		<u>50</u>
				300
Viewfield Partnership	Ewes	4000		4000
	Ewe Hogget's	950		950
	Beef Cattle	500		2750
	Hinds	1700		<u>3400</u>
				11,100

Total = 23, 130 ewes/hogget's; 8, 625 beef cattle; 2, 200 deer

43. Using the figures per animal detailed in paragraphs 31 to 33 of this report, the annual volume for stock water is 534, 515 cubic metres per year.
44. The diversion will be metered as required by Policy 21 of the WAP.
45. Given this, effects of inefficient water use will be minor.

¹ 1.2 ewes = 1 SU

² 6 beef cattle beasts = 1SU

³ 2 deer = 1 SU

Effects on in stream values

46. As the take is for domestic and stock-water purposes, a minimum flow is not required under Rule 2 of the WAP.

47. There is no fish screen on the diversion, and after receiving comments from Fish and Game, the reporting officer for this application is satisfied that this is not required because of the fisheries values and the naturalized nature of the race system.⁴

48. It is also noted that this is an activity which is occurring now, and there is no change proposed to that of the status quo.

49. Given this, effects on in-stream values is minor.

Effects of the use of water on water quality

50. The use of water is for domestic and stock-water purposes.

51. Therefore, it is unlikely that water quality will be altered from the diversion state because of the use of water.

CONCLUSION

52. The renewal of this application will not have any adverse effect on the environment, as there is no change to the status quo.

53. The water from the scheme supplies essential drinking and stock-water to 16 households and 8 properties and is of huge value to the community, and it is vital that the scheme continues as it has done since 1886.

PROPOSED CONDITIONS

1. Location of take condition – surface water

Water may only be taken from the <name of waterbody>, at or about map reference <map reference>.

2. Rate of take and annual volume

Water may be taken at a rate not exceeding [instantaneous rate] litres per second, with a volume not exceeding [volume] cubic metres in any period of [design return period] consecutive days, and [seasonal volume] cubic metres between 1st July and the following 30th June.

3. Use of water

The water taken in condition (x) shall only be used for domestic and stock-water purposes, as described in the application.

⁴ Paragraphs 46 to 48 of the S42a Officers report.

4. Flow meter – diversion

- (a) The consent holder shall, prior to exercising this consent, install a water level measuring device in a location that will enable the determination of the continuous rate of flow and volume of water being diverted to within an accuracy of 10 percent.
- (b) The measuring device shall, as far as is practicable, be installed at a site likely to retain a stable relationship between flow and water level. The measuring device shall be installed in accordance with the manufacturer's instructions.
- (c) The flow at the measuring site shall be gauged at least every three months whilst this consent is being exercised, and at any other time when required as determined by a site inspection, to be carried out at least once every month.
- (d) Gaugings and site inspections shall be carried out in accordance with the following manuals: Hydrologists Field Manual (NIWA 1991) and Procedure for Rating a Flow Station (NIWA 1993) or any equivalent publication.
- (e) The level of water in the race, and times of abstraction, shall be recorded by electronic means, at not greater than fifteen minute intervals in a tamper-proof recording device such as a data-logger, kept for that purpose. The recorded data shall not be changed or deleted by any person, unless twelve months have passed since the date of recording.
- (f) The measuring and recording devices described in clauses (a) and (e) shall be available for inspection at all times by the Canterbury Regional Council.
- (g) All data from the recording device described in clause (e), and the corresponding relationship between the water level and flow, shall be provided to the Canterbury Regional Council on request, and shall be accessible and available for downloading at all times by the Canterbury Regional Council.
- (h) Within one month of the commencement of this consent, at two-yearly intervals thereafter, and at any other time when requested by Canterbury Regional Council, the consent holder shall calibrate the measuring device and provide to the Canterbury Regional Council:
 - (i) a certificate signed by a suitably qualified person certifying the current accuracy of the measuring and recording devices, and also certifying that data from the recording device described in clause (e) can be readily accessed in accordance with clause (f); and
 - (ii) supporting information containing details of the calibration test.

5. Efficient use of water

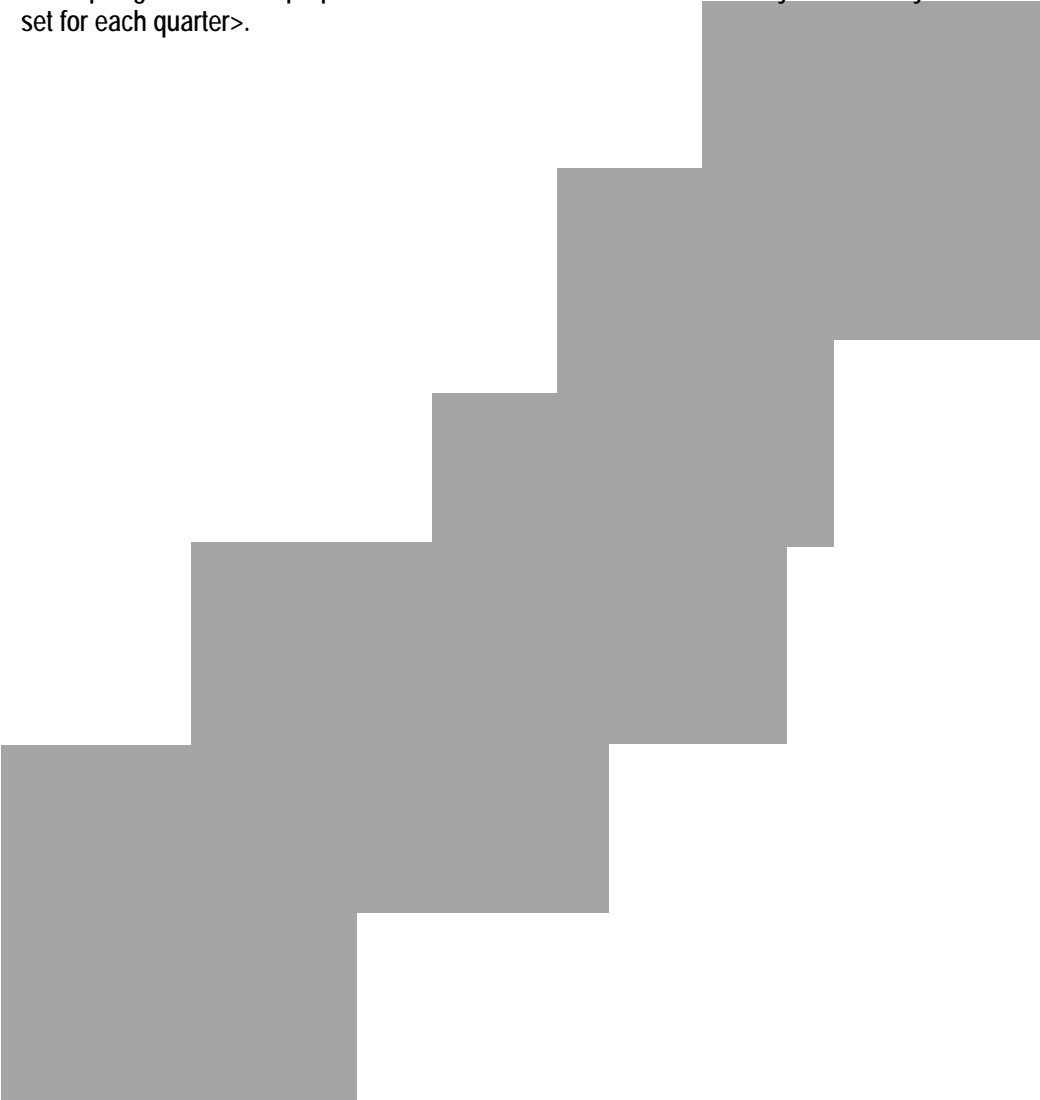
- (a) The consent holder shall take all practicable steps to:
 - (i) Ensure that the volume of water used for domestic and stock-water does not exceed that required for reasonable use; and
 - (ii) Avoid leakage from structures.

6. Review

The Canterbury Regional Council may, once per year, on any of the last [number of days-default=5] working days of [month1] [or month2], serve notice of its intention to review the conditions of this consent for the purposes of dealing with any adverse effect on the environment which may arise from the exercise of the consent and which it is appropriate to deal with at a later stage.

7. Lapsing Date

The lapsing date for the purposes of section 125 shall be <between 5 years and 5 years three months, date set for each quarter>.



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