

**BEFORE THE CANTERBURY REGIONAL COUNCIL**

**IN THE MATTER OF**

The Resource Management Act 1991

**AND**

**IN THE MATTER OF**

applications by **Twin Peaks Station Limited** for

**CRC063564** - a water permit to divert, take and use surface water from Manuka Creek for irrigation of Twin Peaks Station, Omarama.

**CRC063565** – a land use consent to disturb the bed of Manuka Creek to install and maintain and intake structure

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**REPORT AND INTERIM DECISION OF HEARING COMMISSIONERS PAUL ROGERS,  
MICHAEL BOWDEN, DR JAMES COOKE AND EDWARD ELLISON**

**PART B - SITE SPECIFIC DECISION**

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## 1 INTRODUCTION

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- 1.1 This is an **interim decision** on two applications by **Twin Peaks Station Limited** (the applicant). It is one of many decisions we have made on 104 applications by various applicants for water permits and associated consents in the Upper Waitaki Catchment.
- 1.2 This interim decision should be read in combination with our Part A decision, which sets out our findings and approach to various catchment wide issues that are common to multiple applications. References to our Part A decision are made throughout this decision as appropriate.
- 1.3 We can only issue an interim decision at this stage because we require further information from the applicant. That further information is fully described in this interim decision at "Section 18 Conditions".
- 1.4 We direct that the applicant provide us this further information within 15 working days of receipt of this interim decision

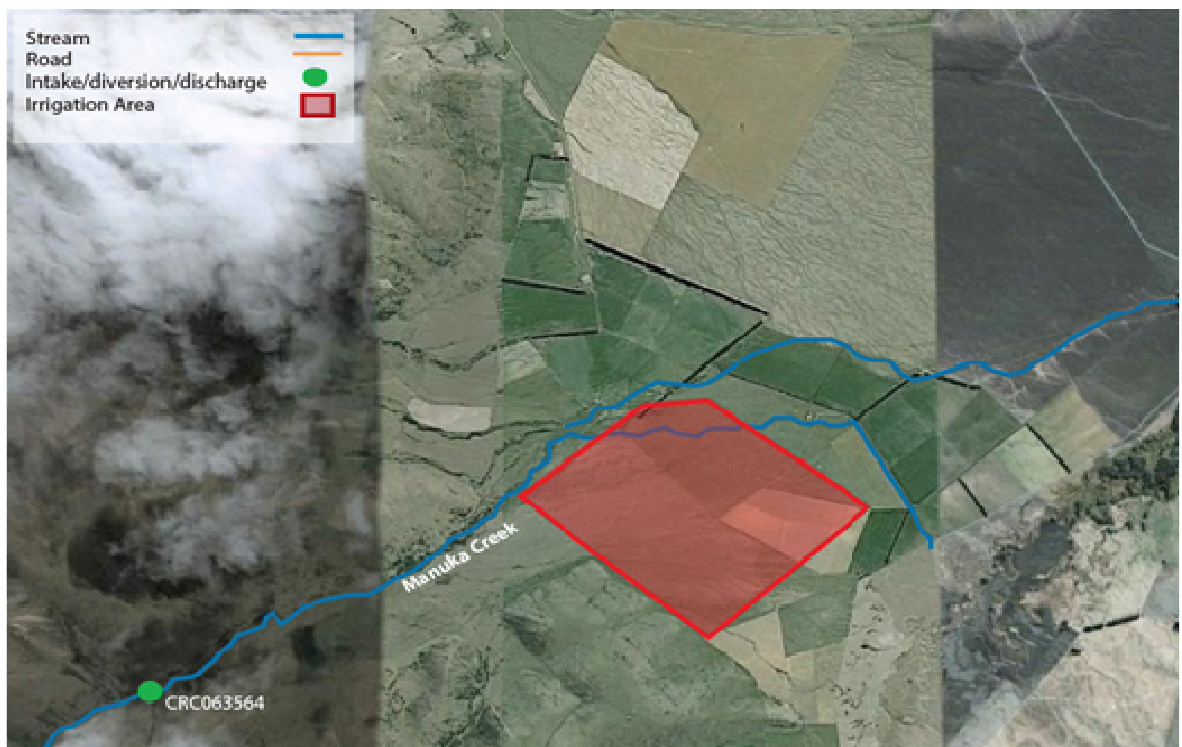
## 2 THE PROPOSAL

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- 2.1 The applicant proposes to take and use water from Manuka Creek for use in irrigation at Twin Peaks Station. There are two separate components of the proposal, being the take and use of water, and the works in the bed to install the intake structure, each of which is discussed further below.

### Take and use

- 2.1 Water will be taken from Manuka Creek at a maximum rate of 60 L/s, with a volume not exceeding 5,184 m<sup>3</sup>/day and 432,000 m<sup>3</sup>/yr (at or about map reference NZMS 260 H39:540-225 to H39:542-226). Water will be stored and/or used to irrigate an area of 72 hectares of pasture, winter fodder and lucerne crops at Twin Peaks Station, within a command area of 150 hectares approximately 18 km south-west of Omarama.
- 2.2 Figure 1 below illustrates the location of the proposed take point and irrigation area.



**Figure 1:** Indicative Location Map

- 2.3 Pasture will be grazed by non-dairy stock, such as sheep and cattle, with low-intensity stocking rates. Stock will not be allowed to access Manuka Creek in the area of proposed irrigation development.

- 2.4 Water may only be taken at the maximum rate of 60 L/s when flows in Manuka Creek exceed 162 L/s. All abstraction must cease when the flows in Manuka Creek, immediately downstream of the intake are fall below 65 L/s. The minimum flows for Manuka Creek will be measured at or about map reference NZMS 260 H39:541-225 and the take of water will be metered.
- 2.5 The applicant has not stated that the requested annual volume sought includes allowances for stock water, therefore, it is assumed that the annual volume requested is solely for "irrigation purposes" and is additional to the volumes permitted by s.14(3) of the RMA.
- 2.6 Water will be conveyed to the irrigation area via a combination of open water races and pipelines. Water will be irrigated onto land via a centre pivot irrigator. An application rate of 5 mm/day is proposed, however as the application rate for centre pivot irrigators are between 15 – 20 mm/day, a return period of 3-4 days is also proposed. The irrigation season will be between September and April inclusive. During September, water will primarily be abstracted for storage purposes and used later in summer.
- 2.7 A fish screen, designed in accordance with the "Fish Screening Good Practice Guidelines for Canterbury". NIWA Client Report, CHC2007.092, October 2007, will be installed on the intake.
- 2.8 The applicant has also stated that a buffer pond is proposed. While any barrier to the flow of water is considered as "damming" water, the practice of the Canterbury Regional Council ("the Council) is to not require consents for ponds where the bund around the pond would not exceed a height of 1 metre. The applicant's pond fits within this description therefore the requirement for consent has not been enforced in this instance.

#### Works in the bed

- 2.9 The applicant proposes to disturb the bed of Manuka Creek to install and maintain a buried infiltration gallery below stream level. The proposed abstraction point is just prior to Manuka Creek exiting the gorge (at or about map reference NZMS 260 H39:540-225 to H39:542-226).
- 2.10 The pipe will be approximately 5 – 10 metres long and 300 millimetres (mm) in diameter, with slots not exceeding 8 mm. The pipe will be orientated 45 degrees upstream and a delivery pipe will convey water from the infiltration gallery to the irrigation area. The pipe will be buried at least 2 metres below the bed of the stream and the depth of works will not exceed 2.5 metres below bed level. Gravel will be placed over the pipe, re-instating the stream bed. The works to install the infiltration gallery intake are expected to take up to two days to complete.
- 2.11 The banks of the stream will be stabilised with plantings or rip rap if required. The works shall include repair or replacement of the intake structure should it be washed out or damaged following a flood or fresh in the stream
- 2.12 During the installation of the infiltration gallery, the stream will be temporarily diverted around the area where the intake is being installed. Although a consent for this diversion has not specifically been sought, we have considered this activity as part of the proposal for the reasons outlined in our Part A decision.

#### The applications

- 2.13 The proposal includes two separate consent applications:
- (a) **CRC063564** - for a water permit to take and use surface water pursuant to section 14 of the RMA. Consent is required under the Waitaki Catchment Water Allocation Plan (WCWARP), as discussed below.
  - (b) **CRC063565** - The application is for an activity in the bed of a lake or river pursuant to section 13 of the RMA. Consent is required under the Proposed Natural Resources Regional Plan (PNRRP), as discussed below.
- 2.14 Both applications were lodged with the Canterbury Regional Council (the Council) on 4 April 2006. The applications were publicly notified and there were a number of submissions that are referred to later in this decision. The applications propose an expiry date of 2025 so as to coincide with the Meridian consent expiration date.

## Related consents and applications

- 2.15 The applicant currently holds consent CRC960044.2 which allows them to take and use up to 40 L/s from the Clifton Downs Swamp Drain for spray irrigation of up to 90 hectares. The current applications are seeking consent to irrigate an additional 72 hectares.
- 2.16 Killermont Station holds existing consent CRC000002.1 to take 23 litres per second from Manuka Creek for the irrigation of up to 40.8 hectares. The abstraction location for this consent is approximately 2 kilometres downstream of the abstraction location proposed by Twin Peaks. Killermont Station has also applied for a new consent to take additional water from the same location, which has higher priority than these current applications by Twin Peaks. The applicant has entered into a flow sharing with Killermont Station when flows in Manuka Creek are above 65 L/s. There are no other existing consent holders on Manuka Creek.

## 3 DESCRIPTION OF THE ENVIRONMENT

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- 3.1 Twin Peaks Station is a 3,500 ha property located approximately 18 kilometres southwest of Omarama. The property consists of 650 ha of gently sloping land between Broken Hut Rd and the Lindis Pass Rd (SH8). Approximately 130 hectares of this land is currently irrigated and used for sheep grazing, with a further 150 ha in dryland pasture. The remaining area is undeveloped and will be used for sheep and cattle grazing, and growing winter crops and Lucerne, if the water for irrigation applied for is made available as a result of the granting of this consent.
- 3.2 Manuka Creek flows in an easterly direction and drains the Wether Range. The creek flows through the Twin Peaks Station from the upper reaches of an unnamed gorge, down the gorge, then through Killermont Station before flowing through the lower sloping farmland on Twin Peaks Station. Manuka Creek is fed by smaller tributaries including Frosty Gully which enters Manuka Creek in its lower reaches when it passes through Killermont Station. The proposed abstraction is from the main branch of Manuka Creek.
- 3.3 Downstream of the abstraction point, as Manuka Creek flows through Killermont Station, the stream has been described<sup>1</sup> as being a *"permanent water body with a rock and gravel substrate"* and *"in excellent condition with very good water quality and a range of invertebrate(s) suggestive of a stream of high quality"*.
- 3.4 There are three records of brown trout being found in Manuka Creek in the NIWA Freshwater Fish Database. The applicant notes that the creek is generally ephemeral in the lower reaches, and only flows into Omarama Stream, via the Clifton Drain Swamp (or Omarama Swamp), during flood events or an extremely wet year. In the lower reaches, Manuka Creek consists of a man-made ditch. Aquatic ecosystem and habitat values decline in the lower ephemeral reaches of the creek.
- 3.5 Due to its location between two stations and distance from Broken Hut Road, Manuka Creek is not considered to have high recreational fishery or amenity values. The applicant has noted that downstream water use includes an existing take from the creek for Killermont Station (CRC00002.1) and a small stock water race that conveys up to 2 L/s of water from the creek into Clifton Drain through Dunstan Peaks Station.
- 3.6 The irrigation area is not within a Statutory Acknowledgement Area or a Silent File Area. No significant ecological or cultural values for Manuka Creek have been identified or recorded on ECan's GIS database.
- 3.7 Manuka Creek is a tributary of Omarama Stream, which feeds into the Ahuriri River. Fish & Game stated in their submission that the Ahuriri River is nationally and internationally renowned for the quality of trout and angling experience it offers and its outstanding natural wildlife habitat. The river and its tributaries also provide spawning and juvenile rearing habitat for resident populations of brown trout.
- 3.8 Further description of the environment is provided in our Part A decision and our summary of the evidence received from the applicants and submitters below.
- 3.9 We detailed our site visits in Part A and we do not repeat this information here. The panel did not as a group conduct a site visit to the applicant's property. However, we did fly over the site to

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<sup>1</sup> Killermont Tenure Review, Conservation Resources Report.

familiarise ourselves with the area involved in the proposal and visited neighbouring Killermont Station, where we saw Manuka Creek, and inspected sites with similar soils to those on Twin Peaks.

## **4 PRELIMINARY MATTERS**

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### **Ahuriri Water Conservation Order (AWCO)**

- 4.1 Given the location of this proposal, it is subject to the requirements of the AWCO, including ensuring that the minimum flow levels of the Omarama Stream and the Ahuriri River are maintained. In accordance with section 217 of the RMA, we may not grant a consent that is inconsistent with the requirements of the AWCO.
- 4.2 In particular, we note that Clause 6 of the AWCO specifies minimum rates of flow for the Omarama Stream, downstream of the Clifton Downs Bridge. During higher flows Manuka Creek enters the Omarama Stream downstream of this bridge.
- 4.3 As discussed in the hydrology report for this site by Mr David Stewart (Hydrologist, engaged by ECan), while Manuka Creek is a tributary of the Omarama Stream, imposing the minimum flows in the AWCO on this abstraction would not be appropriate due to the significant delay in flows from the creek reaching the Omarama River (approximately 33 days). It was considered that other activities within the Omarama Stream catchment, such as diversions and abstractions from the main reaches of the stream and tributaries with a greater hydraulic connection, would have a greater influence on flows within the reaches of the Omarama Stream,
- 4.4 Given this relationship and the scale of the proposal, we are satisfied that the proposed take of water would not adversely impact of the flows of the Omarama Stream and that, if all other issues are addressed, consent could be granted without breaching the provisions of the AWCO.

## **5 PLANNING INSTRUMENTS**

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- 5.1 As discussed in our Part A decision, there is a wide range of planning instruments that are relevant under the RMA. This includes national and regional policy documents, along with regional and district plans. The key planning instruments relevant to this application are as follows:
  - (a) Waitaki Catchment Water Allocation Plan (WCWARP);
  - (b) Natural Resources Regional Plan (NRRP);
  - (c) Proposed and Operative Canterbury Regional Policy Statement (CRPS); and
  - (d) Waitaki District Plan (WDP).
- 5.2 The provisions of these planning instruments critically inform our overall assessment of the application under s104(1)(b) of the RMA, as discussed in Section 14 of this decision. In addition, the rules within the relevant planning instruments determine the status of the activity, as set out below.

### **Status of the activity**

- 5.3 In our Part A decision we provide a detailed discussion of our approach to determining the status of activities. We now apply that approach to the current application.

### Take and use – CRC063564

- 5.4 This application was lodged after the WCWARP was made operative. The following rules from the WCWARP are applicable to this application:
  - (a) Rule 2, clause 1(a) – The applicant proposed a minimum flow of 65 L/s, which was the 5-year, 7-day low flow as assessed by the Canterbury Regional Council (Table 3, row (xxii) to be consistent with this rule.
  - (b) Rule 6 – The activity is within the allocation limit of 275 million cubic metres for agricultural activities upstream of Waitaki Dam.

(c) Rule 15 – Classifying rule, discretionary activity.

5.5 In summary, the proposed take and use of water is a **discretionary** activity under Rule 15 of the WCWARP and requires consent pursuant to section 14 of the RMA.

#### Disturb the bed – CRC063564

5.6 In accordance with section 88A of the RMA, the relevant plans for determining the status of the activity are those that existed at the date the application was lodged. In relation to this application, that was the TRP and the PNRRP.

5.7 The TRP is silent on matters relating to works in the bed and banks of rivers and lakes in the Waitaki catchment. This activity therefore requires consent as a **discretionary** activity under the TRP.

5.8 The key provisions of PNRRP (as notified) that are relevant to this application are as follows:

(a) Rule BLR2 permits the placement of structures under the bed of a lake, and any excavating, disturbance, planting or removal of plants associated required to undertake the works.

(b) Rule BLR7 permits land use activities within 7.5 metres of the bed subject to a series of conditions.

(c) Rule BLR8, the works would be considered discretionary under this rule should they not comply with the conditions of Rule BLR-7.

5.9 We cannot be certain that the proposed activity will comply with all components of BLR2, particularly clause 9, which considers the discharge of sediment into a water body. As such we consider that the works in the bed is a **discretionary** activity and resource consent is required in accordance with section 13 of the RMA.

5.10 In relation to the minor diversion of water associated with construction activities, the relevant plan for determining the status of the activity is the WCWARP. The diversion fails to qualify as a permitted activity under Rule 1 of the WCWARP due to the quantity and rate of water being diverted. However it complies with all other relevant rules in the WCWARP and therefore requires consent as a **discretionary** activity.

#### Overall status of the proposal

5.11 Based on the above, we have assessed the entire proposal as a **discretionary activity**.

## **6 NOTIFICATION AND SUBMISSIONS**

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6.1 The application was publicly notified on 4 August 2007 and a number of submissions were received. Table 1 is based on the relevant s42A reports and summarises those submissions that directly referenced the application. In addition to those listed, there were other submitters that presented evidence at the hearing that was relevant to this application. The relevant evidence from submitters is discussed in more detail later in this decision. Please note that all submissions hold equal importance, even if not specifically listed below.

6.2 All submissions related to the take and use activity and there were no submissions that directly related to the application for works in the bed.

Table 1. Summary of submissions on application CRC063564

Submitter	Reasons	Position
Fish and Game New Zealand	Protection of trout spawning habitat, and minimum flows in tributaries of the Ahuriri, in accordance with the Ahuriri Water Conservation Order.	Oppose
Meridian Energy Ltd	Water quality and metering.	Oppose
Killermont Station Limited <sup>2</sup> (now withdrawn)	Effects on water availability for existing consent and consent application in process.	Oppose

6.3 Overall the key issues of concern to the submitters were effects on minimum flows and the efficient use of water, effects on landscape values and cumulative water quality impacts.

## **7 THE SECTION 42A REPORTS**

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7.1 Two section 42A reports (37A and 37B) on the applications and submissions were prepared by the Council's Consents Investigating Officer (Ms Yvette Rodrigo).

7.2 The primary reports were supported by a number of specialist reports prepared by Messrs Heller, Hanson, Glasson, McNae and Stewart, and Drs Clothier, Schallenberg, Meredith and Freeman. The key issues addressed by these reports were cumulative water quality effects, landscape effects, and environmental flow and level regimes.

7.3 All reports were pre-circulated in advance of the hearing. We have read and considered the content of the reports and refer to them as relevant throughout this decision. Specific points noted from the s42A report are summarised below.

### **Take and use (Report 37A)**

7.4 At the time the primary report was prepared for the take and use activity, there was insufficient information for Ms Rodrigo to reach firm conclusions on the effects of the proposal. Matters that were identified as outstanding at that time were, surface water quality, fish screen details and cultural impacts. We discuss these issues further below after summarising the applicant's case.

7.5 On the issue of landscape, Mr Glasson considered the site to be discreetly located adjacent to the foothills with very low visibility from any public viewing point. Thus he concluded the adverse effects on landscape would be less than minor.

### **Disturb the bed (Report 37B)**

7.6 Ms Rodrigo in her assessment of the actual and potential effects of the proposed activity utilised the experience of Mr Bruce Scarlett (River Engineer ECAN) in reaching her conclusions. Ms Rodrigo concluded that the effects would be minor. Ms Rodrigo told us that the applicant had not provided an assessment of effects, however they had proposed mitigation measures which provided timing of works and mitigations are implemented, would result in effects that were minor. We comment further on the effects and mitigation proposals further in our evaluation of effects.

## **8 THE APPLICANT'S CASE**

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8.1 Legal counsel for the applicant, Mr Ewan Chapman presented opening submissions and called the following witnesses:

- (a) Ms Haidee McCabe – consultant
- (b) Mr Andrew Craig - landscape architect
- (c) Mr Robert Batty - planner

<sup>2</sup> On the 18th of August 2009, Canterbury Regional Council was advised that Killermont Station Limited wished to withdraw their submission on the applications by Twin Peaks Station.



- (d) Mr David Boraman - hydrological consultant
- (e) Mr Andrew Macfarlane - farm management consultant

### Opening legal submissions

- 8.2 The applicant is part of the Upper Waitaki Applicant Group (UWAG), as described in our Part A decision. Mr Ewan Chapman presented comprehensive opening legal submissions on behalf of all UWAG applicants. He said that there may be matters of a specific legal nature relating to certain applications and those issues will be raised when the specifics of the applications were discussed in closing.
- 8.3 Mr Chapman told us that UWAG represents some 72% of all applicants for water takes. This equates to 31% of the total water volume applied for (excluding stockwater and non-consumptive diverts) and 29% of the total irrigable area.
- 8.4 Mr Chapman emphasised that despite the collective approach adopted for these hearings, each application needs to be considered in isolation from others (allowing for priorities). However Mr Chapman noted that UWAG is not producing any other evidence to support its own assessments of cumulative effects and adopts the MWRL evidence to the extent that it defines nodal thresholds.
- 8.5 While raising some challenge to the outcomes of the mitigation measures proposed by MWRL resulting from the WQS study, Mr Chapman told us that the UWAG members were not presenting their case to say that they cannot or will not meet an area-based NDA threshold. To the contrary, he said that we would be shown that they have taken the model and applied it to all properties and will, with mitigation, meet the thresholds.
- 8.6 Mr Chapman then addressed us on the issue of allocation of assimilative capacity. Relevantly, for this application in terms of the Ahuriri, he told us the assimilative capacity is exceeded. He contended the approach taken by MWRL that essentially resulted in some farming units mitigating for the nutrient loss of other farming units, was inappropriate. He submitted a more appropriate method of allocation is on the basis of productive use of land. The productive use of the land he said represents the level of nutrient discharge of each farming unit and that should be used; and that the method of allocation based on dividing allocation on a per hectare basis should not be utilised.
- 8.7 He submitted that by assessing allocation of assimilative capacity on the basis of productive land use to reflect the NDA for each unit, these methods would be more representative and realistic of the nutrient discharge of each farming unit.
- 8.8 In terms of conditions concerning the nodal approach, he told us the essential issue lies with pinpointing who is exceeding their NDA if exceedances are detected at the nodal point. He told us the UWAG applicants' preference is for on-farm management of total nutrient discharge and annual auditing of individual FEMPs. He then referred us to a draft condition from the Rakaia Selwyn groundwater zone hearing, noting it was a very much site-specific condition.
- 8.9 He submitted that on-farm monitoring should be favoured over monitoring at nodal points. He said this did bring in the practicalities of the purpose of employing the FEMP with the result that if a breach of the FEMP occurs, the consent authority would have control to enforce the conditions of the consent against the individual applicant. It also reflects the reality that each farm will be different depending on the type of activity that is undertaken on that farm with their individual tailored farming management practices.
- 8.10 Mr Chapman addressed us in relation to duration of consent. He agreed that applications that are not renewals (in other words, new takes) are required to hold MIC shares. That being the case they would enter into a form of agreement with Meridian, which would include a condition the consent would expire in 2025. That is the circumstance here.
- 8.11 Mr Chapman also said that UWAG had not tabled a final set of conditions or final farm management plans. These matters would be worked through and provided to all parties as the hearing progressed. UWAG was of the view that one suite of conditions was inappropriate. There were variables between sub-catchments, take points, and the "type" of consent applied for which would mean that individual conditions would need to be worked through. When possible, he said UWAG would engage with the consent authority and submitters informally on the wording of conditions.

## **Ms McCabe**

- 8.12 Ms McCabe said that Twin Peaks Station Ltd ('the applicant') operated a 3500 ha leasehold high country station located between Broken Hutt Road and the Lindis Pass. Twin Peaks is a high country station that comprised 600 ha of flats and the balance 2900 ha hill country.
- 8.13 The station runs 6000 stock units of which approximately 90% were merino sheep and 10% cattle. The ewes were put out onto the hill country in September and come back down onto the flats in August.
- 8.14 The proposed irrigation was extremely important as it will provide areas where winter feed crops can be grown to sustain stock through the winter period and avoid buying in winter feed.
- 8.15 Ms McCabe said that one of the main benefits to the applicant of this proposal was it would enable the applicant to hold onto stock and fatten them in a dry year rather than sell them as stores (sell at a lower weight for a lesser price).

## **Water Source**

- 8.16 Ms McCabe said that Manuka Creek drained the Wether Range and was east-flowing. The riverbed consists of greywacke materials. It was known as a permanent water body with a rock and gravel substrate, an average width of 3 meters and an average depth of around 500 mm. The stream was in excellent condition with very good water quality and a range of invertebrate suggestive of a stream of high quality. In the lower reaches where it exited the gorge it was often ephemeral between that point and where it occasionally discharged into Omarama Stream during high rainfall events. Much of the stream bed in this location was nothing more than a ditch.

## **Effects on other water users**

- 8.17 Ms McCabe said that this was a new application for water, with an existing user downstream of the applicant's proposed abstraction. Killermont Station had an existing consent from Manuka Creek (CRC00002.1) for 23 L/s continuously. She considered the minimum flow sufficient to provide for this take.
- 8.18 Killermont Station also had a new consent application (CRC041798) from Manuka Creek for 37 L/s. A MOU had been established between the applicant and Killermont Station setting out a minimum flow and flow-sharing regime.
- 8.19 Furthermore both Killermont Station and the applicant had withdrawn previous submissions on this matter.
- 8.20 Ms McCabe said that Table 3 of the WCWARP provided a minimum flow for all "other rivers and streams" of the 5-year 7-day low flow which had been determined at 65 L/s. An upstream site had been chosen given the stream was dry below Killermont Station's existing intake.
- 8.21 Mitigation was proposed restricting the rate of take, volume per week and minimum flows. Ms McCabe considered the effects on other users to be minor.

## **Effects on Ecosystem Values**

- 8.22 Ms McCabe believed that the minimum flow proposed by the WCWARP for 'all other streams and rivers' was developed to ensure that the aquatic values of streams were protected.
- 8.23 A water level recorder would be installed on the Manuka Stream to allow monitoring of compliance with the minimum flow. The take itself would also be appropriately metered.
- 8.24 Ms McCabe said that the intake would be fish screened in accordance with "Fish Screening: good practice guidelines for Canterbury, NIWA Client Report: CHC2007.092, October 2007 and therefore she considered effects on in stream values were minor.

## **Effects of inefficient water use**

- 8.25 The proposed annual volume had been determined using 600 mm (as per MIC shareholding) for 72 ha and justified by Irricalc which Ms McCabe considered to be consistent with Policy 16(c) of the WCWARP.

- 8.26 If stock water was required it would be determined using Schedule WQN11 of the NRRP.
- 8.27 The proposed application depth of 15-35 mm per return period was less than 50% of the water holding capacities expected. Ms McCabe considered this to be an efficient use of water and the irrigation systems would be determined and managed to ensure compliance.
- 8.28 Policy 15 and 19 of the WCWARP encourages the piping or otherwise sealing of water distribution systems to minimise water losses and meet efficiency and effective use requirements. In the section between the intake and buffer pond there may be a short section of headrace but otherwise the system was proposed to be completely piped to a spray irrigation system and reticulated trough system.
- 8.29 Policy 21 of the WCWARP required all water takes to be metered. To ensure that this application was consistent with this policy, the applicant proposed to meter their take.
- 8.30 Ms McCabe considered the effects of inefficient water use were minor.

### Water Quality

- 8.31 Ms McCabe said that cumulative effects on water quality were addressed by Mackenzie Water Resources Limited (MWRL). The property, according to the MWRL Water Quality Study (WQS), was located within the Omarama groundwater and predominantly Omarama Stream surface water catchments with a small area of Ahuriri River catchment. For this property, the Lake Benmore mitigation requirements were the most stringent and were accounted for in the overall property threshold from the WQS.
- 8.32 The calculated nutrient mitigation requirement of the receiving environments determined in the MWRL Study had identified the N and P thresholds for the property. These are shown in the table below.
- 8.33 OVERSEER® had 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 into the table below. This table shows that the applicant can meet the property thresholds nominated by MWRL.

	Nitrogen Threshold	Phosphorus threshold
MWRL Water Quality Study Property Thresholds	10,937	200
OVERSEER® Outputs	9,479	194

- 8.34 Ms McCabe said that the applicant was committed to implementing the "Mandatory Good Agricultural Practices" set out within the Farm Environmental Management Plan (FEMP). Implementing those practices would ensure that the OVERSEER® results were validated. That along with ensuring that the property thresholds of the WQS (set out in the table above) were not exceeded would in Ms McCabe's view ensure that the cumulative effects of the use of water for irrigation on water quality were no more than minor.
- 8.35 Ms McCabe also said that whilst the applicant was within the MWRL-nominated property thresholds, the MWRL Study identified that the applicant still had to consider specific on farm effects and the impacts those activities could have on the local receiving environment. This required a specifically developed FEMP to identify and implement appropriate mitigation measures that were set out in the plan.
- 8.36 At a workshop held in Twizel in August 2009, the applicants met with Dr Melissa Robson of GHD Limited. A "desk top" on farm risk assessment was undertaken.
- 8.37 Ms McCabe said that for Twin Peaks, the desktop risk assessment identified the following potential risks:
- (a) Soil erosion potentially an issue
  - (b) Timing of fertiliser application

- (c) Track runoff
  - (d) Location of water troughs
- 8.38 Ms McCabe said that the applicant was committed to implementing the FEMP including the on farm risk assessment, appropriate mitigation, monitoring and auditing before the first exercise of this consent. The FEMP had been proposed as condition of consent.
- 8.39 Ms McCabe also said that the applicant had already identified draft mitigation and as summarised below:
- (a) Irrigation buffer from Manuka Creek would be established
  - (b) Stock access from Manuka Creek would be prevented within the irrigation area, where the stream flows regularly.
- 8.40 Because the N and P thresholds from the MWRL Study could be met, and the applicant was committed to addressing on farm risks by implementing the FEMP, the effects of the use of water on water quality for both the local receiving environment and cumulative effects were considered by Ms McCabe to be minor.

### Effects on Landscape

- 8.41 Ms McCabe said that the land to be developed was considered to be within the Rural Scenic Zone under the Waitaki District Plan.
- 8.42 The proposed abstraction was located in the gorge of Manuka Creek with the irrigation development located at the base of the Weather Range on the flats. This area of irrigation development was likely to be visible from Broken Hutt Rd but was not visible from the main SH8 (Lindis-Omarama Pass Rd).
- 8.43 The irrigation area proposed for this application was already part of a substantially modified environment. The land had already been progressively developed with;
- (a) Existing Irrigation
  - (b) Cultivation and re-grassing
  - (c) Top dressing and generally increasing soil fertility
  - (d) New fencing and subdivision of paddocks
- 8.44 Therefore, Ms McCabe concluded that effects on landscape values would be minor.
- 8.45 Mr Andrew Craig, a landscape architect, provided us with general and specific recommendations on behalf of the UWAG group of applicants to this hearing. His evidence was presented in two parts. The first part of his evidenced focused on general landscape matters concerning the effects of irrigation as they would apply universally to all UWAG applications before us. In his first part of the evidence he also considered the general landscape character and amenity of the Upper Waitaki catchment.
- 8.46 The second part of his evidence focused on a limited number of individual applications where particular landscape issues arose. The approach he took was only to address those proposed irrigation activity sites or locations that either he or others considered to be visually sensitive sites. He told us that for most part visual sensitivity is determined by location of public accessible vantage points and the views that can be had from them in relation to the applied irrigation areas.
- 8.47 We took from his approach where he had not prepared an individual "brief of evidence" for a UWAG applicant that he had formed the opinion that the activity or application was not in a visually sensitive location and did not cause any landscape effects of concern. Thus, on that basis, in terms of landscape, character, and amenity considerations a grant of consent for this application was, in his opinion, appropriate.

### **Effects on People, Communities and Amenity Value**

- 8.48 Ms McCabe considered that the WCWARP minimum flow was designed to adequately protect people, community and amenity values.
- 8.49 She also said that the activities all occur in a rural setting, where the dominant land use was pastoral farming and the proposed activities all occur on private farmland as such the use of water was unlikely to adversely affect amenity values.
- 8.50 The WCWARP set an annual allocation "cap" for agricultural and horticultural activities within defined areas (Table 5) which in Section 5.2 was considered to be met. The applicant had proposed an annual allocation limit for their own resource consents for the use of water.
- 8.51 Therefore, given the applicant's commitment to ensuring efficient use of water on their properties and implementing the minimum flow values, Ms McCabe considered that effects on people, communities and amenity would be minor.

### **Effects on Tangata Whenua Values**

- 8.52 Te Runanga O Ngai Tahu submitted on all applications in the catchment, seeking that all applications be declined.
- 8.53 Ms McCabe believed that 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.
- 8.54 She considered this application to be within the allocation limits and in accordance with the minimum flows of the WCWARP.
- 8.55 Ms McCabe said that it was acknowledged that Te Runanga O Ngai Tahu had a significant relationship with the Waitaki Catchment, and as such, appropriate minimum flow conditions, and management of water quality effects, was proposed by the applicant to ensure that the potential effects on the environment, including tangata whenua values were minor.

### **Effects of works in the bed**

- 8.56 The following comments are a summary of Ms McCabe's evidence in relation to effects associated with the works in the bed to install the proposed intake structure.

### Effects on flood carrying capacity, bank stability and erosion

- 8.57 The intake was proposed to consist of an infiltration gallery buried approximately one metre below stream bed level which Ms McCabe considered appropriate for the intake size and stream velocities. Any excavated materials would be replaced to bring the area back to bed level. The intake should be installed within approximately half a day.
- 8.58 The intake was proposed to be located in the stream bed but should have no effect on the flowing water as it was proposed to be buried.
- 8.59 The main flowing water may be disturbed during installation of the intake when the stream may need to be temporarily diverted around the area where the intake pipe was installed. On completion of construction, the stream would be reinstated over the infiltration gallery.
- 8.60 Ms McCabe said that the proposed intake structure should not create any erosion or increase bank instability to other banks in the vicinity given the buried and unobtrusive nature of the proposed installation. Also Manuka Creek was a rocky, stable creek at the proposed abstraction site and not subject to adverse bank erosion.
- 8.61 The Killermont Station intake was approximately 200 m downstream of the proposed intake location and was not considered to be affected by the activity proposed. Killermont Station never raised any point in relation to the proposed intake structure in their submission (the submission had subsequently been withdrawn).
- 8.62 Ms McCabe's view was the effects on flood-carrying capacity and erosion of Manuka Creek would be minor.

### Effects on water quality and ecosystems

- 8.63 Ms McCabe said that works around the intake area would be undertaken for the initial construction and on an as needed basis for such activities as maintenance at the beginning of the irrigation season.
- 8.64 She acknowledged that the in-stream works can cause a temporary discolouration of the water and particularly from the perspective of the aquatic ecosystems that may be present in Manuka Creek; such sedimentation can have an impact at sensitive times such as spawning, which will therefore be avoided. Sedimentation can also affect downstream users taking water for domestic or stock water purposes.
- 8.65 Ms McCabe said that the most common approach was to avoid undertaking works within flowing water, thereby avoiding the possibility of increasing levels of suspended sediment contained within the waterway. In this instance that was simply not practicable for the works associated with the intake. However it was proposed that the stream be temporarily diverted (less than 50 metres) around where the intake was to be located so that works does not occur in continuously flowing water.
- 8.66 The applicant provided clarification to DoC and Fish and Game and feedback was sought. However no specific times to avoid intake construction had been identified in relation to the Manuka Creek.
- 8.67 The intake would be fish screened in accordance with "Fish Screening: good practice guidelines for Canterbury, NIWA Client Report: CHC2007.092, October 2007".
- 8.68 The area of works would be re-instated on completion of works to minimise the adverse effects on riparian ecosystems.
- 8.69 Ms McCabe said that the short term nature of the work, and the proposed mitigation measures as per the consent conditions, effects on ecosystem values and water quality were able to be effectively mitigated.

### Effects on amenity, recreation and other users

- 8.70 Ms McCabe said that the proposed intake abstraction point on the applicants' property was alongside a remote no exit road. The intake would be inconspicuous as it was located under the river bed and covered by rock material. The water would be piped. After the initial construction, the disturbed area should re-vegetate and in time blend back into the surroundings.

### Tangata Whenua values

- 8.71 In relation to Tangata Whenua values, an accidental recovery protocol had already been proposed by the applicant. Furthermore in email correspondence with Ngai Tahu, the land use consent had not been raised as a concern associated with the water permit.
- 8.72 The effects on Tangata Whenua values were minor given water quality effects were considered minor. Ms McCabe opinion was the effects on amenity, people, communities and Tangata Whenua values were minor.

### Mitigation measures

- 8.73 Ms McCabe advised that the applicant would apply the following mitigation measures.
- (a) All practicable measures will be undertaken to ensure that the flood-carrying capacity is maintained, the effects on ecological and amenity values are minimised and any sediment created during construction works will be minimised.
  - (b) The works will not result in erosion of the banks and beds of Manuka Creek.
  - (c) Re-fuelling or storage of machinery will not occur in or near the stream.
  - (d) Machinery operators will ensure machinery is free of plants and plant seeds before use in the stream.
  - (e) Didymo Hygiene Protocols will be adhered to.

- (f) In the event of any disturbance of Koiwi Tangata (human bones) or taonga (treasured artefacts), the consent holder shall immediately:
  - (i) Advise the Canterbury Regional Council of the disturbance;
  - (ii) Advise the appropriate Runanga Upoko, or their representative, of the disturbance; and
  - (iii) Cease earthmoving operations in the affected area until an area has been marked off around the site, and approval given for the earthmoving to recommence.

**Mr Robert Batty, planner**

- 8.74 Mr Batty addressed us in relation to planning issues. He set out his broad view as being:
- (a) whether or not granting any of the applications before us, including this application, would undermine the operational integrity of the WCWARP, regional plans and district plans;
  - (b) whether cumulative effects would arise from a grant;
  - (c) whether grants would promote reasonable efficiencies and sustainable management of the natural and physical resources concerned; and
  - (d) whether the grant of consent would derogate from any other consent.
- 8.75 He was critical of the section 42A officers' collective approach and suggested each application needs to be considered on its own merits. A move away from the generic approach of the reporting officers was required, he said, to enable a proper analysis of each application to occur.
- 8.76 He supported Mr Kyle's planning analysis on behalf of MWRL and he set out for us relevant policies and objectives in the district and regional plans. In conclusion, he was of the view that granting this consent and all other UWAG consents was appropriate.

**Mr David Boraman, hydrological consultant**

- 8.77 Mr Boraman provided us with a flow data summary for Manuka Creek. He prepared flow reports, which he produced to us.
- 8.78 He undertook an investigation into the hydrology of Manuka Creek commencing in 2006, with a water level recorder installed in 2007 and operated until May 2008.
- 8.79 He correlated the data collected on Manuka Creek with the Lindis River. He noted there was no previous flow measurements carried out on Manuka Creek.
- 8.80 His conclusions supported the contention that the figure for the 5-year, 7-day low-flow for Manuka Creek was 66 litres per second. It was his view, in accordance with the WCWARP the proposed interim minimum flow should be set at 65 L/s. He considered that this outcome would be consistent with Rule 2 Table 3 row xxii of the WCWARP.
- 8.81 He noted that some submitters may argue that Manuka Creek is subject to the Ahuriri Conservation Water Order. It was his view however that there was no evidence to support this contention because at times of average flow the water has disappeared to ground 300 m below the Killermont intake. He noted he had support from Mr David Stewart (the reporting officer) in terms of hydrology issues from the Council. Also, he conveyed to us comment he had received from locals intimating that they could not recall when flow in Manuka Creek had ever reached the Omarama Stream.
- 8.82 Mr Boraman advised us that the figure in terms of the flow calculation should be treated as interim; and a flow measurement program set up to further the database. He expressed the opinion that the statistics and analysis should be reviewed once a season where the interim 5-year, 7-day low-flow has been surpassed.

### **Mr Andrew Macfarlane, farm management consultant**

- 8.83 Mr Macfarlane is a farm management consultant with 29 years experience. He provided us evidence on behalf of all of the UWAG applicants.
- 8.84 He assessed the viability of the farm management plans and practicality and robustness of the mitigation measures and the ability to monitor progress.
- 8.85 He discussed a range of mitigation measures that had been examined and/or adopted by the UWAG farmers to deal with discharges from their properties consequent upon irrigation.
- 8.86 Mr Macfarlane also discussed with us the costing of various typical irrigation developments.
- 8.87 He considered on-farm monitoring, noting that on-farm monitoring had lifted in its intensity and in detail over the last 10 years, being driven by economic returns and a need to prove environmentally sustainable methods were being utilised. Overall, he held a high degree of confidence in progress concerning the ability to monitor and interpret interfaces between environmental science and management.
- 8.88 He raised with us the advantages of reliable availability of water and pointed out for us the benefits of irrigation, noting that while generally irrigation typically only represents a small part of the total farm area, but it does result in high productivity increases with a resultant favourable impact on economic viability of farming operations. He concluded with the correct planning, management and monitoring any negative environmental impact of intensification of a small area would lead to positive environmental outcomes on the balance of the property. It was his view a net positive balance was certainly possible.

### **Supplementary evidence of Mr David Boraman**

- 8.89 Mr Boraman provided us with some supplementary evidence that discussed the relationship between an existing consent and the current applications in respect of flow and allocations of Manuka Creek water. In short, Mr Boraman did not support the approach of requiring two minimum flow thresholds on the Manuka Creek as this would make management of the irrigation complex and impractical. He considered the appropriate approach was as already proposed, which was to include a condition within these applications that provided for a minimum flow relevant to this take within Manuka Creek.

## **9 SUBMITTERS**

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### **Meridian Energy Limited**

- 9.1 Through the evidence of Mr Brian Turner, Meridian Energy Limited (MEL) raised concerns for cumulative water quality reasons in respect of this application. Mr Turner's advised us that this particular applicant was not complying with the derogation approval sought by MEL.
- 9.2 Mr Turner took issue with Mr Chapman's and Mr Batty's approaches in relation to conditions. Mr Turner observed that Mr Chapman and Mr Batty were suggesting that if the threshold limits at the subcatchment nodes are exceeded but individual consent holders are complying with their on-farm nutrient discharge allowances, then no remedial action should be required of the consent holders.
- 9.3 Mr Turner made the point that MEL does not support this approach because that approach would result in cumulative effects occurring and there would be no remedy available in terms of conditions.
- 9.4 Mr Turner was of the view that both on-farm nutrient discharge allowances and the threshold limits at the subcatchment nodes had to be complied with. Conditions were required to ensure this outcome was met.

### **Fish & Game - Mr Frank Scarf, hydrologist**

- 9.5 Mr Frank Scarf said that there were a number of new applications all of which sought to take or divert water upstream from Twin Peak Bridge, the upper most control site in terms of the AWCO and about 2 km upstream from the 'Protected Waters' boundary at Clifton Downs.



- 9.6 He said that the applications were outside the WCO boundary and similar to the East Ahuriri situation could be assumed to default to the 'All other rivers and streams category'. Gabities and Horrell have assessed the MALF for the Twin Peak Bridge site to be 546 L/s which suggested that the 1:5 yr LF for this site was about 375 L/s. Down at Tara Hills, de Joux and Stewart estimate the 1:5 yr LF to be 470 L/s. The two figures appear compatible given that Manuka Creek makes a contribution (mainly subsurface) between the two sites. His opinion was the estimates were reasonably sound.
- 9.7 Mr Scarf said that supporting evidence presented by the applicants allude to losses and gains in surface water flow that they claim occur naturally throughout the upper catchment tributaries. He had not assessed that in detail. Instead, he tried to look at these applications upstream from Twin Peak Bridge as a group.
- 9.8 Mr Scarf supported the water management regime suggested in Ms Rodrigo's s42A report where she proposed a minimum flow of 65 L/s at H39:541225 and a sharing of flows between Twin Peaks Station and Killermont. However, the proposed minimum flow site was upstream from both of the proposed take sites and in order to retain the 1:5 yr low flow he recommended that the minimum of 65 L/s be retained downstream from the lowermost take site (Killermont) at H39:560237.

#### **Mackenzie Guardians – Ms Di Lucas, landscape architect**

- 9.9 Ms Di Lucas on behalf of Mackenzie Guardians provided us with a broad ranging brief of evidence, much of which we have already commented upon in Part A.
- 9.10 In terms of this particular 'take' application, she identified it as being within her Ohau systems sites. Within her written evidence the application did not receive a great deal of attention. She had described the site as Site 38.
- 9.11 Overall from her evidence we remained unclear as to whether she was recommending that no irrigation should occur on the site or alternatively that landscape plans should be included or provided before consent issued so that landscape issues might be comprehensively developed to avoid, remedy and mitigate the effects of the development on the natural landscape visual heritage and amenity values, as she saw them.

#### **Mackenzie Guardians – Dr Susan Walker, ecologist**

- 9.12 Dr Walker, representing Mackenzie Guardians, noted that she considered this site had moderate effects as a consequence of irrigation on terrestrial biodiversity.
- 9.13 She noted that no tenure review survey had been completed at the time of presentation of her evidence. She did acknowledge that the site was partly developed, but noted that there was little in the way of current information on terrestrial biodiversity. She expressed the view assessment was required.
- 9.14 We note that Dr Walker gave comprehensive evidence on the cumulative effects of irrigation on vegetation in the Mackenzie Basin. This evidence is discussed in Part A. Her evidence being Basin-wide concluded that more in-depth investigation of the individual sites was required. She did usefully provide us Attachment 15, which we refer to above. This contains her more particularised reviews in respect of each site.

#### **Ngai Tahu – Paul Horgan – Environmental Advisor**

- 9.15 Mr Horgan told us that Ngāi Tahu had taken a balanced approach when assessing the applications and resisted the temptation to simply oppose all applications in their entirety. More particularly, Ngāi Tahu has generally placed emphasis upon the new (rather than replacement) consent applications and those that will result in large scale land use intensification, rather than the taking of water so as to provide security of supply for existing farming operations.
- 9.16 Mr Horgan told us that Ngai Tahu had adopted two focal points against which they assessed the applications; the Ahuriri Delta was one of these as it would be one of the most acute receiving environments for the discharge of nutrients from the irrigation proposals. He told us it was also an area where Ngai Tahu proposes to undertake mahinga kai habitat restoration.
- 9.17 Mr Horgan told us that provided the smaller applicants carry out appropriate riparian planting and fencing and undertake not to significantly increase the intensity of their farming operations, then

Ngāi Tahu were not opposed to the granting of consents.

#### **Ngai Tahu – Ms Mandy Waaka-Homes, Kaitiaki**

- 9.18 Ms Waaka-Homes told us she had inherited the role of a kaitiaki to the Upper Waitaki system. She told us her focus was on the new and large scale irrigation proposals involving dairying and the effect this would have on the Ahuriri Delta and tributaries. She told us that the cultural health of the Ahuriri Delta was already under significant strain.
- 9.19 Ms Waaka-Homes told us that the Ahuriri Delta was a focal point due to the traditional links the iwi enjoyed with the Ahuriri River, ecologically the site is ideal for restoration of tuna (longfin eels) and it is in close proximity to tributaries including the Omarama Stream where elver are released.

### **10 UPDATES TO THE SECTION 42A REPORTS**

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- 10.1 Ms Rodrigo identified the following additional matters throughout the hearing that she considered required comment:
- (a) Other consenting requirements, clarification was required whether or not consents were required for the damming of water in the storage pond and for the diversion of flows in a watercourse during construction of the intake.
  - (b) Annual volume, further clarification was required in relation to the irrigation areas used to calculate the annual volume.
- 10.2 Mr Stewart (Section 42A report, hydrology) visited the area around Clifton Downs Swamp to observe the lower reaches of Manuka Creek in an attempt to determine the source of water flowing in that reach. He took a series of photographs, which he presented to the hearing.
- 10.3 Mr Stewart believed the series of photographs he provided gave a clearer picture of what was, and what was not, happening in the lower reaches of Manuka Creek. He said the photographs showed that there is no resurfacing of Manuka Creek water in the downstream area.
- 10.4 Mr Stewart said that if that was the case, his opinion was that there was no point in applying the National Water Conservation (Ahuriri River) Order 1990 for Omarama Stream minimum flows to any of the applications water from Manuka Creek, including this application and CRC041798 Killermont Station (Manuka Creek) and CRC040180 Killermont Station (Frosty Gully).
- 10.5 Mr Stewart said that the photographs also show that the Clifton Downs Swamp, in spite of being ploughed and grassed over most of it, is still acting as a swamp in storing and releasing water. He said the photographs also show that:
- (a) the swamp outflows were the main source of water in Omarama Stream downstream of where the main swamp drain enters Omarama Stream during dry periods; and
  - (b) the Clifton Downs Swamp is a very important part of the hydrological network that is the Omarama Stream catchment in this area; and
  - (c) the Clifton Downs Swamp is probably the key to low-flow reliability in the lower reaches of the Omarama Stream when conditions are dry.
- 10.6 Mr Andrew Craig (landscape expert) noted in his addendum report the landscape assessment was undertaken by Mr Craig in Part 1. Mr Glasson's recommendation after hearing the UWAG evidence in terms of landscape remained; namely, he considered the site was acceptable for irrigation in its proposed form.
- 10.7 Dr Freeman (addendum report) listed Twin Peaks as one where, on the basis of the currently available information, there remains a high level of uncertainty about potential cumulative adverse water quality effects, and because of the scale of the development and therefore the potential consequences of these effects, the water permit application should not be granted.

### **11 APPLICANT'S RIGHT OF REPLY**

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- 11.1 In his right of reply, Mr Chapman provided general comment on issues relevant to all UWAG

applications and specific comment on several discrete proposals. There were no specific comments made in relation to this application.

- 11.2 Mr Chapman challenged Dr Freeman's Table 5, contained within his first addendum report dated 12 January 2010. Mr Chapman contended the list was flawed because applications are placed in the red category solely by virtue of their location within the Ahuriri Catchment. Mr Chapman considered the correct approach for the ranking of the applications was to determine where they sit in relation to the existing environment.
- 11.3 He noted there had been much emphasis on nutrient management but he contended we should also be considering sustainability of the erosion-prone fragile soils within the catchment. He also submitted we should take note that district plans encourage farming, including irrigation, within these environments; and the tenure review undertaken by the Crown encourages intensification of land use retained in freeholding ownership in order to release more vulnerable pastures to be set aside under Crown ownership.
- 11.4 He also contended we should consider economic implications on the survival of these farms given their investment in infrastructure as a factor. He also noted we should take into account managing the land in light of weed and pest problems and how irrigation assists in that regard.
- 11.5 Mr Chapman addressed us on the MWRL proposition in terms of the Ahuriri River, namely a needs plus a buffer approach. Mr Chapman made it clear that the UWAG applicants in the Ahuriri, which includes this application, at the time of reply had only just received information relating to each individual farm's NDA, but noted this approach was of critical concern.
- 11.6 In terms of staging of implementation, Mr Chapman told us that undoubtedly those UWAG applicants, this applicant among them, may choose to stage the introduction of a new system of irrigation.
- 11.7 We note that Mr Chapman was critical of Mr Glasson's position in oral evidence in response to questions we raised for Mr Glasson. Mr Glasson indicated in those responses that his mitigation measures, in terms of buffers and setbacks, were a trade-off for the continued right to irrigate. Mr Chapman took the view that this showed a fundamental misunderstanding of the concept of existing environment whereby the introduction of exotic grasses has been introduced as a fully permitted activity and can continue under the three applicable territorial plans. On that basis Mr Chapman submitted to us that the evidence of Mr Craig for the UWAG group was to be preferred because Mr Craig more correctly relied upon the point that the irrigation activity can occur as a permitted activity resulting in the point that the greening of the landscape and textural changes were anticipated by the applicable territorial plans.
- 11.8 We did subsequently receive from Mr Chapman generic conditions applicable to all UWAG applicants.

#### **Ms Haidee McCabe – supplementary evidence**

- 11.9 Ms McCabe's supplementary evidence provided details of the small storage pond involved in the proposal. She expressed the view that a consent for damming was not required because the effects of the activity would be de minimis. If her view was incorrect, then she said a consent would be applied for prior to giving effect to the proposal.
- 11.10 She then addressed Manuka Creek and the issue of what flow rate should apply having regard to the question of whether or not Manuka Creek was affected by the Ahuriri Water Conservation Order.
- 11.11 She noted that Mr Stewart (s42A officer) agreed that Manuka Creek goes underground and there is no direct correlation or connection with the Omarama Stream. She said groundwater flows from Manuka either moves into the Omarama Swamp, the Omarama Stream or to groundwater. She considered that time lag issues were relevant to the imposition of any condition linking this take directly to the Ahuriri Water Conservation Order flows.
- 11.12 She noted that surface-water does not flow into the Omarama Stream from the Manuka Creek except under flood events and even then only for periods of short duration. She considered that under this circumstance to impose a condition that effectively brings Manuka Creek into the protected waters category (under the Ahuriri Water Conservation Order) was not justified. She was of the view that it more appropriate to apply the 5-year, 7-day low-flows as determined for Manuka Creek under Table 3 line xxii of the WCWARP.

## 12 STATUTORY CONTEXT

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- 12.1 The relevant statutory context is set out in detail in our Part A decision. In accordance with those requirements, we have structured this evaluation section of our report as follows:
- (a) Evaluation of effects
  - (b) Evaluation of relevant planning instruments
  - (c) Evaluation of other relevant s104 matters
  - (d) Part 2 RMA
  - (e) Overall evaluation

## 13 EVALUATION OF EFFECTS

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- 13.1 Drawing on our review of the application documents, the submissions, the Officers' Reports, the evidence presented at the hearing and our site inspection, we have concluded that the effects we should have regard to are:
- (a) Inefficient use
  - (b) Flows, ecosystems and other water users
  - (c) Water quality
  - (d) Landscape
  - (e) Tangata Whenua values
  - (f) Works in the bed
  - (g) Positive Effects

### **Inefficient use**

- 13.2 The applicant's proposed annual volume of 432,000 m<sup>3</sup> is based on the MIC share allowance for the irrigation area (i.e. 6,000 m<sup>3</sup>/ha x 72ha). In comparison, Ms Rodrigo calculated the annual volume using WQN9v2 with approximately 50 % light soils (PAW < 75 millimetres) and 50 % medium soils (PAW 75 – 110 millimetres). This equated to 433,800 m<sup>3</sup>, which is more than the annual volume proposed by the applicant.
- 13.3 On this basis, we are satisfied that the annual volume sought by the applicant represents an efficient use of water as it is less than the volume estimated by WQN9v2.

### **Flows, ecosystems and other water users**

- 13.4 While Manuka Creek is ephemeral in its lower reaches, flow from the creek has the potential to contribute sub-surface flow to the Omarama Stream. Mr Stewart (on behalf of the Council) concluded that due to the delays in flows reaching the Omarama Stream and the uncertainties about where these flows surface after flowing underground, the abstraction from Manuka Creek should be subject to the 5 year 7 day low flow of 65 L/s, as required by Table 3 Row xxii of the WCWARP to protect the values of Manuka Creek.
- 13.5 The applicant, through Mr Boraman, undertook hydrological investigations and consultation with representatives of Killermont Station to determine an appropriate minimum flow and flow sharing regime to address the impacts on the instream values of Manuka Creek.
- 13.6 We consider that the proposed minimum flow is appropriate and that, together with the MOU with Killermont Station, it will protect both existing and proposed takes by Killermont Station and the associated ecosystems.
- 13.7 We do record that there was consistency in terms of an approach on this issue when we considered the evidence of Mr Stewart, Ms McCabe, and Mr Boraman. They were all in

agreement.

- 13.8 The only disputed issue in respect of flows was the appropriate location on Manuka Creek for monitoring minimum flows. The applicant proposed a monitoring site above the proposed take on Manuka Creek (and also above the other proposed take by Killermont Station – CRC041798). However M Scarf on behalf of Fish and Game considered that in order to retain the 1:5 yr low flow, the minimum flow of 65 L/s should be retained downstream from the lowermost take site (Killermont) at map reference H39:560-237.
- 13.9 After considering the evidence received, we prefer the minimum flow site proposed by Mr Scarf on the basis that monitoring at this site will be more effective at achieving its purpose and ensuring that sufficient water is maintained in Manuka Creek to protect instream ecosystems.

### Water quality

- 13.10 The applicant has been involved with the study by MWRL on cumulative effects within the catchment. We address the report by MWRL in Part A of our decision and our findings guide our consideration of the effects of this activity on water quality.
- 13.11 At the hearing the applicant submitted a draft copy of a farm environmental management plan (FEMP). The FEMP was tabled as a 'Proposed final' version on 1 April 2010, and included a Farm Environmental Risk Assessment (FERA).
- 13.12 An OVERSEER assessment indicated that the applicant could comply with the thresholds outlined within the MWRL Water Quality Study. However as discussed in Part A of this decision, we were not convinced that the proposed MWRL thresholds would protect some receiving waters some unacceptable deterioration. In particular, with respect to this application, we were of the view that the granting of significant new irrigation consents in the Ahuriri Catchment would result in the Ahuriri Arm of Lake Benmore becoming mesotrophic (from its current oligotrophic state).
- 13.13 In Part A of this decision we rejected the MWRL proposition that all consents sought in this hearing could be granted (with conditions) and without causing cumulative water quality effects. It is incumbent upon us, therefore, to consider (as far as is possible) whether granting this application, in combination with other water permits we grant, will lead to unacceptable water quality effects. In this case it means considering the potential effects of granting this application (in combination with others we grant) on:
- (a) The trophic state of the Ahuriri Arm of Lake Benmore;
  - (b) Groundwater chemistry and in particular the proposed threshold of 1 mg/L NO<sub>3</sub>-N; and
  - (c) Periphyton growths and other ecological effects in Omarama Stream and the Ahuriri River.
- 13.14 The applicant has proposed mitigation measures to lessen the risk of their activities contributing to cumulative water quality effects. We need to consider whether the proposed mitigations, are in our view, sufficient to avoid significant water quality effects occurring, and/or whether refinements to the measures proposed are required.
- 13.15 A starting point for the consideration of effects on points (a)-(c) above is the FEMP. Evidence on the FEMP was given by Ms McCabe, but for consistency with other decisions we have undertaken an independent audit. We note that a final version of the FEMP complete with FERA was submitted to ECan on 22 November 2010 and this is this version that we comment on below.
- 13.16 Key points arising from our audit and additional to Ms McCabe's evidence are summarised below:
- (a) Farm practices are not predicted to change. Twin Peaks will carry more hoggets through the winter. The new irrigation development is proposing to support the existing farm practices
  - (b) The soils within the irrigation command area are a combination of Edwards Sawdon and Glenrock stony soils with an average PAW of 90 mm. These soils are moderately deep with a high PAW compared to the soils on neighbouring stations and if this information is correct then the 'developed' setting of OVERSEER should give satisfactory predictions;
  - (c) Because the Ahuriri Arm of Lake Benmore is the receiving environment, moderately

severe nutrient mitigations are required compared to good agricultural practice (the standard referenced in OVERSEER). i.e. An additional 10.70 kg N/ha/y are required to be prevented from leaching (or otherwise lost from the system) and 1.1 kg P/ha/y compared with that achieved using good agricultural practice.

- (d) The mitigations proposed in addition to those assumed in OVERSEER are listed as:
  - (i) No winter application of fertiliser on the irrigation area
  - (ii) N fertiliser applications split to under 50 kg N/application
  - (iii) No P fertiliser within three weeks of irrigation
  - (iv) Olsen P of below 30 maintained
- (e) The above mitigations appear to us to be quite standard and are practices that we would view as conforming to Good Agricultural Practice.
- (f) Mitigation measures proposed to ameliorate site specific environmental risks are:
  - (i) Where Manuka Creek flows regularly within the irrigation area stock access will be prevented.
  - (ii) An irrigation buffer from the Manuka Creek will be established of approximately 100m
  - (iii) Continually improve ground cover on the flats to protect against wind erosion
  - (iv) Ensure the filter strip margin on Clifton Drain is sustained (prior to it exiting the property)
  - (v) Impose a 20 metre layback from any water way when applying fertiliser by land based application e.g. bulk spreader
  - (vi) Monitor and manage stock access, stock type and stock numbers from all permanently flowing waterways within other non irrigated intensively farmed areas.
- (g) Of the mitigation measures proposed above, we consider that only (ii) and (iv) may be considered measures in excess of the practices expected using Good Agricultural Practice. Moreover, for (ii) it is only the magnitude of the buffer that is greater than could be expected under GAP, and for (iv) we note it is a maintenance issue rather than a new measure and its effectiveness in 'removing' nutrients is difficult to quantify.

13.17 We acknowledge however that the mitigation measures proposed by the applicant will materially improve aquatic health and may offset the additional nutrient load to some extent, brought about through the proposed increase in irrigation.

13.18 The critical issues for us for are:

- (a) Is the predicted nutrient load from the five farming systems realistic?
- (b) What effect will the predicted nutrient load (alone and in combination with other applications before us) have on the surface waters listed above making reasonable assumptions about flow paths?
- (c) Can the effects be avoided, remedied or mitigated?

#### Predicted load realistic

13.19 The inputs to OVERSEER were audited by Mr McNae. In his final addendum report he reported as a 'live' issue that the applicants preferred to stay with the developed setting in OVERSEER following advice from Mr McFarlane that a highly developed status would never occur. We accept Mr McFarlane's point on this but not that our interpretation of Dr Snow's evidence (Part A) was that she advocated use of the highly developed setting on shallow soils, not because they were

likely to reach that status, but rather as a pragmatic response to reflect that OVERSEER would significantly underestimate nitrogen losses on shallow soils. Nevertheless, as noted in #19.21 (a) above, the soils in this situation are not as shallow as others in the area and we accept that the developed setting will give a reasonable approximation of nutrient losses. There being no other issues in Mr McNae's opinion that would affect the accuracy of OVERSEER predictions, we accept that the loads predicted are reasonable.

### Effects on waterbodies

#### *Ahuriri Arm of Lake Benmore*

- 13.20 In part A we determined that the Ahuriri Arm of Lake Benmore was already close to the oligotrophic-mesotrophic boundary. MWRL agreed with this assessment, but submitted that through improvements to replacement consents and significant nutrient mitigation of new consents, all consents could be granted without causing the oligotrophic-mesotrophic boundary to be breached. We disagreed with the MWRL submission for the reasons given in Part A. Therefore we need to assess each application on its own merits, but taking into account other applications before us.
- 13.21 Dr Freeman's addendum (on behalf of the Regional Council) gave a useful summary of estimated total property nitrogen loads to the Ahuriri Arm associated with irrigation development proposals, together with their priority as determined by Professor Skelton on the basis of the date the application was deemed to be notifiable. Dr Freeman's (Table 7) figures (based on modelling using the developed setting only) provide the total predicted nitrogen load lost from the property (9,462 kg).
- 13.22 However, in the case of Twin Peaks, the total area irrigated is only 72 ha from a total farmed area of 3,500 ha. The estimated nutrient load without the proposed new irrigation forms, in effect, the permitted baseline.
- 13.23 It would have been very useful, in our view, to have had this estimate, but in the absence of it, we draw upon Dr Snow's evidence for MWRL in which she estimated N load from dryland farming at a number of stocking rates (her Figure 6). At 2 SU/ha (the approximately stocking rate on Twin Peaks), Dr Snow (Figure 6) estimated an N loss of ~2 kg N/ha/y.
- 13.24 130 ha of Twin Peaks is currently irrigated, which is <4% of the farmed area. Dividing the Overseer estimated nitrogen load (9600) by the farmed area (3500 ha) gives an average loss rate of 2.72 kg N/ha/y, which is only a small increase over that for dryland farming. However it is consistent (given the small area under irrigation), in our view, with Dr Snow's evidence (Part A) that for partially irrigated sheep and beef properties irrigating up to 35% of their property, the N losses were up to 5 kg N/ha/y.
- 13.25 If this application is granted the total area under irrigation will be 5.7%; a marginal increase over the status quo (permitted activity). Given the Overseer-estimated load includes the proposed new irrigation we are of the view that the current (permitted) N load from Twin Peaks is of the order 8200-8800 kg N/y and that the new N load resulting from the additional irrigation will be of the order 800 – 1400 kg/y.
- 13.26 This load represents only a small proportion of the N nitrogen load proposed in the Ahuriri catchment and is certainly below the 5% threshold we identified as being significant in our Part A decision. While this could contribute to (cumulative effects) the Ahuriri Arm becoming mesotrophic, it is a relatively minor contribution. We are aware that the sum of relatively minor contributions may result in a cumulative effect on the lake and we have been cognisant of this possibility in arriving at our final decision.

#### *Groundwater*

- 13.27 We agree with Dr Bright that effects on groundwater in this case are manifest by interaction with surface waters and that groundwater is largely a matter for policy considerations. There was no evidence specific to Twin Peaks on predicted NO<sub>3</sub>-N concentrations. However Dr Bright has calculated in the case of nearby Killermont that NO<sub>3</sub>-N in drainage water beneath the irrigation area would be a maximum of 7.7 mg/L, with an aerial loading of ~17 kg N/ha/y. The final concentration in groundwater will depend upon dilution from upland sources and there has been no evidence presented that allow us to estimate this dilution.
- 13.28 We also note that Dr Bright considered that groundwater beneath the irrigation command area

would drain to regional Ahuriri groundwater and enter the Ahuriri River well downstream of WHL Killermont. No specific evidence on groundwater direction was offered by the applicant in this case, but as the irrigation area is located in the same locale as that for Killermont Station and WHL Killermont, we infer that groundwater would behave similarly.

- 13.29 The Omarama groundwater subcatchment is approximately 5800ha. Hydrogeology information is available on 14 bores in the Omarama subcatchment, with most bores showing presence of clayey materials above the groundwater static levels. Thirteen of the bores less than 12m, one bore 72m deep.
- 13.30 Most wells located along Omarama Stream are characterised by shallow depths and depth to static water levels.
- 13.31 The groundwater report of MWRL states that presence of low-permeability materials (such as silt and clay-bound gravels) does not seem to impede groundwater table response to rainfall and irrigation drainage recharge. There is currently no continuously monitored groundwater level data for any bores in the Omarama subcatchment. However, personal communications with farmers in the area indicates that wells located along the Omarama Stream vary seasonally, and respond to algae and to large rainfall events.
- 13.32 The report also states that an analysis of the streambed elevation and water level data suggest that groundwater and surface-water flows are hydraulically connected along the Omarama Stream. Water supply wells are shallow and there is no information to suggest perched flow conditions along the Stream.
- 13.33 Currently, nitrogen leaching from the whole subcatchment is estimated at approximately 43.5 tonnes, resulting in an average drainage concentration of 2.84 mg/L, which is elevated compared to other subcatchments. We discuss this in relation to water quality and periphyton growths in the next section.
- 13.34 Given the reported flow in the Omarama Stream downstream of the Clifton Downs Swamp and the attenuation of flow in prolonged low-flow periods, it is our opinion that a large percentage of the flow from Manuka Creek re-emerges within the swamp area and the reach immediately downstream of the swamp.

#### *Periphyton growths in Omarama Stream and Ahuriri River*

- 13.35 Dr Coffey's evidence (MWRL, Part A) included information on periphyton surveys in Ahuriri River. He reported periphyton biomass below levels of concern at all the sites he visited (upper, SH8 Bridge, and node). He also reported that the quality of macroinvertebrates declined from good to fair with distance down the river. We note that bed of the Ahuriri River is hard and dominated by cobbles, which would be susceptible to nuisance periphyton growths should nitrogen and/or phosphorus concentrations in the river be above that limiting periphyton growth (under stable flow conditions).
- 13.36 Dr Coffey also noted localised "nuisance" growths of periphyton occurred along the shallow margins of the riverbed at the lower Omarama sampling site and existing irrigation between Omarama Twin Peaks and the lower Omarama site.
- 13.37 In Part A we rejected the MWRL proposal that the threshold for periphyton growth should be a 25% increase in maximum annual biomass calculated from modelled 'current' nutrient concentrations. We found instead, that MfE periphyton guidelines are applicable and should be used to protect streams from nuisance periphyton growths.
- 13.38 There are two important elements that will determine whether the MfE guidelines are likely to be breached:
- (a) The flow path of drainage water/groundwater with respect to the Omarama Stream and Ahuriri River, and,
  - (b) The amount of dilution as the drainage water mixes with the Omarama Stream or Ahuriri River, particularly under summer low-flow conditions.
- 13.39 Superimposed on both of these elements is the groundwater travel time. However, for our purposes, that only affects the timing of any effect, rather than the effect itself.



- 13.40 Dr Bright told us the Ahuriri River was perched in the vicinity of Killermont [and Twin Peaks] and that all drainage water is expected to flow to regional groundwater in the Ahuriri River basin and to not contribute directly to Ahuriri River or to Omarama Stream flow locally. However, as noted above, we are of the view that a significant proportion of the irrigation at Twin Peaks will enter the Omarama Stream.
- 13.41 Regardless of where it enters the Omarama Stream (and Ahuriri River), we assume that it will emerge in the Ahuriri River well before the delta and that a considerable length of River may be potentially affected.
- 13.42 Using the applicant's OVERSEER modelling predictions and assuming (i) a uniform mass flow into the river, and (ii) a low flow in the river of 10 m<sup>3</sup>/s (flow at which most severe restrictions imposed by AWCO), then the resulting elevation in nutrient concentration would be borderline with respect to supporting growths of benthic algae sufficient to exceed the aesthetics/aquatic biodiversity guideline (oligotrophic-mesotrophic) and with lengthy accrual times (>1 month between flood flows).
- 13.43 However, from the limited data collected to date, we know the Omarama Stream is already impacted to some extent by nuisance periphyton growths. Therefore, we can assume that any additional nutrient load to that stream will exacerbate the incidence and magnitude of these growths.
- 13.44 We conclude that while leachate from Twin Peaks alone is unlikely to cause nuisance periphyton growths in the Ahuriri River, it may contribute to the incidence of such growths in Omarama Stream. We note that the applicant has agreed to monitoring conditions relating to water quality and periphyton together with conditions requiring the ratcheting back of irrigation in the event of trigger values being exceeded. However, in our view, the current monitoring site to detect such exceedances is not appropriate to protect the ecosystem we are most concerned about, i.e. Omarama Stream.
- 13.45 We provide further comment on the appropriate trigger levels for periphyton monitoring in Omarama Stream in our discussion of the relevant planning instruments below. In addition we outline our reasons for issuing an interim decision due to the lack of a suitable monitoring site in our discussion of consent conditions (Section 18).

#### Avoided, remedied or mitigated

- 13.46 We acknowledge that the applicants have proposed mitigation measures in the FEMP to minimise the effects of their activities. It is difficult to assess the effectiveness of these mitigation measures as so much depends on how they are implemented. However based on the relatively small area of irrigation proposed (1.5% of the total farmed area) and Dr Robson's evidence (for MWRL) on the range of mitigation effectiveness they could be significant. The amount of nutrient prevented from entering watercourses by the mitigations proposed is difficult to estimate but we note that the setbacks from waterbodies will reduce phosphorus loads relatively more than nitrogen, which will be beneficial considering the Ahuriri Arm may be more sensitive to phosphorus (Dr Romero's evidence for MWRL). Fencing streams from stock within irrigated areas will be another important mitigation measure to implement.
- 13.47 In his closing legal submissions, Mr Chapman stated that while some of his applicants may choose to participate in the lock-step approach, many of his clients could not. In any case, we have considered the lock-step approach and found it to be inappropriate to grant applications to take and use water on this basis. The lock-step approach is an extension of adaptive management, about which we gave our views in Part A. In summary, we are of the view that adaptive management (and the lock-step approach) should not be a substitute for a robust AEE in which the state of the existing environment is adequately described and reasonable efforts are made to address reasonably foreseeable environmental effects. As discussed in Part A, we are of the view that the MWRL WQS falls short of the standard expected for a proposal (the total consents for irrigation before us) of this magnitude.

#### **Landscape effects**

- 13.48 We conclude, primarily relying upon the evidence Mr Craig and Mr Glasson which we found to be more detailed than that provided to us than that provided to us by Ms Lucas, that landscape effects arising from a grant of this take application would be acceptable. We arrive at this conclusion because we accept that the application site is discreet, is not located in a sensitive or highly visible setting. We also accept that the immediate environs are already well developed as

a consequence of agricultural activity.

### **Tangata Whenua values**

- 13.49 There were no property specific issues raised by Ngai Tahu witnesses relating to this irrigation proposal by Twin Peaks. However a primary concern for Ngai Tahu was to ensure that the irrigation proposals in the Ahuriri catchment do not compromise the Ngai Tahu cultural associations with the waters and mahinga kai habitat of the Ahuriri Delta. Ngai Tahu are seeking to rejuvenate their cultural association with the Lower Ahuriri through the restoration of mahinga kai habitat and ultimately the exercise of customary practices related to the capture and consumption of tuna (eel).
- 13.50 The Ngai Tahu objective of restoring mahinga kai habitat in the Ahuriri Delta for cultural use is highly reliant on maintaining or improving existing water quality in the delta, the nutrient losses from this property drain to the Ahuriri River via groundwater and the Omarama Stream.
- 13.51 In assessing the effect of the irrigation proposals in this hearing we note that the applications for replacement consents have effects that are part of the existing environment and with the application of FEMPS and conditions are likely to reduce their individual nutrient losses to waterways.
- 13.52 However in the case of this application for new irrigation we are mindful that it will result in additional nutrient losses to the waters of the Ahuriri catchment. The extent of that additional nutrient load and its effect in conjunction with other applications that may be granted water in this hearing has been comprehensively assessed in the water quality effects section of this decision.
- 13.53 Ngai Tahu seek confidence that the on farm mitigation measures proposed by the applicant will avoid, remedy or mitigate adverse effects on water quality in the lower Ahuriri River and receiving waters. Our finding that the effects on water quality from the proposed activity will be minor means that the effects on cultural values of tangata whenua will be no more than minor.

### **Works in the bed**

#### Flood-carrying capacity, bank stability & erosion

- 13.54 Ms McCabe advised that Mr Bruce Scarlett (River Engineer, ECan) audited the applicant's proposal and stated that he had no concerns regarding the works, provided that standard conditions relating to maintaining flood-carrying capacity, bank stability and erosion were adhered to.
- 13.55 Based on Mr Scarlett's advice, the mitigation measures proposed by the applicant and the temporary nature of the works, we are satisfied that these effect should be minor.

#### Man-made structures

- 13.56 Manuka Creek flows within two stations before becoming dry approximately 200 metres downstream of the Killermont intake. The only structure downstream of works would be the intake structure for the Killermont intake. Given Killermont withdrew their submission and the temporary effects of the activity relate to the installation phase, we consider the effects on manmade structures to be minor.

#### Water quality and the diversion of water

- 13.57 Whilst the works carried out to construct the intake were likely to increase the sediment in the stream, given the short duration, timing of works, diversion of water around the works site, and with appropriate conditions, adverse effects of the works on water quality would be minor.
- 13.58 In respect of the diversion associated with construction of the intake, it is over a short length, will be temporary in nature and returns to the same watercourse it is originally part of. Given the nature of the activity, we are satisfied that the effects will be no more than minor. However we consider that it is necessary to impose some brief conditions of consent to ensure that the extent of the diversion is clearly defined and the activity is managed appropriately.

### Riparian plants and animals

13.59 The works were likely to require some disturbance of vegetation on the banks of Manuka Creek. The works will not affect riparian vegetation, and the effects on water quality are considered to be minor, we are satisfied that the effects of the works on riparian plants and animals would be minor.

### Tangata Whenua

13.60 No sites of historical or cultural significance were identified on Environment Canterbury's GIS System, and the site of the proposed works was not within a Statutory Acknowledgement Area. The applicant proposed standard conditions relating to the accidental discovery of wahi tapu and wahi taonga be attached to this consent. As effects on water quality were considered minor, we are also satisfied that effects on Tangata Whenua values would be minor.

### **Positive Effects**

13.61 The granting and exercising of these consents will have positive economic effects, both for the applicant, and the district. There will also, in our view be significant positive benefits in terms of reducing or halting wind-borne soil erosion over a significant tract of land and providing a means of controlling invasive species such as wilding pines and hieracium. The fencing off of streams and water races will also have positive effects with respect to improving aquatic habitat within the applicant's property.

### **Key conclusions on effects**

13.62 In relation to the actual and potential effects of the proposal, our key conclusions are as follows.

13.63 Based on the evidence of Mr Glasson and Mr Craig (which we accept), the effects both locally and at cumulative level on landscape and amenity will be no more than minor.

13.64 We have concluded that the existing terrestrial vegetation on the subject is of low ecological value. While irrigation will irreversibly eliminate any residual native vegetation, there was no direct evidence before us of rare or endangered species present on the subject site. We concluded then overall that the effects on terrestrial vegetation caused by the irrigation activity will be minor.

13.65 Our view is that the effects on water quality from the proposed activity would contribute to adverse water quality effects. Because the Ahuriri Arm is close to the mesotrophic boundary, our view is that we need to take a precautionary stance with respect to the granting of new consents in this catchment.

13.66 However, the scale of the applicant's proposal and the magnitude of effects are relatively modest compared with other applications before us in this catchment. In our Part A decision we defined "significant" new applications in the Ahuriri catchment as those contributing 5% or greater of the proposed new nitrogen load to the Ahuriri Arm of Lake Benmore. The estimated additional nitrogen load arising from this application is below that threshold.

13.67 We are also of the view that nutrient draining from the irrigation area could contribute to the incidence of nuisance growths of periphyton in the Omarama Stream and breach MfE guidelines for aquatic biodiversity and recreation under summer low flow conditions. However the risks of this occurring are relatively low and can be managed by way of conditions.

13.68 We have concluded that the effects on water quality are minor. Thus we are satisfied the effects on tangata whenua values would be minor. In addition, in terms of the works in the bed because no sites of historical or cultural significance have been identified, coupled with a proposed condition relating to the accidental discovery of wahi tapu and wahi taonga, we are satisfied that the effects on cultural values will be no more than minor.

13.69 In terms of flows we are satisfied for the reasons advanced that a grant of consent will not breach the minimum flow requirements of the AWCO. We are also satisfied that a condition requiring the abstraction be subject to the 5-year, 7-day low-flow MALF of 65 L/s will be appropriate to protect values of Manuka Creek. However we have preferred the monitoring site suggested by Mr Scarf to ensure protection of instream ecosystems.

- 13.70 We are satisfied that the proposed annual volume and method of application represent an efficient use of water.
- 13.71 In relation to the proposed works in the beds, we find that the activity being of short duration with appropriate mitigation will have no more than minor effects on Manuka Creek values or other users.
- 13.72 The granting of these consents would result in significant economic benefits as well as positive environmental effects in terms of reducing/halting wind-borne soil erosion, and controlling invasive species over a significant area of land.

## **14 EVALUATION OF RELEVANT PLANNING INSTRUMENTS**

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- 14.1 Under s 104(1)(b) of the Act, we are required to have regard to the relevant provisions of a range of different planning instruments. Our Part A decision provides a broad assessment of those planning instruments and sets out the approach we have applied to identification and consideration of the relevant provisions. The following part of our decision should be read in combination with that Part A discussion.
- 14.2 In relation to the current application, we consider that the most relevant and helpful provisions are found in the regional plans, including in particular the WCWARP and the NRRP. In addition, the Proposed and Operative CRPS and the relevant District Plans are of assistance in relation to landscape issues that arise.
- 14.3 The following sections of this decision provide our evaluation of the key objectives and policies from these planning instruments. We have organised our discussion in accordance with the key issues arising for this application...

### **Water quality**

- 14.4 In relation to water quality the key documents we have considered are the WCWARP (incorporating the objectives of the PNRRP) and the operative NRRP provisions.

### WCWARP

- 14.5 In relation to the WCWARP we consider that Objective 1 is the critical objective. In particular, Objective 1(b) seeks to safeguard life supporting capacity of rivers and lakes and Objective 1(d) seeks to safeguard the integrity, form, functioning and resilience of the braided river system.
- 14.6 We have determined that granting these consents with conditions (incorporating mitigations set out in the FEMP) will help to minimise nutrient loss from the irrigated area. The nutrient load to the Ahuriri Arm of Lake Benmore could increase minimally in relation to the permitted baseline but we are satisfied that with the mitigations volunteered by the application, which includes the non-irrigated area, the net increase in load (from current permitted activities) will be minor.
- 14.7 Similarly, we have determined that drainage from the irrigation could result in the maximum annual periphyton biomass exceeding MfE guidelines with respect to aquatic biodiversity and recreation during low-flow summer conditions in the Omarama Stream. Allowing these outcomes to occur would be contrary to Objectives 1(b) and 1(d). However the risks of such a condition occurring are relatively low and can be managed by way of conditions.
- 14.8 We note that Objectives 2, 3, 4 and 5 'in the round' deal with and provide for the allocation of water. However, the critical qualification is that water can be allocated provided that to do so it is consistent with Objective 1. Given the findings we have made about Objective 1, we conclude that allocating water in terms of the balance objectives would be consistent with the overall scheme of the WCWARP. We have reached this view taking into account the national and local costs and benefits (environmental, social, cultural and economic) of the proposal, as required by Objective 3.
- 14.9 Policy 13 links the WCWARP to the PNRRP (as it existed at the time) by requiring us to have regard to how the exercise of the consent could result in water quality objectives in the PNRRP not being achieved. As explained in our Part A decision, we have considered the objectives of the PNRRP and the now operative NRRP in relation to the current proposal.

## NRRP

- 14.10 Under the NRRP, Lake Benmore (including the Ahuriri Arm) is classified as an "Artificial On-River Lake" under the NRRP. Objective WQL1.2 of the NRRP seeks to ensure that the water quality of the lake is managed to at least achieve the outcomes specified in Table 6, including a maximum Trophic Level Index ("TLI") of 3 (i.e. oligotrophic-mesotrophic boundary). As discussed in Part A and above we are of the view that granting these consents could contribute to a decline in the trophic status of the Ahuriri Arm, but that with mitigation measures proposed by the applicant any increase will be minor.
- 14.11 We are of the view that the granting of these consents in conjunction with other consents we grant will not result in the Ahuriri Arm becoming mesotrophic. This, in our view, satisfies the explanation of WQL6, which states that "Water quality is either to be maintained or improved to meet the criteria in Table WQL6 for all lakes in the relevant management unit". Therefore, on both criteria (maximum TLI and intent of the water quality outcomes), Objective WQL1.2(2) would be achieved. In addition, we think that monitoring and response conditions with respect to periphyton growths in Omarama Stream (discussed below) will provide additional early warning and protection for the Ahuriri Arm of Lake Benmore.
- 14.12 The upper reaches of Omarama Stream (applicable to this application) and the entire Ahuriri River are now categorised as 'Alpine upland' under the operative NRRP. Objective WQL1.1 of the NRRP seeks to ensure that the water quality of such rivers is managed to at least achieve the outcomes specified in Table 5. A key indicator for these applications is that maximum periphyton biomass in Alpine upland streams should be less than 50 mg /m<sup>2</sup> chlorophyll *a*. This water quality management unit also has water quality standards for DRP and DIN that apply via Schedule WQL1 and associated rules of 0.005 and 0.08 mg/L respectively.
- 14.13 We must have regard to the current provisions of the NRRP and therefore we have given considerable thought to the situation that applies to the Omarama Stream and the Ahuriri River. We note the following:
- (a) Dr Coffey's (MWRL) evidence that despite some existing irrigation draining to Omarama Stream there were only localised nuisance growths along shallow margins of the riverbed at the Lower Omarama sampling site and periphyton biomass below nuisance levels at all Ahuriri sites.
  - (b) The cobbly bottomed substrate of the Upper Omarama and the Ahuriri River and their suitability for nuisance growths of periphyton.
  - (c) The categorisation of significant tributaries in the Upper Omarama and the Lower Omarama Stream (near Omarama township) as 'Hill-fed - lower' with an Objective WQL1 specified maximum periphyton outcome of 200 mg/m<sup>2</sup> chlorophyll *a* and Schedule WQL nutrient 'standards' for DRP and DIN of 0.006 and 0.47 respectively.
  - (d) The New Zealand Periphyton Guidelines, that we were provided with at the hearing and heard were a critical source for the NRRP specified outcome, provide for 50 mg/m<sup>2</sup> chlorophyll *a* as a guideline for oligotrophic streams with diverse "clean-water" benthic invertebrate communities.
  - (e) Objective WQL1.1 of the NRRP which calls for maintenance of the outcomes in Table WQL5 where they are currently being achieved, and progressive improvement in the quality of the water and bed where they are not.
- 14.14 After considering all the above factors we consider that the early warning trigger for the Upper Omarama Stream should be 50 mg/m<sup>2</sup> chlorophyll *a* together with water quality standards for DRP and DIN of 0.005 and 0.08 mg/L respectively, and the standard trigger should be 90 mg/m<sup>2</sup> chlorophyll *a* with water quality standards for DRP and DIN of 0.007 and 0.18 mg/L, respectively. Whilst this is a compromise between the recommended condition set and the now operative NRRP plan provisions, our view is that it achieves an appropriate balance and its enforcement will achieve the intent of the NRRP classification.
- 14.15 For non-point source discharges to groundwater, Objective WQL2 of the PNRRP distinguishes between groundwater that is "unaffected or largely unaffected by human activities" [as reported in 2004]. While there is extremely limited groundwater quality data in the Upper Waitaki, there appears to be general agreement that nitrate nitrogen concentrations are generally low (<1

mg/L) and the QWS (#3.85d Part A) proposed a threshold of 1 mg/L nitrate-nitrogen for those catchments that sit below the threshold. Because of the importance of groundwater as a determinant of surface-water quality, our view is that the 1 mg/L Nitrate-nitrogen threshold is appropriate.

- 14.16 We note that the NRRP Objective WQL2.1(3) states that “Where groundwater enters a river or lake, the concentration of any contaminant in the groundwater shall not result in the surface-water quality being reduced below the relevant provisions of Objective WQL1 or the standards set by a water conservation order.” There has been insufficient data and analysis presented from which to predict maximum concentrations in groundwater and consequently whether the surface-water threshold in WQL2.1(3) could be breached.

#### Conclusions on water quality provisions

- 14.17 Overall then having regard to the scheme of the WCWARP and the NRRP we reach a conclusion that granting consent in this case to the proposal as a whole is consistent with the key objectives and policies of both of these plans relating to water quality.

#### **Environmental Flow and Level regimes**

- 14.18 Policies 3 and 4 of the WCWARP refer to the setting of environmental flow and level regimes to achieve the objectives of the WCWARP. This is reflected in the rules of the PNRRP which specifies minimum flows and levels for water bodies and allocation limits for specific activities.
- 14.19 In relation to this application, the applicant is proposing to adopt the 5 year 7 day low flow required by the WCWARP Table 2 Row xxii for Manuka Creek, which we consider to be the appropriate level in the circumstances. Compliance with this minimum flow should ensure that the proposal is consistent with Policies 3 and 4.

#### **Efficient and effective use**

- 14.20 Objective (4) of the WCWARP seeks to promote “*the achievement of a high level of technical efficiency in the use of allocated water*”. The technical efficiency of the application is consistent with the provisions of the WCWARP. Application by spray within the constraints of an annual volume will require a high degree of efficiency to ensure that crops and pasture are not stressed in extreme conditions and water is not wasted.
- 14.21 Policies 15 – 20 deal with efficient and effective use of water and are applicable to this application. The Policies provide for an efficient use of water so that net benefits are derived from its use and are maximised and waste minimised. We are satisfied that the rates and annual volumes sought by the applicant reflect an efficient and effective use of water and that the reasonable use test can be met. The annual volume requested is less than the amount estimated using the method prescribed in Policy 16(c)(ii) of the WCWARP (WQN9v2). Overall, we consider that the proposed irrigation will comply with the reasonable use and efficiency provisions of the WCWARP.

#### **Landscape and amenity**

- 14.22 We discussed the relevant objectives and policies for landscape in our Part A Decision. In summary these are primarily found in the Proposed and Operative CRPS and the NRRP. In broad terms these provisions seek the protection of outstanding natural landscapes from inappropriate use and development. In considering these provisions we are informed by the provisions of the Waitaki District Plan which identifies the applicant’s property as a classified Rural Scenic Zone.
- 14.23 For the reasons already advanced we think the landscape effects (such as they are) for this proposal are capable of being addressed by conditions and could achieve consistency with the relevant objectives and policies particularly those of the Proposed and Operative CRPS.

#### **Tangata whenua**

- 14.24 Objective (1)(a) of the WCWARP relates to the integrity of the mauri and is closely linked to Objective 1(b). If we are not satisfied that the health of a particular water body is being safeguarded then the mauri is not being safeguarded either. We consider that the cumulative effect of the proposal on tangata whenua values, particularly water quality related matters, to be minor and therefore consistent with Objective 1(a) of the WCWARP.

- 14.25 Objective WQN1 from Chapter 5 of the NRRP seeks to enable present and future generations to access the regions surface water and groundwater resources to gain cultural, social, recreational, economic and other benefits, while (c) safeguarding their value and providing Ngai Tahu with opportunities for mahinga kai habitat restoration. We consider that the proposed activity will have a less than minor effect on the surface water in the receiving environment, and therefore will be consistent with Objective WQN1 of the NRRP.
- 14.26 Objective WTL1(a) & (d) from Chapter 7 of the NRRP seeks to achieve no overall reduction in the contribution of wetlands and waterways to the relationship of Ngai Tahu and their culture and traditions with their ancestral lands, water, mahinga kai sites, waahi tapu and waahi taonga. We consider that the relatively modest scale of this new activity will have no more than a minor effect on the receiving waters of the Ahuriri catchment and meets the intent of Objective WTL1(a) & (d) of the NRRP.

#### **Works in the bed**

- 14.27 The key objectives and policies that are relevant to this activity can be found in Chapter 6 of the NRRP, which relates to activities in the beds of lakes and rivers. The chapter contains one objective and two related policies.
- 14.28 Objective BLR1 aims to ensure that works in the beds and banks of lake, rivers and streams can be undertaken while minimising effects, including flood-carrying capacity, natural character, ecosystems, other structures, erosion, Ngai Tahu values. Given the conclusions we have reached on these matters above, we consider that, subject to appropriate conditions, the activity will be consistent with this objective.
- 14.29 Policies BLR1 and BLR2 aim to control activities associated with the erection, placement, use and maintenance of structures within the bed of rivers to ensure that Objective BLR1 is achieved. This may include restricting activities so that they do not affect flood carrying capacity, erosion or create plant infestations. For the reasons discussed above, with the imposition of appropriate conditions, we consider the proposed activity is consistent with these policies.
- 14.30 In respect of the proposed diversion, given its minor nature and our conclusions on effects outlined above, we consider that the activity is consistent with the relevant objectives and policies in the WCWARP seeking to sustain the quality of the environment.

#### **Key conclusions on planning instruments**

- 14.31 For all of the above reasons we consider that, with the imposition of appropriate conditions granting consent would be consistent with the objectives and policies of the relevant plans. We have reached this conclusion taking into account the relevant planning provisions in respect of water quality, efficiency, environmental flows, landscape, tangata whenua values and works in the bed.

### **15 EVALUATION OF OTHER RELEVANT S104 MATTERS**

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- 15.1 Under s104(1)(c), we are required to have regard to any other matter that we consider to be relevant and reasonably necessary to determine the application. After hearing all the relevant evidence, we consider that no such matters exist in relation to this application.

### **16 PART 2 RMA**

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- 16.1 Section 104(1) states that the matters that we have discussed above are subject to Part 2, which covers sections 5 through 8 inclusive. These sections are set out in full in our Part A decision and are discussed below in the context of the current applications.
- 16.2 The following discussion relates to the take and use application rather than the application to disturb the bed, as that is the more contentious aspect of the proposal. However, we note that we have assessed the proposed works in the bed against the Part 2 purpose and principles, and consider that it is consistent with them.

#### **Section 6 – Matters of National Importance**

- 16.3 Section 6 identifies matters of national importance that we must “recognise and provide for” when making our decision, including in particular preserving the natural character of lakes and rivers (s6(a)), protecting outstanding natural features and landscapes (s6(b)) and the

relationship of Maori with the environment (s6(e)).

- 16.4 In respect of s6(a) we recognise that preservation of the natural character of lakes and rivers is the imperative. We think that because of our finding in terms of the water quality issues, which takes into account mitigation measures, the grant of consent recognises and provides for the preservation of the natural character of lakes and rivers.
- 16.5 In terms of s6(b), we have evaluated the natural features and landscape, primarily by reference to the relevant planning instruments. We reach the view that the grant of consent in this case is not inappropriate because it will not, in our view, diminish the natural features and landscapes such as they are in any significant way.
- 16.6 In terms of section 6(c), it is our view, taking into account the evidence received, that there are not areas of significant indigenous vegetation and significant habitats of indigenous fauna that are at risk thus requiring protection as a consequence of the grant of consent.
- 16.7 In relation to section 6(e) we are cognisant of the relationship that Ngāi Tahu hold with the natural resources of this area, and while no specific values were specified by Ngāi Tahu in relation to this application, we believe that the mitigation measures and conditions provide for the cultural relationship to this catchment that is of importance to Ngāi Tahu.
- 16.8 For the above reasons, we consider that granting consent to the proposal would recognise and provide for s6 matters, as we are required to do under the RMA.

### **Section 7 – Other Matters**

- 16.9 Section 7 lists "other" matters that we shall "have particular regard to". We make the following observations in relation to each of those matters as they are relevant to this application, referring to the sub paragraph numbers of s7:
- 16.10 Sub-section 7(a), the function of kaitiakitanga is relevant to this application. We heard from Ngai Tahu about their cultural values and objectives for the waterways that are form the receiving environment of this activity. We consider that the proposal will produce a modest level of nutrient load and that with the proposed mitigation measures it can be managed so that it is consistent with s7(a).
- 16.11 Sub-sections (b), (c), and (f) are specifically relevant to this application. Sub-section (b) relates to the efficient use and development of natural and physical resources. Relevantly in this case is water. We have determined that the volumes of water we are prepared to grant and the methodology of its conveyance and distribution results in the efficient use and development of the water resource.
- 16.12 Sub-section (c) refers to the maintenance and enhancement of amenity values. Maintenance and enhancement of amenity values will be achieved in this instance through utilising mitigation measures such as those provided in the FEMP. These steps will ensure the maintenance and enhancement of amenity values.
- 16.13 In terms of sub-section (d), because of the assessments we have made in relation to ecosystems, we have had particular regard to the intrinsic values of ecosystems and we consider that through the grant of consent with the conditions imposed such values will be safeguarded. The design of the intake structure and fish screen is adequate and in accordance with guidelines. The applicant's proposal should ensure that the intrinsic values of Manuka Creek and the wider Ahuriri Catchment are protected.
- 16.14 Sub-section (f) refers to the maintenance and enhancement of the quality of the environment. The applicant has proposed mitigation measures to ensure that this objective is achieved.
- 16.15 Having particular regard to the above matters in the context of section 7, we conclude that the grant of consent could be supported

### **Section 8 – Treaty of Waitangi**

- 16.16 Finally, section 8 requires that we shall take into account the principles of the Treaty of Waitangi (Te Tiriti o Waitangi).
- 16.17 The cultural values of tangata whenua are appropriately recognised in the relevant planning



documents applicable to the Mackenzie Basin sufficient to alert applicants to the need to address such values. We are satisfied that the notification of the appropriate Runanga and tribal authority has been followed and that the applicant was a contributor to the general assessment of the impact of irrigation activities on cultural values.

- 16.18 We are satisfied that the consultation procedures provided Ngai Tahu the opportunity to understand and respond to the proposed activity, albeit in conjunction with a large number of applications in the Mackenzie Basin.

### Section 5 – Purpose of the RMA

- 16.19 Turning now to the overall purpose of the RMA, that is, the promotion of the sustainable management of natural and physical resources, we make the following further comments:

- (a) We consider the development and use of land is consistent with the purpose of sustainable management.
- (b) Irrigation will make a contribution to the overall regional (Waitaki) wellbeing; and
- (c) The natural and physical resources of the Mackenzie Basin site (water and land resources) will all be sustained.

- 16.20 This leaves section 5(2)(c) RMA and the obligation to avoid, remedy or mitigate any adverse effects of activities on the environment. This will occur through conditions, which will address any possible impacts on amenity and landscape values but more particularly upon water quality issues.

## 17 OVERALL EVALUATION

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- 17.1 Under s104B of the RMA, we have a discretion as to whether or not to grant consent. This requires an overall judgment to achieve the purpose of the Act and is arrived at by:
- (a) Taking into account all the relevant matters identified under s 104;
  - (b) Avoiding consideration of any irrelevant matters;
  - (c) Giving different weight to the matters identified under s 104 — depending on our opinion as to how they are affected by the application of s 5(2)(a), (b), and (c) and ss 6-8 — to the particular facts of the case; and then in light of the above; and
  - (d) Allowing for comparison of conflicting considerations, the scale or degree of conflict, and their relative significance or proportion in the final outcome.

### Take and use

- 17.2 The key issue for us revolves around water quality. The proposed activity will, we consider, contribute to adverse water quality effects, primarily because the Ahuriri Arm of Lake Benmore is close to the mesotrophic boundary. However, having regard to the scale of the applicant's proposal and our finding that the magnitude of effects are relatively modest compared with other applications before us in this catchment and because of our finding that the estimated additional nitrogen load arising from this application is below the threshold we have determined is appropriate, we conclude that a grant of consent is appropriate.
- 17.3 The benefits of the grant of consent need to be weighed against the potential impacts on water quality. Because of our finding as to the magnitude of those water quality effects and our finding that there will be significant economic benefits as well as positive environmental effects in terms of reducing or halting windborne soil erosion and controlling invasive species over the subject site, along with our view that a grant is consistent with the relevant policies and objectives in the applicable planning documents, we think that a grant of consent for the take and use on conditions we have included is appropriate.
- 17.4 Having reviewed the application documents, all the submissions, taking into account the evidence to the hearing and taking into account all relevant provisions of the RMA and other relevant statutory instruments, we have concluded that the outcome which best achieves the purpose of the Act is to **grant** consent with conditions, subject to being satisfied in relation to the additional information requested below.

## **Disturb bed**

- 17.5 The principal effects of the proposed activity will arise from potential sedimentation and discolouring of the stream water and effects on ecosystems in-stream and the landscape effects of vegetative removal and earthworks.
- 17.6 We consider that the principal sedimentation effects can be confined to the construction phase including the temporary diversion reinstatement of the stream flow to install the pipe intake below the stream bed. That through timing of works to avoid sensitive habitat and application of the best practice standards the effects will be minor.
- 17.7 The term landscape effects will be confined to a small area adjacent to the intake site and the route of the pipeline which will be remediate post the works.
- 17.8 The completion of a Construction Management Plan to be approved by Canterbury Regional Council prior to construction begins will ensure compliance with current standards of work is adhered to, observance of the Canterbury Regional Councils Erosion and Sediment Control Guidelines and NIWA fish screening guidelines will achieve the outcomes which best achieves the purpose of the Act.
- 17.9 Having reviewed the application documents, all the submissions, taking into account the evidence to the hearing and taking into account all relevant provisions of the RMA and other relevant statutory instruments we have concluded that the outcome which best achieves the purpose of the Act is to **grant** consent for the works in the bed. However for consistency this will not be confirmed until we have received the additional information requested in relation to the take and use consent.

## **18 CONDITIONS**

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- 18.1 We have given careful consideration to the conditions that are necessary to avoid, remedy and mitigate the potential adverse effects of the proposal. The starting point we have used for this exercise is the final condition set provided by the applicant. This was the result of a collaborative process that occurred after the conclusion of the hearing, as described in our Part A decision.
- 18.2 The condition set provided to us includes comments on discrete issues from Council officers and several submitters. Where any such comments have been made, we have taken this into account when arriving at the final condition set. We are proceeding on the basis that the condition set provided to us incorporates all relevant conditions required by Meridian Energy as part of its derogation approval, which has been confirmed by legal counsel for Meridian.
- 18.3 We have made some modifications and additions to the condition set provided to us. However all modifications respect the conditions attaching to derogation approvals provided by Meridian. Several of these changes relate to matters discussed in the preceding sections of this decision to ensure that any concerns we have about potential effects are adequately addressed. In addition, we make the following comments on conditions relating to nutrients and thresholds and the appropriate periphyton monitoring location.

### Nutrients and thresholds

- 18.4 In Part A we rejected the MWRL proposition that we could grant all the applications before us with conditions.
- 18.5 Much of the evidence on conditions presented by all parties to this hearing centred on the issue of determining whether grantees in a particular subcatchment had breached the nutrient allowance at a particular node, and if they had, how ECan could determine either which consent holder had caused the breach and whether one or all consent holders needed to take corrective action.
- 18.6 In rejecting the MWRL case, which relied upon existing irrigators lessening their nutrient load so that there would be assimilative capacity for new irrigators, we need to record our approach to ensuring that consents we grant do not cumulatively result in the trophic level index (TLI) of the Ahuriri Arm of Lake Benmore exceeding 2.75, or the TLI of the Wairepo Arm of Lake Ruataniwha exceeding 4.00. As we recorded in Part A our view if that the difference between current nutrient load, and the load resulting in unacceptable increases in the TLI of these waterbodies is so small that it would be risky to try and allocate that new load.

- 18.7 For those applications that we are inclined to grant, we have assessed their 'cumulative effects' in priority order, taking careful note of the complete package of mitigation measures they propose on their property. These mitigation measures may be in relation to a separate application before us but on the same property and therefore 'captured' in the FEMP.
- 18.8 We have kept a check on new irrigation resulting in additional nitrogen and phosphorus loads proposed by applicants in relation to those mitigation measures and not granted consents that would, in our view, lead to a significant net increase.
- 18.9 This approach will, in our view, ensure that the TLI of the critical lake ecosystems does not rise as a result of our granting these applications, and may even decline. This approach is, we believe, consistent with the NRRP, which has as an objective and maintenance or improvement of water quality. It also has the advantage, in our view, of taking the pressure off cumulative effects monitoring with all the ensuing uncertainties and difficulties discussed in Part A.
- 18.10 Recognising that streams and rivers in the catchment are nutrient limited by nitrogen and/or phosphorus, and that the NZ (MfE) Periphyton Guidelines provide appropriate thresholds for managing nuisance periphyton growths does, we believe, provide another monitoring tool for not only ensuring that streams and rivers are suitable for recreation and provide suitable habitat for invertebrates and fish, but also provide another defence to downstream lake ecosystems. The reporting of breaches in periphyton guidelines together with correction mitigation actions, provide a tool to prevent excess nutrients reaching the lakes.
- 18.11 We recognise that that where leachate enters groundwater that does not discharge to streams or rivers prior to entering Lake Benmore, periphyton monitoring is not appropriate. However for the majority of the applications before us, there is a stream or river downstream that provides a logical focus for offsite monitoring efforts. In cases where this is not the case we have imposed other monitoring requirements such as lysimeter or piezometer networks, and/or contributing to lake monitoring.
- 18.12 The advantage of stream water quality and periphyton monitoring is that it puts more emphasis on local monitoring and less emphasis on uncertain (given our findings on the WQS) modelling. We are of the view that as far as possible, consent monitoring should be related directly to the applicant's activities.
- 18.13 We did consider deleting the agreed conditions relating to lake TLI monitoring on the grounds that it was marginal whether trigger response conditions were relevant to replacement consents. The critical issue for us was whether the effects of replacement consents could be considered less than minor (with respect to lake water quality).
- 18.14 However upon reflection we have decided that (in the case of the Ahuriri Arm of Lake Benmore, and the Wairepo Arm of Lake Ruataniwha) the existing TLI is very close to the agreed trigger point, and the TLI may increase even without the grant of new consents (due to groundwater lag effects). We are reasonably confident however that this will not occur because by and large these activities have been 'on foot' for a long period of time and we think this is reflected in the current TLI. However, we cannot be completely certain and it seemed to us rather than leave the matter we should do something about it to at least provide a mechanism to respond to groundwater lag effects, if they occurred.
- 18.15 Thus, if TLI were to increase above the agreed trigger points then the lake monitoring conditions would serve a resource management purpose; particularly in conjunction with the condition to ratchet back existing irrigation. On balance, we have decided to retain the agreed lake monitoring conditions for Lake Benmore and the Wairepo Arm of Lake Ruataniwha.

#### Periphyton monitoring location

- 18.16 We note that the agreed condition sets for Twin Peaks Station included water quality and periphyton monitoring at Clifton Drain (Map reference: H39: 611-255).
- 18.17 Our view is that monitoring at this site may fail to protect the Omarama Stream, which is classified as 'alpine upland' in the NRRP. Clifton Drain would not, in our view, provide ideal habitat for the growth of periphyton that Omarama Stream undoubtedly would. We realise that leachate from the Twin Peaks irrigation will go to groundwater but we are of the view that the Omarama Stream is the likely receiving surface-water. Because Omarama Stream in its upper reaches is worthy of protection, our view is that monitoring should be done directly in that stream at point upstream of any possible influence from Twin Peaks irrigation, and at a point

downstream of possible effects from irrigation. We realise that the selection of these monitoring points may not be easy and require further investigation. We seek the applicant's view on this.

- 18.18 We have come to a similar conclusion with respect to environmental monitoring on neighbouring Killermont Station, which has also applied to take water from Manuka Creek, and will also discharge leachate (in our view) to Omarama Stream. Because of the close proximity of the irrigation command areas from Killermont and Twin Peaks, we think it sensible that they collaborate in selecting appropriate monitoring points on Omarama Stream.
- 18.19 We have concluded that it is appropriate to issue an interim decision that we will finalise after we receive information from the applicant in relation to the matter mentioned above. We **direct** that Twin Peaks Station collaborate with Killermont Station to identify suitable upstream and downstream sites on Omarama Stream that both stations agree can be used to monitor the combined effects of their respective irrigation activities.

## 19 INTERIM DECISION

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- 19.1 Pursuant to the powers delegated to us by the Canterbury Regional Council; and
- 19.2 For all of the above reasons and pursuant to sections 104 and 104B of the Resource Management Act 1991, we issue this **interim decision** for applications **CRC063564** and **CRC063565** by Twin Peaks Station Limited, which we will finalise immediately following receipt of the further information requested from the applicant as specified in Section 18 of this interim decision.

**DECISION DATED AT CHRISTCHURCH THIS 16<sup>TH</sup> DAY OF FEBRUARY 2012**

Signed by:

Paul Rogers



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Dr James Cooke



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Michael Bowden



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Edward Ellison



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