

BEFORE THE CANTERBURY REGIONAL COUNCIL

IN THE MATTER

of the Resource Management Act 1991

AND

IN THE MATTER

of resource consent applications made by
VARIOUS PARTIES to the
CANTERBURY REGIONAL COUNCIL
associated with the irrigation of properties
within the Upper Waitaki Catchment.

EVIDENCE OF JOHN KYLE
ON BEHALF OF SOUTHDOWN HOLDINGS LIMITED, WILLIAMSON HOLDINGS
LIMITED, FIVE RIVERS LIMITED AND KILLERMONT STATION LIMITED
(9 OCTOBER 2009)

1. INTRODUCTION

Qualifications and Experience

- 1.1 My name is John Kyle. I hold an honours degree in Regional Planning from Massey University, obtained in 1987. I am a Partner with the firm Mitchell Partnerships Limited, which practices as a planning and environmental consultancy throughout New Zealand, with offices in Auckland and Dunedin.
- 1.2 I have been engaged in the field of town and country planning and resource and environmental management for twenty two years. My experience includes a mix of local authority and consultancy resource management work. In recent years, this experience has retained a particular emphasis on providing consultancy advice with respect to Regional and District Plans, designations, resource consents and environmental management and environmental impact assessments. This includes extensive experience with large-scale projects involving inputs from a multidisciplinary team.
- 1.3 An outline of projects in which I have been called upon to provide resource management advice in recent times is included as **Appendix A**.
- 1.4 I have read and agree to comply with the Code of Conduct for Expert Witnesses in the Environment Court Practice Note for Expert Witnesses (31 March 2005).

Scope of Evidence

- 1.5 I have been commissioned by Southdown Holdings Limited (SHL), Williamson Holdings Limited (WHL), Five Rivers Limited and Killermont Station Limited (collectively, the Applicants) to present evidence at this hearing with respect to the following matters:
- (a) A review of the various planning documents that are relevant to these proposals;
 - (b) The statutory context in terms of the proposals being consistent with the purpose and principles of the Resource Management Act 1991 (the Act);
 - (c) An assessment of the relevant objectives and policies of the various planning documents;
 - (d) A site specific assessment of potential environmental impacts of irrigating and subsequent intensification of farming activity on the Applicant properties;

- (e) Overall mitigation and conditions;
- (f) Conclusions

1.6 I have read the various section 42A Council Officer Reports as they relate to the consent applications made by the Applicants. Where relevant to do so, I make reference to the findings of those reports in my evidence. My own evidence also draws on the evidence of other experts that have presented at this hearing on behalf of the Applicants. For brevity and to avoid repetition, I frequently refer you to their evidence.

2. BACKGROUND

2.1 The Applicants have lodged a number of resource consent applications with Environment Canterbury (ECan) in relation to the taking of water to provide for the irrigation of Ohau Downs, Glen Eyrie Downs, Killermont Station and Killermont (WHL) (the properties).

2.2 A detailed description of the background to the various applications is provided within the evidence of Mr Ian McIndoe and the section 42A reports relating to these applications. The Table at **Appendix B** of my evidence details all of the applications submitted by the Applicant's which are subject of this hearing.

2.3 As part of the ECan requests for further information in relation to the above consents, the parties were asked to determine what impact irrigating the various landholdings (and the subsequent intensification of farming) would have on water quality in the Upper Waitaki catchment. Due to the potential cumulative effects (given the number of similar applications to take water for irrigation purposes), a cumulative impact assessment on water quality was undertaken by Mackenzie Water Research Limited (MWRL) on behalf of the majority of applicants seeking similar consents. The Applicants have assisted in funding this assessment and are prepared to adopt an approach to mitigation consistent with the recommendations made in that study. I return to this later in my evidence.

3. SUMMARY OF RELEVANT PLANNING FRAMEWORK

3.1 The planning documents that are of relevance to these applications have been outlined in my brief of evidence prepared on behalf of MWRL, and the various Section 42A Reports prepared on behalf of ECan. I do not intend to repeat the

history associated with the development of the Waitaki Catchment Water Allocation Regional Plan (WRP) in this evidence. In summary the applications require consideration under a number of statutory documents including:

- National Water Conservation (Ahuriri River) Order 1990 (WCO) – for Killermont (WHL) and Killermont Station only.
- Canterbury Regional Policy Statement (RPS).
- Transitional Regional Plan (TRP).
- Waitaki Catchment Water Allocation Regional Plan (WRP)¹.
- Proposed Canterbury Natural Resources Regional Plan (NRRP).

3.2. The following activities are covered by these documents:

- The allocation (take, diversion or damming of water) is considered under the WRP.
- Discharges (e.g. of excess irrigation water to water) are considered under the TRP and the NRRP.
- Land disturbance, excavation activities in riparian margins and intake structures are covered under the TRP and the NRRP.
- Farm management systems e.g. effluent disposal, fertiliser application, stock requirements are considered under the TRP and NRRP.

3.3 There has also been a need to consider some provisions in the Waitaki District Plan for some of the infrastructure/farming activities proposed. In fact consents have been granted by the Waitaki District Council for a number of activities associated with irrigation and intensive farming on the subject properties. I identify the consents granted by the Waitaki District Council later in this evidence.

4. ACTIVITY STATUS

Waitaki Catchment Water Allocation Regional Plan

4.1 The WRP identifies the issues relating to water allocation and use in the Waitaki Catchment. The primary control in regard to water allocation in the catchment is

¹ All of the Applicant properties referred to in this evidence are located within the jurisdiction of the Waitaki District.

through Rules 2, 3 and 6 of the WRP. These rules were identified in my evidence on behalf of MWRL.

- 4.2 The proposals for Glen Eyrie Downs and Ohau Downs both seek to take surface water from Lake Ohau.
- 4.3 SHL (Glen Eyrie Downs) is now seeking a total volume of 12,408,000m³ per annum from Lake Ohau. This does not comply with the allocation limits set out in Table 5 of the WRP and is therefore a non complying activity pursuant to Rule 16 of the WRP. The Five Rivers (Ohau Downs) application seeks a total of 8,958,000m³ per annum which is within the allocation limits outlined in Table 5. However given that SHL has priority over the Five Rivers application this application is a non complying activity also.
- 4.4 The applications lodged by both Killermont (WHL) and Killermont Station to take water from the Ahuriri River require consent pursuant to Rule 15 of the WRP for a discretionary activity.
- 4.5 Killermont Station has also applied to take water from Manuka Creek and Frosty Gully. The proposed abstraction from Manuka Creek is a discretionary activity pursuant to Rule 15 of the WRP. The proposed abstraction from Frosty Gully is via an existing water race and in this regard there is no minimum flow to be applied. However, Rule 2 of the WRP requires all takes to comply with a minimum flow regime and therefore consent is required for a non comply activity pursuant to Rule 16 of the WRP.
- 4.6 I note also that derogation approval has now been provided by Meridian Energy Limited for all consents lodged for the above Applicants. These are attached to my evidence as **Appendix C**.

Transitional Regional Plan and the Proposed Natural Resources Regional Plan

- 4.7 As outlined in my evidence on behalf of MWRL it is my opinion that separate or ancillary consents are not triggered by rules in the Proposed NRRP for the use of water for irrigation purposes.

- 4.8 Applicants who have specifically applied to discharge water to water (e.g. excess irrigation) will require consent for a discretionary activity under the TRP and NRRP².
- 4.9 Activities in the bed of lakes and rivers, for example constructing intake or diversion structures are not provided for under the TRP and therefore require consent as a discretionary activity (regardless of whether or not they comply with the rules in the NRRP).
- 4.10 I also note that as part of implementing the FEMPs described in the evidence of Dr Robson, the Applicants will be required to apply for site specific consents under the TRP and/or the NRRP. For example SHL and Five Rivers have applied for consent for the use of land for a stock holding pad, use of land to store animal effluent and the discharge of solid and liquid effluent. These applications have been lodged, with Environment Canterbury (ECan) but have yet to be processed.
- 4.11 I note that some of the submitters have suggested that all ancillary consents should be obtained prior to considering the water abstraction applications. Farm development and the mitigation options to be employed are contingent upon first securing a viable water allocation. On this basis, it should not be unexpected that farmers will want some security that water will indeed be allocated to them before embarking upon expensive consent processes that may be necessary to give effect to some elements of ultimate farm management.

National Water Conservation Order (Ahuriri River) 1990

- 4.12 The Killermont (WHL) and Killermont Station applications seek to take water from the Ahuriri River. The National Water Conservation (Ahuriri River) Order 1990 (WCO) is relevant. The WCO establishes the minimum flows which must be retained in the Ahuriri River in order to protect its fishery, wildlife and recreational values. The minimum flows are set out in Clause 5 of the order.
- 4.13 The Section 42A report writer has adopted an approach whereby it interprets the WCO as setting maximum abstraction rates. This report outlines that the

² This applies to both Killermont (WHL) and Killermont Station

sum of all takes from the Ahuriri River must not exceed the volumes specified in Clause 5 of the WCO. Using this interpretation the reporter has concluded that the Killermont (WHL) and Killermont Station applications will not comply with the provisions of the WCO, and therefore consent can not be granted.

- 4.14 As mentioned above the WCO requires minimum flows to be retained in the Ahuriri River. It does not refer to maximum abstraction rates. Therefore, the key issue to be considered in relation to any application to take water from the Ahuriri River is whether the take will result in flows in the river falling below the prescribed minimum flows in the WCO. Mr McIndoe has calculated the allocation limit and minimum flows for the Ahuriri River and assessed the applications against these. He concludes that the applications to take water from the Ahuriri River will comply with the restrictions imposed by the WCO.

Waitaki District Plan

- 4.15 The following consents have been obtained from the Waitaki District Council in relation to irrigation and intensive farming on the Applicant properties. Full copies of these consents are attached to my evidence as **Appendix D**.

Table 1

Activity	GED	OD	Killermont (WHL)	Killermont Station
Certificate of Compliance for farming activities	✓	✓	✓	✓*
Resource consent for intensive farming and earthworks	✓	✓	✓	-
Certificate of Compliance for crop production	✓	✓	-	-
Certificate of Compliance for water take structure	-	✓	-	-

* One Certificate of Compliance covers both Killermont (WHL) and Killermont Station

- 4.16 The Certificates of Compliance issued to the properties relate to a variety of activities associated with establishing, operating and maintaining a farm, including:

- a) Pastoral grazing for cattle (dairy), deer, and sheep;

- b) Crop production and arable farming;
- c) Irrigation by way of a central pivot irrigator and border dykes;
- d) The creation and management of ponds for the purpose of storage and supply of stock water;
- e) Application to land of fertilisers including nitrogen;
- f) Construction of roads, tracks and culverts for access to cowsheds and the farm in general, and the ongoing road/track maintenance and associated earthworks;
- g) Fencing and stock yard construction for stock management;
- h) Ancillary building construction – including but not limited to dairy shed, deer sheds, woolsheds, hay barns, and calf rearing shed, including their ongoing expansion (if required) and maintenance; and
- i) The installation of electricity supply associated with farm activities, both overhead and underground.

4.17 In addition to the more general CoC for farming activities, specific CoCs were also obtained in relation to crop production of: 150ha of wheat, 471ha of barley and 616ha of canola production on Glen Eyrie Downs, and 200ha of wheat and 800ha of rye corn production on Ohau Downs.

4.18 Land use consents have been obtained for all properties (save Killermont Station) in relation to intensive farming and earthworks as required for establishing cubicle stables for housing animals and associated dairy sheds for each property. As already raised in evidence the cubicle stables method of farming is a primary technique to be adopted on Ohau Downs, Glen Eyrie Downs and Killermont (WHL) in order to mitigate the potential effects on water quality associated with the intensification of farming activities on these properties. For the avoidance of doubt there is no proposal for dairy farming on Killermont Station, hence there is no requirement to seek such consent from the Waitaki District Council.

5. PERMITTED BASELINE AND EXISTING ENVIRONMENT

5.1 The Hearing Panel will be well aware that in making its decision in these cases, that discretion exists to enable the actual or potential effects of activities to be

assessed against the "permitted baseline".³ The following assessment accounts for the permitted baseline in terms of the Regional and District plans having relevance.

5.2 The purpose of the permitted baseline is defined thus:

*"Its purpose is to isolate and make irrelevant effects of activities on the environment that are permitted by a District Plan, or have already been consented to. Such effects cannot then be taken into account when assessing the effects of a particular resource consent application"*⁴.

5.3 In terms of relevant Regional Plan rules the permitted baseline is limited to minor takes or diversion activities for activities such as stock water outside the water bodies identified as being of high natural character. In my opinion, general farming activities such as pastoral grazing, fertiliser application and ancillary activities are permitted under the NRRP⁵. The Applicants (save Killermont Station have applied to ECan for certificates of compliance relating to crop production and the application of fertiliser.

5.4 In terms of land use effects, farming activities are generally permitted in the Waitaki District. Irrigation is also permitted (except in Outstanding Landscape Areas in the Waitaki District which require consent for a non-complying activity)⁶. Activities permitted include:

³ This requires an assessment of the effects of the proposed expansion on the environment as it exists, overlaid with such activities (not being fanciful) which are permitted by a plan or a current resource consent (see *Arrigato Investments v Auckland Regional Council* [1999] NZRMA 209):

This involves a comparison of the environmental effects of the proposed activity with:

- what is lawfully being done on the land;
- what is permitted as of right under the relevant plans; and
- activities authorised (when appropriate) by current but unimplemented resource consents. (*St Lukes Group v Auckland City Council* A132/2001)

⁴ *Queenstown Lakes District Council vs Hawthorne Estate Limited and T Bailey and Others*- Court of Appeal CA45/05 paragraph 65.

⁵ Subject to compliance with various conditions attached to permitted activity rules in the TRP and the NRRP

⁶ Note that none of the Applicants here propose to irrigate within a defined Outstanding Landscape Area.

- Farming Activities (except for the farming of chinchillas and the irrigation of land for pastoral or crop production within areas identified as an Outstanding Landscape shown on the planning maps);
- Residential activities;
- Visitor Accommodation (subject to conditions listed);
- Home occupations (subject to conditions listed);
- Mineral prospecting (subject to conditions listed);
- Intensive farming limited to pigs and poultry;
- Recreational activities other than on the surface of waterways (subject to conditions listed);
- Commercial activities (subject to conditions listed);
- Activities on the surface of waterways except structures or moorings and commercial motor craft operations on the Ahuriri River;
- Mineral extraction and processing (subject to conditions listed);
- Scheduled activities which comply with standards in the plan;
- Earthworks limited to the maintenance of existing tracks, irrigation infrastructure, yards, fence lines, roads. Earthworks are also subject to area and volume restrictions.

5.5 The Waitaki District Plan contains a separate chapter for utilities. This chapter lists a number of activities that are permitted in any zone. This includes (amongst other things):

- Lines for conveying electricity up to 110kV;
- Poles, insulators, casing, fixtures, tunnels and other equipment or material used or intended to be used ancillary to lines;
- Weather stations, weather recording devices;
- Buildings for utility services no greater than 10m² gross floor area and/or 3m in height
- Underground pipe networks for the conveyance and drainage of water or sewage;
- Reservoirs, wells and supply intakes for the reticulation or provision of public water supply;
- Community irrigation and stock water races, public open drains and channels;

- Recorders to measure the flows and levels of lakes and rivers.

5.6 The District Plan provisions and/or existing consents held by the Applicants permit a wide range of farming related activities to occur on the subject properties. In my opinion the certificates of compliance and resource consents issued by the Waitaki District Council are significant in the context of defining the future receiving environment. As of right the Applicants can implement those activities listed in **Table 1**.

5.7 Given the permitted baseline that prevails, it is my opinion that the landscape issues generated by farming activities are generally not significant. As outlined in my evidence on behalf of MWRL, I do not consider the “greening” of the landscape to be a relevant regional issue. Therefore, the landscape effects of each application need only be assessed in terms of any potential landscape effects on the water bodies themselves, unless a land use consent is required from the relevant Waitaki District Council which means that Council must assess such effects. The Applicants do not propose to irrigate land which is an outstanding landscape in the Waitaki District Plan. Notwithstanding this Mr Brown has been commissioned to assess the proposals on landscape and natural character values. His findings are summarised later in my evidence.

6. STATUTORY CONTEXT

6.1 Any assessment of a resource consent begins with an assessment of the proposal in terms of section 104 of the Act. After considering an application for a discretionary or non complying activity under that section, section 104B of the Act provides that a consent authority may grant or refuse the application and if it grants the application may impose conditions under section 108. However non complying activities must also meet one of the two thresholds tests in section 104D before the consent authority can consider the application on its merits.

Section 104 Matters

6.2 As you will know Section 104 is subject to the wider considerations inherent in Part 2 of the Act. Part 2 requires that a consent authority, in evaluating proposals such as these, must consider the question of sustainable management and be satisfied that the end result of allowing a given activity will be to promote the sustainable management of natural and physical resources, as defined in the Act. In so doing, a broad judgement is required.

6.3 Those matters referred to in sections 6, 7 and 8 of the Act are intended to assist this broad judgement.

6.4 This principle applies to all of the matters set out in sections 6, 7 and 8 of the Act. Consideration of the applications in terms of the provisions of sections 6, 7 and 8, forms a component part of the overall decision of whether it meets the primary test of promoting the sustainable management of natural and physical resources. This necessarily entails consideration of a number of (often) countervailing issues and values before finally determining whether a proposal ultimately meets the Act's purpose of sustainable management.

Section 5

6.5 The purpose of the Resource Management Act (the Act) is to “*promote the sustainable management of natural and physical resources*”. Section 5 defines sustainable management. The abstraction and use of water for irrigation is considered to be consistent with the purpose of the RMA, given that it is enabling people and communities to provide for their wellbeing⁷. Agricultural and horticultural activities contribute significantly to the economy of New Zealand and this has direct benefits on a national and local scale as the evidence of Mr Englebrecht confirms. The evidence of Dr Ryder and Dr Robson confirms that the localised and cumulative effects on water quality as a result of the proposed abstraction and use of water will not adversely affect the water resources in the Upper Waitaki catchment. The mitigation measures suggested to manage potential nutrient increases will also ensure that the life supporting capacity of the land and water resource will be maintained.

Section 6 – Matters of National Importance

6.6 The proposals deal with water management in the Upper Waitaki catchment, and a number of the matters of national importance identified in section 6 of the Act are potentially relevant. The matters in section 6 are as follows:

“6 Matters of national importance

In achieving the purpose of this Act, all persons exercising functions and powers under it, in relation to managing the use, development, and

⁷ Section 5(2)

protection of natural and physical resources, shall recognise and provide for the following matters of national importance:

- (a) The preservation of the natural character of the coastal environment (including the coastal marine area), wetlands, and lakes and rivers and their margins, and the protection of them from inappropriate subdivision, use, and development:*
- (b) The protection of outstanding natural features and landscapes from inappropriate subdivision, use, and development:*
- (c) The protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna:*
- (d) The maintenance and enhancement of public access to and along the coastal marine area, lakes, and rivers:*
- (e) The relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga. ”*

6.7 The evidence of Dr Ryder indicates that on an individual and cumulative scale water quality will not be compromised and therefore habitat quality will also not be adversely impacted on. The applications to abstract water are within the allocation regime established for the Upper Waitaki by the WRP and any reduction in water quantity will not be significant in the overall context of the catchment. The proposals will therefore not compromise the natural character and habitat quality of the rivers and lakes within the Upper Waitaki catchment.

6.8 There is some debate currently regarding whether the Upper Waitaki catchment is 'outstanding' for the purpose of assessment of section 6(b). Regardless of whether or not the lakes and rivers are defined as being outstanding natural features, it is clear that they are of significance within the region and are recognised for a number of values including their landscape values. As outlined above the proposed abstraction and use of water is not expected to generate any significant adverse effects in terms of water quantity and quality and therefore it is considered that the landscape values of these water bodies will be protected.

6.9 In his evidence Mr Brown describes the existing landscape. He concludes that the area proposed to be irrigated is generally highly modified. Whilst some changes to the landscape will inevitably result from irrigation and on site farming activities of this scale, such features are common in rural environments and will become an accepted part of the landscape. Mitigation as outlined in the

evidence of Mr Brown will also assist in ensuring such features are not obtrusive in the landscape.

- 6.10 Public access to lake and river margins is only likely to be potentially affected in the case of intake structures being located within the beds of lakes and rivers. This infrastructure is of a small scale and would not significantly compromise access, especially when located underground or under the bed of the waterway in question. Ultimately there would be little, if any, change to the existing river and margin access regime in the areas affected.
- 6.11 The impact of the proposed water abstraction and irrigation use on the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga has been addressed in the evidence of Mr Mikaere.
- 6.12 The evidence of Dr Ryder addresses the overall environmental quality of the lakes and rivers within the Upper Waitaki catchment and assesses the proposed abstractions and use of water on the ecological values of these water bodies. It is my view that this evidence is sufficient to draw the conclusion that the values of the waterbodies that sustain overall environmental quality will be maintained.

Section 7 – Other Matters

- 6.13 Section 7 of the Act lists various matters to which particular regard shall be had in achieving the purpose of the Act. In my view the matters of relevance to this proposal are:

“7 Other matters

In achieving the purpose of this Act, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, shall have particular regard to—

...

(b) The efficient use and development of natural and physical resources:

...

(c) The maintenance and enhancement of amenity values:

(d) Intrinsic values of ecosystems:

...

(f) *Maintenance and enhancement of the quality of the environment:*

...

(h) *The protection of the habitat of trout and salmon"*

6.14 In respect of section 7(b), and as explained by Mr McIndoe the Applicants propose only to take the volume of water required for the efficient irrigation of their properties based on individual analysis of soil type and climatic conditions, and enough for domestic use.

6.15 Impacts on amenity values and the quality of the environment have been principally addressed in the evidence of Mr Brown, Dr Bartlett and Dr Ryder. The conclusions reached are that with the appropriate mitigation in place the effects of the proposed irrigation will be no more than minor. As outlined in the evidence of Drs Bartlett and Ryder retaining features of ecological significance on the subject properties, protecting riparian margins and encouraging indigenous vegetation growth will likely result in a net positive effect on ecology within the subject sites. Visual effects arising from onsite structures and land uses will be mitigated by planting and setting back some elements of infrastructure from public roads, as outlined in the evidence of Mr Brown.

6.16 With the appropriate mitigation and property management it is considered that the proposed abstraction and use of water will not result in any adverse effects on water quality and quantity. This in turn will ensure the ongoing protection of visual and amenity values of the waterbodies, and will maintain aquatic habitats and ecosystems including those of trout and salmon. As outlined in the evidence of Dr Ryder greatly improved riparian management will only enhance the physical character of farm streams and maintain and potentially enhance the health of local stream aquatic communities.

Section 8 -Treaty Principles

6.17 The consultation undertaken, and the commitments made to protect the environment through aspects such as land management and mitigation, demonstrates that the principles of the Treaty of Waitangi have been appropriately taken into account.

6.18 In his evidence Mr Mikaere also concludes that through a combination of design features, avoidance, remedial and mitigation measures the applications for the four properties will not have an adverse effect on the cultural values of the catchment.

Part 2 Summary

6.19 It is considered that the proposed abstraction and use of water for irrigation throughout the Upper Waitaki catchment will not generate any significant Part 2 issues. The total abstraction is within the limits established by the WRP and is consistent with the agreements in place between the Mackenzie Irrigation Company (MIC) and Meridian Energy Limited (Meridian). With the appropriate mitigation and management in place it is my view that the proposals will not generate significant adverse effects on the receiving environment.

6.20 The RMA does not seek to prevent changes to the environment. Rather, it seeks to provide for the use and development of natural and physical resources, subject to the provisions in section 5. In regard to these applications, the ability to irrigate land will provide significant social and economic benefits to people and communities. These benefits arise from the employment of people on the farms, increased land productivity, and flow on social and economic benefits (e.g. secondary industries, employment) on a local, regional and national level. With appropriate mitigation which is set out within the suggested conditions, values such as the life supporting capacity of the water resources will be safe-guarded, and in some cases enhanced (localised waterways and riparian margins). The mitigation proposed will ensure that the applications will not compromise the values of the water resource and its ability to provide for existing uses and meet the needs of future generations.

7. RELEVANT OBJECTIVES AND POLICIES

7.1 The following planning instruments are considered to be relevant to the assessment of applications to take and use water in the Upper Waitaki catchment:

- Ahuriri River National Water Conservation Order 1990
- Canterbury Regional Policy Statement
- Waitaki Catchment Allocation Regional Plan
- Proposed Natural Resources Regional Plan

7.2 There are no objectives in the TRP.

National Water Conservation (Ahuriri River) Order 1991 (WCO)

7.3 There are no objectives and policies in the WCO. However, it is worthwhile discussing the purpose of the WCO, which is contained in clause 3:

3 Outstanding characteristics and features

It is hereby declared that the Ahuriri River and its tributaries include and provide for outstanding wildlife habitat, outstanding fisheries, and outstanding angling features.

7.4 For the reasons outlined later in my evidence, principally in relation to the ability of both Killermont (WHL) and Killermont Station to comply with the provisions of the WCO relating to minimum flows, it is my view that the takes from the Ahuriri River will not compromise the values identified in Clause 3. This is further supported in the evidence of Dr Ryder who concludes that on the basis that the abstractions will comply with the minimum flow requirements of the WCO there will no more than minor effects on the river ecology and angling amenity. Potential contaminant losses to ground and surface water arising from irrigation and land use will be mitigated by the conditions and will ensure that any effects on existing water quality, and instream habitats are minor.

Canterbury Regional Policy Statement

7.5 The RPS was made operative on 26 June 1998. A broad range of objectives and policies set out within the RPS are generally relevant to water abstraction and use. The chapters of relevance are:

- Chapter 6 - Provision for the relationship of Tangata Whenua with Resources;
- Chapter 7 - Soils and land use;
- Chapter 8 - Landscape, ecology and heritage;
- Chapter 9 - Water;
- Chapter 10 - Beds of rivers and lakes and their margins.

7.6 The relevant objectives and policies in Chapter 6 seek to enable Tangata Whenua to exercise their relationship, culture and their traditions with their

resources including land and water to the fullest extent practicable⁸. A method to achieve this is identified as being through resource management practices and planning including provisions in plans, and decisions on resource consents⁹.

7.7 A Cultural Impact Assessment (CIA) was prepared by Tipa and Associates¹⁰ in relation to new and existing irrigation in the Upper Waitaki Catchment. This assessment was commissioned by MWRL to inform the overall impact assessment of irrigating an additional 25,000ha of land. This assessment was peer reviewed by Mr Mikaere as outlined in his evidence.

7.8 The peer review of the CIA found that all the cultural impact matters identified are capable of being addressed. Importantly, the efficacy of that response relies on the ability of the individual applicants and Te Runanga o Ngai Tahu (TRONT) to work together to address the issues of concern. The Applicants I represent today have accepted the recommendations offered by the CIA and by Mr Mikaere and have engaged with TRONT representatives over their proposals. This is outlined in the evidence of Mr Mikaere and Mr Peacocke.

7.9 The various technical experts for the Applicants have provided evidence that any adverse effects on water quality and quantity throughout and downstream of the subject properties will not be significant. Therefore it is my view that the issues surrounding water quality, quantity and in stream values have been adequately addressed. In this regard I consider the applications to be consistent with the matters raised in Chapter 6 of the RPS.

7.10 Chapter 7 is specific to soil and land use. Objective (7)1 and supporting policies seek to ensure that the life supporting capacity and quality of soil are safeguarded. Policies within Chapter 7 also seek to prevent soil erosion. The use of irrigation which assists to establish groundcover after cultivation, or maintain it in drought is identified in the RPS as a method to avoid soil

⁸ Canterbury RPS, Chapter 6, Objective 1

⁹ Canterbury RPS, Chapter 6, Policy 3

¹⁰ Tipa G, & Nelson K, *Cultural Impact Assessment of New and Existing Irrigation in the Upper Waitaki*, February 2009.

erosion¹¹. During construction of the infrastructure (e.g. water intake structures and associated pipelines) soils and vegetation may be affected by land disturbance and excavation activities. Appropriate management of the construction activities on all sites will ensure that the overall life supporting capacity of the soil is not compromised. The proposed irrigation will limit the erosion across the subject properties by providing an overall increase in vegetative cover as well as fencing and protecting areas within each site from grazing, and enhancement of riparian margins. This increase in vegetative cover will act to minimise soil erosion on this land.

7.11 Chapter 8 relates to landscape, ecology and heritage. Objectives 1, 2 and 3 relate to the protection or enhancement of wetlands, landscape, indigenous vegetation and habitats of indigenous fauna and heritage. Policy 3 seeks to protect and enhance Canterbury's distinctive natural features and landscapes from development. Earthworks and the erection of structures are noted as activities that may have adverse effects in this regard. The mechanism for protection and enhancement, as per Policy 3, is via provisions in District Plans. Landscape issues are discussed in greater detail later in my evidence.

7.12 Objective (8) 3 and Policy 4 relate to ecological matters and seek to protect and enhance indigenous vegetation and habitats of indigenous fauna and heritage. The evidence of Dr Bartlett notes that all four properties have been extensively modified by historic and current land use within the site including vegetation clearance by fire and farming activities. This modification has left large areas with a reduced or severely reduced ecological value. These are the areas proposed for irrigation. Sites of significant ecological value will be avoided. Significant positive effects will also result from the protection of significant indigenous vegetation on the sites, and riparian enhancement.

7.13 Chapter 9 is specific to water and its use. Issue 1 states that:

"There are competing demands for the quantity of water in water bodies from: abstractors; those who discharge into water either directly or indirectly through activities on land; instream users including those who store water and generate electricity; those who drain or divert water; fishers and other recreational users; those who value the water for its natural character and its ecological life

¹¹ Canterbury RPS, explanation to Policy 2 pg 81

supporting capacity; and Tangata Whenua who value the water for its wahi tapu, wahi taonga and mahinga kai”.

7.14 Issue 3 states:

“Land uses and the discharges of contaminants into water or onto or into land, can adversely affect water bodies and coastal waters including; their ecological value; their use by present and future generations; and their recreational, cultural, social, economic, health and other values to the Canterbury community. Point source discharges can also compromise the cultural relationship of Tangata Whenua who value water for its wahi tapu, wahi taonga and mahinga kai”.

7.15 Objectives 1, 2 and 3 of Chapter 9 relate to the allocation of water for present and future generations while seeking to safeguard the values of the relevant water body, the use of land where it affects flows in a water body and water quality.

7.16 Through the implementation of objectives and policies in Chapter 9 the following environmental results are anticipated:

- *Protection of the life supporting capacity of water resources;*
- *Efficient use and better water availability;*
- *Greater benefits from the use, development and protection of water bodies;*
- *The maintenance of the health, integrity and value of groundwater¹².*

7.17 The quantity of water abstracted by the Applicants is assessed as being both efficient and effective. The quantity abstracted is required to enable the social and economic benefits to be obtained, while at the same time safeguarding the life supporting capacity of the water resource for present and future generations. Effects on water quality, both in surface waters and in groundwater have been discussed in the evidence of Dr Robson, and Dr Ryder. The general conclusion to be drawn from this evidence is the proposals will result in significant social and economic benefits, while achieving the various environmental requirements set out in Objective (9) 3 of the RPS.

¹² Canterbury RPS, pg 144

7.18 Appropriate design and management of construction activities (e.g. water intake structures) will ensure that land use practices and the use and storage of hazardous substances does not significantly affect water quality.

7.19 Chapter 10 relates to beds of rivers and lakes and their margins. Objectives and policies seek to ensure that land use and development *within the beds and margins of lakes and rivers* does not have an adverse effect on:

- areas of natural character,
- significant habitats of indigenous flora and fauna,
- significant natural features and landscapes,
- recreational and amenity values,
- public access,
- tangata whenua or heritage values,
- significant areas of trout and salmon.

7.20 Objectives also seek to protect the stability and performance of essential structures in river beds and their margins. Policies also seek to retain and establish riparian vegetation¹³. Appropriate design and management of construction activities will avoid, remedy or mitigate many of the potential adverse effects associated with instream structures and works. Opportunities to enhance riparian margins will also be implemented as part of these proposals.

7.21 As outlined in the evidence of Mr McIndoe the structures proposed will not affect the flood carrying capacity of the waterways, and will be designed and positioned in locations which will not impact on any other structure. Public access to the lake and river margins may need to be restricted during the construction of the intake structures for reasons of public safety. However, such restriction would be minor in extent and temporary.

7.22 Overall I consider the proposals to be consistent with the provisions of the RPS.

¹³ Canterbury RPS, Chapter 10, Objectives 1, 2, 3, 4 and Policies 1,2,3,4,5,6,7

Waitaki Catchment Allocation Regional Plan (WRP)

7.23 The WRP contains objectives and policies relevant to the assessment of water take and use applications.

Objectives

7.24 The WRP contains 5 objectives, all of which are considered relevant to the take and use of water within the Waitaki Catchment. Objective 1 sets out the overarching aim of the WRP *“to sustain the qualities of the environment of the Waitaki River and associated beds, banks, margins, tributaries, lakes, wetlands and aquifers...”*.

7.25 Objective 1 contains a number of anticipated outcomes including:

- (a) *recognising the importance of maintaining the integrity of the mauri in meeting the specific spiritual and cultural needs of the tangata whenua, and by recognising the interconnected nature of the river.*
- (b) *Safeguarding the life supporting capacity of the river and its ecosystems.*
- (c) *Managing the water bodies in a way that maintains natural landscape and amenity characteristics and qualities that people appreciate and enjoy.*
- (d) *Safeguarding the integrity, form, functioning and resilience of the braided river system;*
- (e) *Providing for individual’s reasonable domestic water needs;*
- (f) *Providing for individual’s reasonable needs for their animals’ drinking water;*
- (g) *Providing for fire-fighting water needs.*

7.26 Objective 2 seeks:

“To the extent consistent with Objective 1, to enable people and communities to provide for their social, economic and cultural wellbeing and their health and safety, by providing for water for:

- (a) *town and community water supplies;*
- (b) *hydro-electricity generation;*
- (c) *agricultural and horticultural activities;*
- (d) *industrial and commercial activities;*
- (e) *tourism and recreational facilities;*

(f) *any other activities*¹⁴.”

7.27 This objective provides for water to be taken for agricultural and horticulture purposes to the extent that the effects of the activity are consistent with Objective 1. It is stated in the WRP that the order of the items listed does not imply importance or priority.

7.28 Objective 3 states:

Objective 3 *In allocating water, to recognise beneficial and adverse effects on the environment and both the national and local costs and benefits (environmental, social, cultural and economic).*¹⁵

7.29 It is noted in the discussion in Annex 1 to the WRP that no weighting should be given to local costs and benefits over national costs and benefits. Therefore, to be consistent with this objective, the beneficial and adverse effects of an activity are to be recognised at both a local and national scale.

7.30 Objective 4 states:

*To promote the achievement of a high level of technical efficiency in the use of allocated water.*¹⁶

7.31 This objective seeks to ensure that water is not used in a manner that is wasteful or inefficient. This objective also recognises that there are a number of competing demands for its use (both instream and abstractive).

7.32 Objective 5 states:

*To provide for a practical and fair sharing of allocated water during times of low water availability.*¹⁷

¹⁴ Annex 1 to the WRP, paragraph 95, page 18 states that originally objective 2 contained the term “future unknown activities”, however this was later reworded to read “any other activities”. The exact meaning of this is not detailed in this Annex 1, but it is implied that it relates to future activities not already provided for.

¹⁵ WRP, page 24

¹⁶ WRP, page 24

- 7.33 As discussed in the evidence of Mr McIndoe, the proposed abstractions will be entirely within the allocation regime of the WRP, and will not take Lake Ohau or the Ahuriri River or its tributaries below the minimum levels and flows set out in the WRP or the WCO. In this regard the subject proposals will not reduce the quantity of water to levels deemed unacceptable by the regime imposed by the WRP or WCO, noting that the regime and level of unacceptability has already been the subject of scrutiny via the Plan promulgation process.
- 7.34 Mr McIndoe has described in his evidence how the use of water for irrigation purposes will be an efficient use of the resource. As discussed earlier in my evidence there are also significant economic and social benefits to be derived from the use of water for irrigation purposes.
- 7.35 On the above basis, and having considered the evaluative evidence of the technical and scientific evidence called by the applicants, I consider the applications to be consistent with the objectives of the WRP.

Policies

- 7.36 The WRP contains 46 policies which are set out to achieve Objectives 1 – 5. The policy framework is one which is largely effects based. The key policies have been outlined in detail in my evidence on behalf of MWRL. I undertake an assessment of the relevant provisions below in terms of evaluating the applications at issue.
- 7.37 Policies 2 – 8 all deal with environmental flow and level regimes. Policy 2 recognises that some water bodies should be managed to retain their high natural character values. Identified water resources are the tributaries of Lakes Tekapo, Pukaki and Ohau. Policies 11¹⁸, 12¹⁹, 13²⁰ and 14²¹ deal with the allocation of water and outline values to consider when allocating water to agricultural and horticultural activities.

¹⁷ WRP, page 24

¹⁸ WRP, page 30

¹⁹ WRP, page 31

²⁰ WRP, page 32

²¹ WRP, page 32

7.38 Policy 13 deals with water quality issues resulting from land use intensification, and states:

In considering whether to grant or refuse consent to take, divert, dam or use water allocated to agricultural and horticultural activities, the consent authority will have regard to the extent to which exercise of the consent could result in the water quality objectives in the Natural Resources Regional Plan not being achieved.

7.39 Relevant objectives from the NRRP were identified in my evidence on behalf of MWRL.

7.40 Policies 15²², 16²³, 17²⁴, 18²⁵ and 19²⁶ seek to ensure that the rate of abstraction and annual volume are reasonable for the intended use.

7.41 As outlined above and in the evidence of Mr McIndoe the proposed abstractions are consistent with the allocation regime established by the WRP for agricultural and horticultural activities. As discussed previously, the quantity of water applied for is considered to be efficient, and is necessary to achieve anticipated economic and social benefits. A number of experts have discussed matters with respect to aquatic ecosystems, habitats, amenity values and water quality. The conclusion to be drawn from this evidence is that these matters, subject to mitigation, can be appropriately addressed.

7.42 Policies 23 – 27 deal with restrictions during times of low water availability. Policy 23 seeks to ensure that environmental flow and level regimes are complied with. This requires that all consent holders restrict their rate of take during times of low flow, except where water is used for essential domestic uses, essential animal drinking needs and for the processing and storage of perishable product. Policy 25 encourages water user groups as a means for users to collectively manage their cumulative abstraction within the limits of the

²² WRP, page 33

²³ WRP, page 33

²⁴ WRP, page 33

²⁵ WRP, page 33

²⁶ WRP, page 39

environmental flow and lake level regime. As part of the FEMPs it is anticipated that water take and use during low flows will be properly accounted for.

7.43 Policies 29 – 46 are location specific policies. Policy 29 recognises the high natural character of water bodies listed in Policy 2. It does so by requiring the management of the cumulative allocation of water from such bodies. Policy 37 recognises the value of Lake Ohau both for natural values and its importance in terms of hydro electricity generation. The minimum lake levels set seek to recognise the iconic nature of the lake and enable appropriate access to water for the activities identified in Objective 2 (to the extent consistent with Objective 1). As outlined in the evidence of Dr Ryder the proposed abstractions will have no discernable effect on the level of Lake Ohau.

7.44 Policy 40 relates to 'other rivers and streams' in the Upper Waitaki Catchment. This policy sets the basis for the environmental flow regimes set in the rules for these rivers. It recognises the connectedness of those rivers and streams to wetlands and groundwater systems of the Mackenzie and Ahuriri Basins and enables appropriate access to water for the activities identified in Objective 2, to the extent consistent with Objective 1. It should be noted that there are no locality specific policies for the Ahuriri Catchment. The WCO for the Ahuriri River sets provisions including allocation limits and minimum flows for taking, using, damming and diverting of water from the water bodies to which the Order applies. The abstractions proposed from the Ahuriri River are consistent with the WCO as outlined in the evidence of Mr McIndoe.

Anticipated Environmental Results – WRP

7.45 Section 9 of the WRP lists 19 anticipated environmental results that will be adhered to and/or achieved through the application of the WRP²⁷. I am not going to repeat the list of anticipated environmental results here, but in my view the applications are consistent with these for the reasons outlined below:

- (a) The Applicants represented here recognise the interconnectedness of water systems and have all contributed to the scientific work completed on behalf of MWRL. As you know, MWRL commissioned an extensive water

²⁷ Page 58 of the WRP

quality study aimed at addressing the issue of cumulative effects resulting from the intensification of agricultural use in the Upper Waitaki.

- (b) The water quality study represents a detailed scientific study which quantifies the extent to which irrigation can occur, and the way that farming systems need to be managed in order to avoid the creation of adverse water quality effects in the Upper Waitaki Catchment. The water quality study provides farmers with appropriate methods for managing farming operations in order to successfully intensify productive activities, whilst at the same time ensuring the environmental bottom lines are maintained.
- (c) The evidence of Dr Ryder concludes that construction activity and increased intensification of farming associated with water abstraction and irrigation will have minor effects on existing water quality, fish passage and stream habitat, provided comprehensive construction management methods are in place on each site.
- (d) As outlined in the evidence of Dr Ryder and Dr Bartlett riparian management will enhance the existing terrestrial and aquatic values of streams within the properties.
- (e) Mr Mikaere concludes that the taking of water will have adverse effects that are no more than minor with particular regard to cultural matters such as mauri, the effects on ecosystems of mahinga kai species, sites of wahi tapu and wahi taonga.
- (f) The abstractions from the Ahuriri River and Lake Ohau on an individual and cumulative basis will have no more than minor effects on the landscape and amenity values of these waterbodies.
- (g) The proposed abstraction and use of water for irrigation purposes is consistent with the WRP in regard to allocation and will not prevent other users using the water resource for existing purposes (e.g. hydro electricity, drinking water) and future generations.
- (h) The opportunities that arise from the intensified land use proposed are significant in economic and social terms. All other effects arising from the water allocation and use have been comprehensively assessed. In my opinion, any adverse effects have been identified and they can be appropriately mitigated.
- (i) Mr McIndoe confirms that the proposed abstractions and use of water are technically and environmentally efficient.

Proposed NRRP

- 7.46 The provisions of the proposed NRRP are incorporated into the consideration of the Upper Waitaki applications by reference in policies of the WRP (policy 13) and the relevant assessment matters for discretionary and non complying activities under the WRP. Policy 13 of the WRP (relating to the effects of water allocation and use for irrigation) only refers to the water quality objectives of the Proposed NRRP. On behalf of MWRL I focussed my assessment of the NRRP solely on those water quality objectives. I maintain that for water allocation under the WRP this is the correct approach to adopt.
- 7.47 With respect to these individual applications, both Killermont (WHL) and Killermont Station have applied to discharge water to water and therefore wider consideration of the policies in the NRRP is required specifically for this property. Land use consents are also required by Applicants to erect²⁸, use and maintain structures in the bed of lakes and rivers. Therefore both the objectives and policies of the NRRP are considered relevant to the assessment of these applications. There also specific provisions within the NRRP which relate to the management of soils, riparian management and wetlands, which are relevant to the overall farm management proposed.

Chapter 4 – Water Quality Objectives and Policies

- 7.48 In my evidence on behalf of MWRL I identified a number of NRRP objectives that are applicable to these applications. I also made some comment about the extent of the weighting that should be applied to those objectives. I accept that because of the effect of the WRP the relevant objectives of the NRRP are deemed to be operative²⁹. However, as outlined in my evidence on behalf of MWRL there are significant difficulties with the relevant objectives. In my view this should have a bearing on the extent of the weight you elect to attach to these provisions in evaluating the proposals. This of course does not differ from the routine, as for the consideration of any application the decision making body retains a discretion as to the extent of weighting that might be applied to any given relevant provision.

²⁸ Where they are not already existing structures

²⁹ I note this is dealt with in *Lower Waitaki River Management Society Inc vs Canterbury Regional Council and Ors* Decision No C80/2009, refer paragraph 3.4.2

- 7.49 Objective WQL1.1 and WQL1.2 specify the water quality outcomes for rivers and lakes. Objective WQL1.1 (1)(a) seeks that where a river is in a natural state, the water quality and the characteristics of the substrate are to be maintained in that state. Rivers in a natural state are defined in the NRRP as being a waterway where the water quality is unaffected or largely unaffected by human activities. Water bodies, where the water quality is in a natural state as defined by the NRRP, are those that are generally low in nutrients and the riverbed substrate is comprised predominately of gravels with a relatively small proportion of fine sediment³⁰. It is noted in the NRRP however that many hill country sourced rivers are significantly influenced by the extent of Tertiary age sediments, many of marine origin, in the catchment. These sediments are a source of nutrients and rivers draining these catchments have naturally higher levels of nitrogen and phosphorous.
- 7.50 In addition to the above, Objective WQL1.1(2) seeks that water quality is either maintained to meet the outcomes in Table WQL5 or if it does not currently meet these outcomes then it shall be improved to do so.
- 7.51 Objective WQL1.1(3) seeks to provide outcomes for the quality of water or the river bed substrate of a river where the flow is regulated or strongly influenced by the discharge or diversion of water. The objective seeks to maintain or return the water quality to that which existed prior to the flow regime change and ensure that any changes to the flow regime have no adverse effects on the instream values of the river.
- 7.52 Objective WQL1.1 establishes the water quality outcomes for Canterbury's rivers. The purpose of this objective seeks to ensure rivers are managed to maintain their water quality and bed substrate in a natural state³¹. The objective also seeks to provide a clear point of reference for measuring the impacts of human activities on water quality and the effectiveness of measures to maintain or improve water quality³². The NRRP planning maps indicate that the rivers affected by the subject proposals are considered to be "natural".

³⁰ NRRP Chapter 4, page 4-23

³¹ Objective WQL1.1(1)(a)

³² Objective WQL1.1(2) and Objective WQL1.1(3)

7.53 Objective WQL1.1(2) requires the maintenance of water quality in a state above the baseline indicators specified in Table WQL5. Table WQL5 sets outcomes for water quality and sedimentation of riverbeds, to ensure that rivers will be suitable for a wide range of uses and instream values.

7.54 Objective WQL1.2 sets out the water quality outcomes for natural and artificial lakes. The purpose of Objective WQL1.2(1) is to maintain the existing water quality in high country lakes. The NRRP states that the water quality of large high country lakes is still largely in its natural state³³. The objectives seeks that where the water quality of a high country lake is within a natural state, it is to be maintained in that state. Where the water quality is not within a natural state, objective WQL1.2(1)(b) states that the water quality is to be maintained or improved so that it is:

- (i) *Suitable for contact recreation;*
- (ii) *Suitable as a habitat for indigenous species and salmonids;*
- (iii) *It provides for Ngai Tahu cultural values, including mahinga kai*
- (iv) *The average annual phytoplankton biomass does not exceed five milligrams of chlorophyll a per cubic metre; and*
- (v) *There is no conspicuous change to the visual clarity of the lake.*

7.55 Objective WQL1.2(3) sets out the water quality outcomes and thresholds for artificial lakes. It requires that the water quality of artificial lakes be maintained so that they are suitable for:

- (i) *Activities and uses for which the lake and its water is used; and*
- (ii) *It does not result in persistent seasonal stratification leading to oxygen depletion in the lake; and*
- (iii) *It does not result in toxic or nuisance algal blooms; and*
- (iv) *The average annual phytoplankton biomass does not exceed five milligrams of chlorophyll a per cubic metre of lake water.*

7.56 Policy WQL1 deals with point source discharges to surface water. As mentioned above Killermont (WHL) has applied to discharge water to the Ahuriri River from a fish bypass and during emergency situations from a storage pond. Accordingly this policy is specifically relevant to this application. Policy WQL1 seeks to manage the effects of the discharge on receiving waters, avoid

³³ Proposed NRRP – Chapter 4, page 4-25

significant cultural effects in relation to mixing of waters, and specify a Zone of Non Compliance whereby water quality standards do not need to be met. Policy WQL1(3) states that a discharge shall not be allowed unless it is demonstrated that the adverse effects on water quality outside the Zone of Non Compliance are consistent with the water quality standard set for the receiving water.

7.57 Policy WQL3 sets out the broad parameters by which minor point source discharges should be allowed as a permitted activity.

7.58 Policy WQL4 deals with non point source discharges to surface waters. Policy WQL4(1) seeks to reduce the impact of non point source discharges on surface water quality. It does so by seeking the prevention or minimisation of the entry of contaminants into surface water and by encouraging changes to land use practices, including the appropriate management of stock access to water bodies, management of agrichemical discharges and reducing the volume of runoff from irrigated land into surface water. Implementation measures that are envisaged include advocating an increase in the efficient use and application of irrigation water to land. Policy WQL4(d) relates to agricultural land uses on properties, where all or part of that property is irrigated. This policy sets out thresholds for annual average concentrations of soluble inorganic nitrogen resulting from land uses in the Upper Waitaki and requires that:

- (a) *agricultural land uses on a property, where all or part of that property is irrigation, and the irrigated land is located in:*
- (b) *the Waitaki Basin above Lake Benmore or the Ashburton lakes area, do not result in the annual average concentrations, between the points where a river enters and exits a property, of:*
 - (i) *soluble inorganic nitrogen in a river increasing by more than 0.01 milligrams per litre; and*
 - (ii) *soluble reactive phosphorus in a river increasing by more than 0.001 milligrams per litre.*

7.59 Policy WQL5 seeks to manage riparian margins so that water quality and the quality of riverbed substrate is maintained or improved. This policy is relevant to activities such as the construction of intake structures and other on site activities which may affect the riparian margin. The policy states that this should be achieved by minimising discharges into sediment or into water from land based activities, and retaining, maintaining or planting riparian vegetation.

Policy WQL5(2) also provides guidance on how riparian vegetation should be managed in order to achieve a range of environmental outcomes, such as contributing to indigenous biodiversity and improving habitat for indigenous fauna.

- 7.60 Dealing firstly with the construction of intake structures, the evidence of Dr Ryder notes that the primary water quality effect is increased suspended sediment and sediment deposition. Dr Ryder states that, subject to implementing best construction practices, effects on water quality will not be significant and will be temporary.
- 7.61 If it is deemed that the policies are more generally applicable to assessing the effects created by the totality of the proposals, that is, the effects arising from the use of irrigation water, then consideration of the cumulative assessment undertaken on behalf of MWRL and adopted by the individual applicants is important.
- 7.62 This study has determined environmental thresholds at various nodes throughout the Upper Waitaki catchment and in Lake Benmore. As outlined in the evidence of Dr Robson the mitigation proposed and which must be adopted by the individual landowners in this instance will result in achievement of these thresholds. Ongoing monitoring and adaptive management will also ensure that if any adverse effects are detected they will be addressed. Monitoring and management obligations for the subject applicants are set out in the recommended conditions which are generally discussed later in my evidence.
- 7.63 Adherence to conditions and adoption of comprehensive FEMPs on a property specific basis are key tools for managing nutrient run off from the proposed farming activity. These measures include riparian planting to reduce nutrients and sediment entering waterways, riparian fencing to prevent stock encroachment of waterways, and the overall management of fertiliser and irrigation application. The thresholds for nutrient triggers identified in the WQS have been based on ANZECC guidelines. These standards are not necessarily consistent with the approach adopted within Policy WQL4(b). However the WQS has adopted a rational approach in order to secure a standard of performance such that the resultant effects on water quality from nutrient losses are not more than minor.

7.64 The evidence of the various technical and scientific witnesses shows that any adverse effects from nutrient run off from the subject properties can be managed within acceptable limits.

7.65 With respect to effects on surface water quality as a result of the proposed abstractions, Dr Ryder concludes that takes from Lake Ohau and the Ahuriri River will have no discernable effects on water quality.

7.66 Objective WQL2 sets out the water quality outcomes for groundwater resources within the Canterbury region. This was referred to in my evidence on behalf of MWRL. Objective WQL2(2) states that in semi-confined, unconfined and other confined aquifers or parts of these aquifers, where the water quality is unaffected or largely unaffected by human activities as reported in 2004, the water quality is to be maintained in that state. Where the water quality has been affected by human activities the objective seeks that the groundwater quality shall meet the following values:

- i. For nitrate-nitrogen, the maximum concentration shall not increase by more than two milligrams per litre above the maximum concentration measured between 1996 and 2001, and reported in 2002, and the maximum concentration shall not exceed 11.3 milligrams per litre;*
- ii. The water quality shall remain within the guideline value for any aesthetic determined listed in the Drinking Water Standards for New Zealand 2000, except for natural exceedances of the Guideline Value. If the water quality does not meet the Guideline Value, as a result of human activities, the water quality shall be improved so that the Guideline Value is achieved;*
- iii. The median concentration of Escherichia coli shall be less than one organism per 100 millilitres of water; and*
- iv. Any other inorganic or organic determined of health significance or pesticide (excluding nitrate nitrogen, or Escherichia coli) listed in the Drinking Water Standards for New Zealand 2000 shall not be detected at a concentration greater than one tenth of the Maximum Acceptable Value for that determined.*

7.67 Policy WQL9 relates to non point source discharges that may affect groundwater quality and is complementary to objective WQL2. Policy WQL9(1)(a) seeks that landowners use a combination of best management practices to minimise the rate of leaching of nutrients to groundwater from their

property. Policy WQL9(1)(b) sets out the matters of consideration in regards to irrigation use. These matters are set out as follows; that the use of water for irrigation is in accordance with Policy WQN17 (efficient use of water); that the irrigation does not affect any drinking water quality; and maximum concentration of nitrate-nitrogen.

7.68 Specifically Policy WQL9(b)(iii)(1) states:

“The use of irrigation...

(iii) does not result in the maximum concentrations of nitrate-nitrogen in any part of an unconfined or semi-confined aquifer at the down gradient boundary of a property:

- 1. increasing beyond the range that occurs or would have occurred in the groundwater under extensive grazing of unimproved pasture in the catchment up-gradient of the property. This applies to properties located in the Waitaki Basin above Lake Benmore,...*”

7.69 The explanation to Policy WQL9 states:

“Irrigation is an essential requirement for agricultural intensification in inland areas. One of the consequences of land use intensification may be decline in groundwater in these areas, as a result of higher stocking rates, fertiliser use and cultivation, resulting in an increase in contaminants leaching to groundwater. Inland basins are generally situated high in the catchment, and drained by a large number of small groundwater fed streams that flow into larger rivers or lakes. A decline in water quality in groundwater may result in significant decline in water quality and aquatic ecosystems of the groundwater fed rivers and downstream rivers and lakes”.

7.70 As outlined in each property specific FEMP, discharges of effluent, fertiliser and irrigation use will be managed on a site specific basis to minimise nutrient runoff. This is consistent with the approach advocated in Policy WQL9(1)(a).

7.71 In terms of considering the proposals against the “standard” imposed by Policy WQL9 the WQS includes an assessment of existing groundwater conditions. The measured nitrate concentrations in 90 bores show that 98% of bores monitored had groundwater nitrate-N concentrations of below 1mg/l. As outlined in the WQS any level of nitrate-N below 1mg/l is considered to be “unaffected”.

Therefore this has been used to represent the top end of the range naturally occurring under extensive grazing of unimproved pastures.

7.72 As outlined in the evidence of Dr Robson, groundwater monitoring will occur on each of the subject properties. If comparative groundwater analysis indicate an exceedance of either 1 or 2 mg/l of nitrate-N (depending on the site) due to on farm activities, mitigation will be required. Conditions will ensure that monitoring is undertaken and mitigation is applied if any of the triggers as identified in Dr Robson's evidence are exceeded. This is discussed in further detail for the specific sites later in my evidence.

7.73 This being so, it is my view that the standards imposed by the said policy will in fact be achieved for two of the properties (Killermont (WHL) and Killermont Station) and not for the other two (Glen Eyrie Downs and Ohau Downs).

7.74 Despite some of the difficulties I have highlight with key water quality objectives it is my overall view, when considering the evidence that the approval of the subject applications would not be contrary to these matters. I say this on the basis that:

- As outlined in the evidence of Dr Robson nutrient thresholds have been developed for each farm to ensure that inputs of nitrogen and phosphorus to waterways do not result in potentially significant adverse effects to local streams and receiving lakes;
- The mitigation to be implemented on each property will ensure that the water quality parameters and river substrates will not significantly alter from that which exists presently;
- Surface waters will remain suitable for other users and uses;
- Site specific on farm mitigation has been recommended in the form of restricting nitrogen and phosphorus losses for irrigation to prevent levels of contaminants in groundwater increasing from that which exists presently and would occur under an extensive grazing regime;
- Groundwater will remain within the guideline values for any aesthetic determinant listed in the Drinking Water Standards for New Zealand.

Chapter 6 – Beds and Margins of Lakes and Rivers

- 7.75 Objective BLR1 and the associated Policy (BLR1) seeks to allow activities in river beds and margins subject to meeting a number of standards, such as protecting flood carrying capacity and the stability of lawfully established structures, preserving natural character and significant indigenous vegetation.
- 7.76 All of the Applicants seek to install new intake structures, and Killermont Station seeks to use and maintain an existing structure which is part of the existing Tara Hills Water Race. The overall conclusion to be drawn from the evidence is that, subject to appropriate management during construction and with appropriate ongoing maintenance of the structures, any potential adverse effects will be minor. In particular, the flood carrying capacity of the affected water ways will not be adversely affected, existing structures will not be affected in any way and all other existing values of the beds will be maintained in the long term.
- 7.77 It is also worth noting that as part of the overall property development, mitigation in the form of riparian planting and fencing is proposed. The enhancement of existing ecological value through planting and protection of indigenous species and riparian management will also assist in providing shade to waterways, enhancing habitat for fish and invertebrates and will assist in the stabilisation of banks.

Chapter 7 – Wetlands

- 7.78 The overall intention of the objectives and policies in Chapter 7 of the NRRP seek to retain and enhance existing wetlands throughout the region. Across the four properties, a number of wetlands and riparian margins will be created or enhanced as a result of the proposal. Dr Bartlett and Dr Ryder note these and that the measures to be employed would improve indigenous vegetation and fauna habitat. An opportunity exists to make gains in this regard by having each consent holder adhere to the proposed management approach. These gains are unlikely to result if “traditional” extensive grazing based farming continues.

Chapter 7 – Soil Conservation

- 7.79 Chapter 8 contains objectives and policies which seek to maintain the life supporting capacity and productivity of soil resources. Policies seek to encourage landowners to adopt arable farming practices that maintain or

enhance soil quality with respect to avoiding induced erosion. Policy SCN7 contains further provisions for minimising erosion risk in areas of arable land with a moderate to high risk of wind erosion. Dr Bartlett, has stated that the proposed irrigation will limit the erosion across the four properties by providing an overall increase in vegetation cover, as well as fencing and retiring from grazing the banks of several streams contained within the subject properties. This increase in vegetation will clearly minimise any potential soil erosion particularly from aeolian influences.

Summary of Objectives and Policies

7.80 A careful and balanced assessment of the various policy threads is required. Having considered the technical evidence and the suite of mitigation measures proposed for the subject farms, it is my view that granting consents for the water abstractions would not be contrary to the objectives and policies of the various policy statements and plans that apply. I say this, having adopted the broad evaluative methodology that is accepted as the convention. In my view, the provisions of the regional planning documents seek to maintain and where possible enhance existing water quality. The applications are consistent with achieving this. Overall it is my view that there is sufficient consistency with the relevant matters to ensure that the gateway test emanating from section 104D of the Act (the “not contrary to relevant objectives and policies test”) is achieved for those applications which trigger a non complying activity status. I acknowledge that in order to reach this point, each applicant must be bound to adhere to a carefully crafted suite of conditions. Moreover, as is evident from the individual management plans produced for each of the farms, these applicants are prepared to adopt an innovative and highly technical approach to the management of nutrient runoff. To me, this is important when each application is assessed against the backdrop of the existing environment and the assimilative capacity that this environment possesses.

8. ASSESSMENT OF ENVIRONMENTAL EFFECTS

8.1 My evidence now turns to the assessment of environmental effects for the various applications made by all the Applicants. The assessment I have undertaken draws on the evidence of the various experts who have already presented evidence at this hearing on behalf of the Applicants, and also the Section 42A reports prepared by the Council officers. Given that the majority of

potential environmental effects have been addressed in the evidence of others, I will only seek to summarise the salient points raised.

KILLERMONT (WHL)

- 8.2 WHL Killermont has seven applications lodged and which are being considered at this hearing. I have reviewed the Section 42A reports (35B, 35C and 35D) which relate to the various applications. The various elements of the proposal are assessed as follows.

Land Use Consent – Intake Structure

- 8.3 The Section 42A reports highlight the need to provide further details of the intake structure, pump shed design and a requirement to provide an undertaking that appropriate mitigation will be put in place to prevent effects on fish. The evidence provided by Mr McIndoe provides additional information relating to the infrastructural requirements for the proposed irrigation scheme and states that a rotary screen to prevent fish entering the intake will be installed. The proposed intake gallery will comply with the NIWA best practice fish screening guidelines. Dr Ryder confirms that the effects on river fisheries will be less than minor on the basis of this proposed approach.

Potential Effects on Other Users

- 8.4 The evidence presented by Mr McIndoe considers all existing and proposed consents to take and use water from the Ahuriri River.
- 8.5 Based on the evidence provided by Mr McIndoe, it is my opinion that the proposed Killermont (WHL) abstraction will comply with the minimum flow restrictions specified in the WCO. Mr McIndoe concludes also that the potential effects on other consent holders of water permits located further downstream of the subject proposals will be less than minor.

Effects on Landscape

- 8.6 The Section 42A report states that there is no information on potential landscape effects relating to Killermont (WHL). As I have noted earlier, I consider that this is not a Regional Council matter except with respect to the landscape effects on the waterways from which water would be extracted. The Waitaki District Plan permits irrigation on the property. Intake structures and associated infrastructure are also permitted activities. Notwithstanding this, the

evidence of Mr Brown includes a broad assessment of landscape values and suggests appropriate mitigation. In relation to Killermont (WHL), Mr Brown considers that for the majority of the time the structures required in the Ahuriri River (intake structures and pipelines) would essentially be hidden from public view. This is confirmed in the evidence of Mr McIndoe which highlights that a key feature of the gallery intake structure is that it is buried and natural river material remains over the top of the gallery structure. Consequently, any significant landscape effects associated with the intake and pipeline would be confined to the construction phase and would have a relatively short duration. It is therefore my view that the effects in this regard would be less than minor in extent.

- 8.7 In terms of pivot irrigators, Mr Brown considers that up to three irrigators at the northern end of the Killermont (WHL) may be visible with only the northern-most one of these being readily apparent. None of the irrigators would break the skyline or be dominant in its own right. Given the 'skeletal' and recessive nature of the irrigators, the location of existing irrigators in close proximity, and the potential to minimise effects by ensuring that they are set back from the highway, it is Mr Brown's opinion that the effect of the irrigators would be less than minor in relation to public views from State Highway 8.
- 8.8 As you will have heard in the evidence of Dr Robson the cubicle stable farm management approach is proposed as a form of mitigation to mitigate potential effects on water quality. While I note that farm management activities such as the cubical stables do not form part of today's proceedings, I acknowledge that the evidence of Mr Brown has assessed them. He concludes that individually and cumulatively the cubicle stables will be sufficiently recessive such that they would have little impact either on the general landscape's character or more specific views to the ranges beyond the Killermont Station property. I also note that the Waitaki District Council consents (**Appendix D**) require planting to be implemented around the cubicle stables to further reduce the visual impact of these buildings.
- 8.9 Overall it is my opinion that the landscape effects of the proposed development are acceptable and will not give rise to effects which are more than minor.

Localised and Cumulative Impacts on Water Quality

- 8.10 The evidence of Dr Ryder has considered the effects of the proposed activities on surface water quality. This includes effects during the construction of the intake gallery including disturbance of local aquatic communities and a reduction in downstream water clarity. In terms of mitigation, I have suggested a condition of consent that limits the constructing of the gallery to outside the peak of the trout spawning and rearing season (approximately June-October), which is consistent with Dr Ryder's advice. In addition, best practice construction management including limiting the period of time machinery is in the water will reduce the impact on downstream water clarity. It is therefore my opinion that the effects of the construction of the intake structure will be temporary in nature and with measures taken to avoid and mitigate effects the impact on the river environment from constructing the intake structure will be minor.
- 8.11 As outlined in the evidence of Dr Ryder, the Tara Hills water race runs through the proposed irrigation area and will be crossed by centre pivot irrigators. Dr Ryder notes that this race has an intermittent flow and therefore has only limited value for macroinvertebrates and fish communities. Dr Ryder also notes that water spray from the irrigator may enter the Tara Hills water race. Dr Ryder concludes that this will not affect water quality as the sprayed water (from Ahuriri River) will not contain fertiliser or effluent. Dr Ryder also notes that spray from the irrigator may actually be favourable for plant growth within the riparian margin of the lake.
- 8.12 As outlined in the evidence of Dr Robson, the FEMP for the subject property seeks to address issues of water quality and the cumulative effects of nutrient losses. A number of farm management practices and mitigation techniques have been specifically recommended for the property.
- 8.13 As a general requirement, mandatory good agricultural practices will be adopted which include the base assumptions of OVERSEER and therefore help to validate the use of the model on the farm. These mandatory good agricultural practices have been outlined in Dr Robson's evidence.

8.14 Dr Robson has noted that the maximum discharge allowance set for Killermont (WHL) is 33,762kg Nitrogen (N)/year and 551kg Phosphorous (P)/year. Based on the modelled output from OVERSEER the predicted average annual nitrogen leaching losses from the subject site will be 17,875kg N/year and 441kg P/year. The quantity of nitrogen leached is substantially below the nutrient discharge allowance set by WQS and within the nutrient discharge allowance for phosphorous. Dr Robson confirms that the proposed cubicle stable system at Killermont (WHL) is a significant form of mitigation and this farming method means that the key nutrient thresholds will be achieved.

8.15 The FEMP identifies environmental risks specific to Killermont (WHL) and includes mitigation measures to address these risks. The key mitigation methods for this site are outlined in the list below:

- Irrigation and consequent full ground cover to protect soil from erosion
- The housing of stock over the winter period to remove potential for soil damage from grazing stock in adverse conditions,
- No trafficking of soils when wet;
- The exclusion of stock from watercourses by planting and fencing riparian margins.
- Close management of the herd and ability to implement phase feeding;
- Management of manure, effluent and silage storage and application including monitoring of nutrient concentrations during spreading season and recording cumulative applications;
- No fertiliser to be applied in autumn and winter;
- Locating fertiliser filling area at least 50 m from a watercourse of spring or bore and have no drains that discharge to clean water;
- A densely planted 3m setback for Tara Hills irrigation race and a densely planted 5 m set back for the Manuka Creek.

8.16 The monitoring and auditing obligations referred to be Dr Robson allow the performance of the mitigation measures to be monitored and where they are performing sub-optimally, these can be addressed. These management options and mitigation techniques broadly focus on: soil protection, riparian management, silage storage, effluent management, fertiliser application, cultivation, and water run-off. Dr Robson in her evidence has also described the nature and purpose of an audit plan which comprises part of the FEMP. The

audit plan will examine both the compliance with the WQS thresholds and the management options implemented to address identified site specific environmental issues. The audit plan includes the action to be taken in the case of non-compliance.

Ecology Effects

- 8.17 As outlined in the evidence of Dr Bartlett all four properties have been extensively modified by historic and current land uses including vegetation clearance by fire and farming activities which have left much of the mainly flat land with compromised ecological value. These are the areas where irrigation is to occur. These areas have the lowest ecological value with the least indigenous vegetative cover. The features with the greatest ecological value within the command area are the watercourses and the irrigation layout will be designed to avoid direct interaction with these areas.
- 8.18 The Section 42A reports consider that given the significant ecological values identified in the Ahuriri River that further detail regarding the effect of the proposed activity on ecosystems is required. The Ahuriri River and its floodplain are of ecological significance since they provide habitat for a wide variety of birds and connect the habitats across the plains. As highlighted in the evidence of Dr Bartlett, the site investigation did not identify any vegetation of particular value at the intake sites and the proposed intake sites are upstream of the area recommended for protection as wildlife habitat. If birds begin to use the riverbed at the intake sites then methods will need to be developed to minimise the effects of construction on them, though these would be temporary in nature.
- 8.19 There will be a degree of disturbance during the construction of the pipeline route but this will be temporary. Site works would be appropriately reinstated as highlighted by Dr Bartlett.
- 8.20 Positive effects emanating from the irrigation proposals include the fencing of the riparian margins, retirement of these areas from grazing and the proposal to plant indigenous species within these margins. These measures will improve water quality within the streams. In addition, the irrigation proposal will create a vegetation cover which will prevent further soil loss in the command area.

- 8.21 Based on the evidence of Dr Bartlett it is my opinion that the effects on ecosystems will be avoided, remedied or mitigated such that such effects will not be more than minor.

Effects on the State Highway

- 8.22 The Section 42A report states that the proposal includes the installation of irrigation pipelines beneath the State Highway. The New Zealand Transport Agency (NZTA) has raised concerns regarding potential traffic effects created by the construction phase of the proposed works. Authority to perform any works within a State Highway must be obtained from NZTA. Consultation with the NZTA has been undertaken to address this concern. The implementation of appropriate mitigation measures including traffic controls, and timing of the works, will reduce local disturbances on the operation of the roading network and ensure that the effects on people are minimised. The works are of course temporary in nature. Overall I consider that the effects on the State Highway will be minor or less.

Killermont (WHL) Applications - CRC041788 and CRC073115

- 8.23 These applications relate to a water permit to take and use surface water from the Ahuriri River. The Section 42A report (35B para 22) states that confirmation is required if the applicant intends to take stock and domestic water under this application or whether the provisions of s14(3)(b) will be relied upon (or both). In addition, the Section 42A reports highlight the need for restrictions in times of low water availability. Mr McIndoe has confirmed in his evidence that water would be taken under this application and s14(3)(b) of the Act where stockwater requirements exceed the indicative 67,375m³ per year. I note that this number is only indicative and is subject to change depending on elements such as stocking levels.
- 8.24 The Reporting Officer has recommended that a maximum of 6,600,000 cubic metres is allocated to the applicant as per the notification wording. As indicated in the evidence of Mr McIndoe this maximum allocation is acceptable and includes sufficient for stockwater. The allocation will be managed to ensure

reasonable and efficient use and an application efficiency of 80%³⁴ (as per the requirements of the WRP) can be achieved.

- 8.25 The applicant has lodged two separate proposals as an either/or situation to take water from the Ahuriri River. Report 35B (at paragraph 149) recommends that application CRC073115 should be refused. This is based on section 217(2) of the RMA which states that where a water conservation order is operative, the consent authority – (a) *shall not grant a water permit if the grant of that permit would be contrary to any restriction of the order*. Given the additional 200 litres per second to be diverted under CRC073115, the Reporting Officer considers that this application would exceed the 3 cubic metre “allocation limit” set in the WCO. Mr McIndoe outlines that modifications to application CRC073115 since lodgement, include the fact that the proposal to divert water from the Ahuriri River through a standard revolving fish screen and discharge some of the water back to the river is no longer required. A gallery option is now being considered. Under that option there will be no need to divert and discharge water. Therefore the effects on the environment of operating a gallery intake will be less than for a divert and discharge intake.
- 8.26 Based on the above it is my view that there is no justification for accepting the Reporting Officer’s recommendation to refuse this application. The evidence present by the various experts has highlighted that the effects on the Ahuriri River will be less than minor when using a gallery intake as described in the evidence of Mr McIndoe. If the concerns of the reporting officer can be resolved via this method then it is my view that it could be required as a condition of consent. This would have the effect of eliminating the need to discharge water back to the river and thus reduces the overall take.

Killermont (WHL) – Application CRC07311

- 8.27 This application relates to a permit to discharge water into the Ahuriri River. Report 35D recommends that this application be approved as the actual and potential effects of the proposed activities are acceptable. I concur with the Section 42A report in this regard. However I note that as the gallery intake is the preferred option, this discharge permit may not be required.

³⁴ Policy 16 of the WWAR requires that water be allocated on the basis of 80% application efficiency.

OHAU DOWNS

- 8.28 Five Rivers Limited has one application (CRC061154) being considered at this hearing. The application is non complying. The Section 42A report (Report 13) prepared for this application raises a number of issues which I address the main issues raised in the evidence as follows.
- 8.29 At paragraph 21 of the Section 42A report it states that the application as lodged and notified specifically excludes milking dairy cows from the property. The Planning Officer is therefore of the opinion that the use of this land for dairying is beyond the scope of the application as notified based on the increase in effects on water quality.
- 8.30 The issue of scope has been addressed in opening legal submissions.

Effects on Landscape

- 8.31 As outlined in my evidence in regards to Killermont (WHL) it is my opinion that landscape effects associated with irrigation use and farm development are not a relevant regional issue but that the focus should be on the affected waterways. Mr Brown has however been engaged to assess the overall visual and amenity effects arising from the use and development on the subject properties. In relation to Ohau Downs, Mr Brown considers that the Lake Ohau water intake structures and pipelines to serve both Ohau Downs and Glen Eyrie Downs would actually have very limited exposure to the wider landscape and potential viewing audiences.
- 8.32 I note in the evidence of Mr Brown that both the Ohau Downs and Glen Eyrie Downs landscape are clearly modified and currently have a paucity of vegetation cover, with limited landform variation. Based on the evidence of Mr Brown, it is my view that the visual effects of the pivot irrigators and the infrastructure associated with the cubicle stables farm management are acceptable and will not give rise to effects which are more than minor.

Localised and Cumulative Impacts on Water Quality

- 8.33 As discussed in the evidence of Dr Ryder macroinvertebrate communities in Lake Ohau are not unique and the Lake habitat where the intake structure would be constructed is not likely to contain any species of significance.

- 8.34 With respect to the proposed abstraction, the proposed rate of water take from Lake Ohau equates to just 0.3% of the natural annual inflow into the lake. Therefore it is concluded that the take itself will not have any discernable effect on water quality or habitats for aquatic species.
- 8.35 In terms of effects, Dr Ryder considers that construction activities and the increased intensification of farming have the potential to result in greater contaminant losses to ground and surface waters than currently occurs, with potential adverse effects on aquatic communities. The potential adverse effects associated with the construction of the intake structure, pipeline and irrigation system can be avoided via the adherence to best practice construction management and minimising the amount of disturbed lake bed and land. This will include adherence to the Environment Canterbury's *Erosion and Sediment Controls Guidelines*, locating the pumping station 20m away from the high water level of the lake and securing the mechanics of the pump in a concreted, bunded underground enclosure.
- 8.36 To address water quality issues arising from intensified land use a FEMP has been prepared for Ohau Downs and is discussed in the evidence of Dr Robson. The maximum nutrient discharge allowance at Ohau Downs is set at 55,954kg N/year and 3,793 kg P/year. As confirmed in the evidence of Dr Robson, based on the modelled output from OVERSEER, the predicted average annual nitrogen leaching loss from Ohau Downs will be 44,357kg N/year and 1,330kg P/year for cubicle stables and 49,804 kg N and 1565 kg P for intensive beef/sheep and dairy support.
- 8.37 The FEMP identifies the site-specific environmental risks on the farm and includes specific mitigation measures to address these risks. The FEMP also contains an audit process as outlined above.
- 8.38 Adherence to these leaching limitations is intended to ensure that there will not be any significant adverse effects on the downstream receiving waters. In addition the riparian management discussed in the evidence of Dr Bartlett will enhance the physical character of the farm streams and maintain and potentially enhance the health of local stream aquatic communities. As outlined in the evidence of Dr Ryder the effects on water quality will therefore be mitigated so that local and cumulative effects will be no more than minor.

Ecology Effects

- 8.39 The Section 42A report states that if a fish screen is installed on the water intake structure which is in accordance with the recommended conditions, then, the effects of the proposal would be minor. Based on the evidence of Mr McIndoe and Dr Ryder I can confirm that an appropriate fish screen for the intake structure is proposed which will ensure the effects on fish are no more than minor.
- 8.40 The Section 42A report states that the effects on terrestrial ecosystems may be more than minor and that further information was required before a recommendation could be made. Dr Bartlett has addressed terrestrial ecological issues associated with this site and states that the flat land to be irrigated is currently mostly in pasture. More native species, including herbs, tussocks, and shrubs are found on the hummocky ground away from the command area including that part of the property which is protected by a QEII covenant. These areas will continue to be grazed and their values will not be affected by the proposed irrigation. The proposed irrigation layout has also been designed to avoid Six Mile Creek, which passes through the property. Riparian fencing and planting along Six Mile Creek will exclude animals and protect this habitat. The application of water and nutrients to the command area will result in an improved vegetation cover and this will improve soil conservation on the property.
- 8.41 Based on the evidence of Dr Bartlett it is my opinion that the effects on ecosystems will be avoided or mitigated such that they will be not more than minor.

Allocation to Activities

- 8.42 The Section 42A report suggests that there has not been a sufficient assessment of the effects of the proposed take on the allocation of water to other activities and/or those who already have consent or have priority over Five Rivers to abstract water from Lake Ohau. The total abstraction proposed exceeds the 12 million m³/year available for agricultural and horticultural

activities upstream of the Lake Ohau outlet³⁵ and the Reporting Officer considers that further assessment is therefore necessary.

- 8.43 Mr McIndoe has addressed the potential cumulative effects resulting from the applications to abstract water from Lake Ohau. Mr McIndoe confirms that exceeding the allocation limit for Lake Ohau, will not result in adverse effects on the level of Lake Ohau or on other users. In addition, it is my view that the potential effects on recreational users in regard to the effect on lake levels will be less than minor as the annual abstraction proposed will not have a discernible effect on water quantity or quality as outlined in the evidence of Dr Ryder.

Efficient and Reasonable Use of Water

- 8.44 The efficient use of water has been raised as potential issue in relation to Five Rivers' proposal to take water from Lake Ohau. The Reporting Officer considers that the proposed annual volume of 8,958,000m³ requested represents an inefficient use and a volume of 7,743,750m³/yr would be more appropriate for the area and method of irrigation proposed.
- 8.45 The evidence presented by Mr McIndoe confirms that the annual volume of water applied of is 8,958,000m³/year, which was based on the Mackenzie Irrigation Company share allocation of 6,000m³/ha/year over the irrigation area. The modelling undertaken by Mr McIndoe confirms that than annual allocation of 10,427,190m³/year for the property is required to meet the full irrigation demand every four out of five years. This analysis highlights that in fact insufficient water would be available to fully meet demand for the proposed on farm activities at Ohau Downs. This will require the applicant to achieve application efficiency greater than 80% to ensure significant yield losses do not occur in very dry years. Mr McIndoe has confirmed that along the full length of a pivot, the average application efficiency can achieve 80% as required by Policy 16 of the WRP. Soil moisture monitoring is proposed to ensure over-watering does not occur and maximum possible water use efficiency is achieved. Therefore the Reporting Officers suggested reduction in volume is not justified.

³⁵ As established by the WRP

GLEN EYRIE DOWNS

- 8.46 SHL have also applied for consent to take and use surface water and a land use permit to disturb the bed of Lake Ohau in order to construct the necessary take structure. The water permit is a non complying activity and the land use permit being sought is for a discretionary activity. The Section 42A report (Report 35A) identifies actual and potential effects of the proposals. I address the main issues addressed in the report and provide further detail on those areas where further information has been requested as follows.
- 8.47 At Paragraph 9 of the Section 42A report it states that the use of water for stock and domestic purposes was included in the application for CRC040835, but was not included in the notification wording. I can confirm that the applicant still wishes to provide for stock and domestic supply. The evidence of Mr McIndoe confirms the volumes required for these purposes. I also note that provision of an individuals reasonable needs for domestic and stock water is a permitted under the provisions of the RMA (section 14(3)(b)), and therefore there is no issue as to whether or not this was specifically included in the public notice.

Effects on Landscape

- 8.48 As you have heard from Mr Brown, it is considered that that the Lake Ohau water intake structure and pipeline (to serve both Ohau Downs and Glen Eyrie Downs) would have very limited exposure to the wider landscape and potential viewing audiences.
- 8.49 The landscape of the Glen Eyrie Downs site has been subject to grazing and has since been cleared and used for arable cropping. The site is therefore is clearly modified. It currently has very limited vegetation cover and has been affected by wilding pines.
- 8.50 The evidence of Mr Brown has highlighted that due to the local topography in the vicinity of this site the 13 pivot irrigators proposed will not be significantly discernable from public viewpoints. Views of the irrigators and the greening of the landscape will be seen within the far middle distance and will be absorbed due to a combination of viewing distance, the lightweight nature of the pivot irrigators and the backdrop of pasture and shelterbelts. Again I note that these activities are permitted on this property in terms of the Waitaki District Plan.

- 8.51 The proposed cubicle stables will similarly have a minimal impact as they sit low within the landscape and will be visually recessive.
- 8.52 One set of cubicle stables will be located adjacent to the roadway but this is considered to be reflective of other forms of agricultural development within the Waitaki District and is therefore not considered to overtly impact on the visual amenity of the area. As already noted, resource consents have been obtained for the cubicle stables and associated earthworks (**Appendix D**) and as such in my view this is not a significant relevant matter for consideration at this hearing.
- 8.53 Overall based on the evidence of Mr Brown, it is my view that the visual effects of the pivot irrigators, the greening of the irrigated areas and the cubicle stables are acceptable and will not give rise to effects which are more than minor.

Localised and Cumulative Impacts on Water Quality

- 8.54 As indicated earlier, the existing quality and aquatic species composition within Lake Ohau is described in the evidence of Dr Ryder. The proposed rate of water take from Lake Ohau by SHL equates to 0.5% of the natural annual inflow into the lake and again will not contribute to any discernable effect on the water quality and aquatic habitats within Lake Ohau.
- 8.55 Dr Ryder considers that construction activities relating to the intake structure and associated infrastructure, and the increased intensification of farming have the potential to result in adverse effects on aquatic communities.
- 8.56 The potential adverse effects associated with the construction of the intake structure, pipeline and irrigation system can be avoided in accordance with the mitigation consistent with that outlined above for Ohau Downs.
- 8.57 To address water quality concerns associated with the irrigation a specific FEMP has been prepared for Glen Eyrie Downs and is discussed in the evidence of Dr Robson. The maximum nutrient discharge allowance set for Glen Eyrie Downs is 38,139kg N/year and 1,621kg P/year. As confirmed in the evidence of Dr Robson, based on the modelled output from OVERSEER, the predicted average annual nitrogen leaching losses from the Glen Eyrie Downs area is 31,155kg N/year and 1,603kg P/year. Both loss rates are within Glen Eyrie Down's nutrient discharge allowance.

- 8.58 As discussed above for both Killermont (WHL) and Ohau Downs the FEMP identifies the site specific environmental risks on the farm and includes mitigation measures to address these risks. These are generally consistent with the on site mitigation proposed for Ohau Downs.
- 8.59 A number of farm management practices and mitigation techniques have been recommended in the FEMP to ensure that the proposed irrigation and subsequent intensive farming on Glen Eyrie Downs does not result in adverse effects on downstream water quality.

Ecology Effects

- 8.60 The Section 42A report states that there are outstanding issues raised by submitters which have not been addressed relating to terrestrial ecological values of this site. The evidence of Dr Bartlett has identified the terrestrial ecological value of the subject sites. This evaluation has concluded that native vegetation at Glen Eyrie Downs is restricted to the riparian margins of Wairepo and Serpentine Creeks and ephemeral wetlands upstream of where the Serpentine Creek has been channelised. These stream margins provide a corridor of native vegetation between the Wairepo Kettlehole Reserve and the grazed but uncultivated land on the Ohau Downs property. These areas will be protected from irrigation.
- 8.61 The ecological value of the irrigation command area is low and the provision of a 5m riparian buffer along with replanting and weed control is expected to improve the ecological values of these margins. The return of vegetation cover to the irrigated areas is expected to reduce soil erosion from the property. The increased cropping and grazing pressure will result in the loss of the small remaining indigenous component of the vegetation on the irrigated area. In the absence of irrigation and the continuation of current management this is likely to occur in any event.
- 8.62 Based on the evidence of Dr Bartlett it is my opinion that the effects on ecosystems will be avoided or mitigated such that they will be less than minor.

Allocation to Activities

- 8.63 The Section 42A report notes that this applicant has the highest priority for new applications and existing consented users of lake have no minimum lake level on their consents.

Efficient and Reasonable Use of Water

- 8.64 The Reporting Officer considers that the proposed 14,808,000m³/yr originally applied for is an inefficient take and use of water and recommends that a volume of 12,451,500m³/yr would be more appropriate. As outlined in the evidence of Mr McIndoe Glen Eyrie Downs is now seeking consent for 12,408,000m³/year. This is consistent with the Reporting Officer's recommendation and is considered to be a reasonable and efficient use of water.
- 8.65 Application specific issues relating to the Glen Eyrie Downs property are now considered below.

CRC040836 – Pump Station

- 8.66 The Reporting Officer has requested that further information is required to understand the mitigation necessary to protect the amenity of the adjacent property owner in terms of noise from the pumping station. This is addressed in the evidence of Mr McIndoe. It is considered that the use of a submersible pump station will negate noise emissions and associated effects on amenity.
- 8.67 It is therefore my view that the effects on amenity of the adjacent landowner will be less than minor. In any case noise is not a valid regional council issue, and I note that pump stations are permitted in the Waitaki District Plan.

CRC040836 – Water Intake Structure

- 8.68 The Reporting Officer considers that the current application contained insufficient information relating to erosion, water quality, riparian plants and animals, and cultural values to determine the scale of effects of construction and use of the water intake structure. The evidence presented by the experts on behalf of the Applicants has addressed each of these issues in relation to Glen Eyrie Downs and key conclusions have been summarised above.

8.69 I note that the Reporting Officer refers to consultation with LINZ. A separate consenting process is required from LINZ in relation to the intake structure to occupy the bed of the lake. This will occur once consent has been granted by the Regional Council.

KILLERMONT STATION

8.70 The consent applications for Killermont Station can be divided into four specific areas, namely the Woolshed Scheme, Pebbly Block, Manuka Creek and Frosty Gully. A number of the issues raised in the Section 42A report apply across all the applications made by Killermont Station, and as such, I address them first, before looking at specific matters relating to each specific area of the property.

8.71 All proposals by Killermont Station require resource consent for a discretionary activity, save the application to take water from Frosty Gully, which requires resource consent for a non-complying activity. The non-complying activity status is due to there being no regard to the minimum flow. However, given that the take is from a dam, no minimum flow can be proposed. In this instance the non-complying activity status is more of a technicality rather than the proposal containing elements that require stricter scrutiny under the WRP.

Effects on Landscape

8.72 The evidence of Mr Brown also addresses the landscape impacts of the proposal³⁶ in relation to Killermont Station. In summary Mr Brown concludes that the area of Killermont Station that is proposed for irrigation displays limited naturalness and endemic character and therefore has limited appeal in its own right.

8.73 Mr Brown addresses some specific concerns in regards to the area known as the Pebbly Block. He suggests this block is a 'frontispiece' for views from State Highway 8 towards the Ahuriri River and the 'Clay Cliffs', which are considered to be a significant feature of the area. Accordingly, Mr Brown has recommended that irrigation infrastructure should be limited to K-lines on this block.

³⁶ The Landscape evidence addresses both Killermont Station and Killermont (SHL) under the one heading.

- 8.74 The Frosty Creek and Manuka Gully intakes would not change in terms of their structural profile and environmental effects, which are considered to be not more than minor.
- 8.75 Mr Brown concludes that the vast majority of views towards the proposed irrigation area on Killermont Station located to the south of State Highway 8, are screened because of intervening terrace edges and embankments. Mr Brown considers that the relatively small scale structural components still visible beyond that embankment would be substantially absorbed by the backdrop of the Ewe and Wether Ranges.
- 8.76 Mr Brown is of the opinion that the proposed structures would have an appreciable, but acceptable, level of impact in relation to public views from State Highway 8. This is due to the more recessive location of the proposed irrigators, and the dynamic experience of seeing the proposed irrigators in combination of other, existing, pivot irrigation systems in the area.
- 8.77 Mr Brown concludes that the combination of pivot irrigators and irrigated pasture would be apparent in the landscape context. However, the irrigation proposed would still have a limited impact on the perception of the wider landscape, given the 'skeletal' nature of modern pivot irrigation systems, the impoverished state of the subject land, and the general landscape having a sense of productivity.

Localised and Cumulative Effects on Water Quality

- 8.78 A FEMP has also prepared for Killermont Station and the evidence of Dr Robson has provided a detailed assessment of the Killermont Station FEMP.
- 8.79 As discussed above the FEMP establishes the maximum threshold for nutrient discharges from the subject site. Killermont Station maximum nutrient discharges are capped at 9,440³⁷ kg N/year and 179 kg P/year. As confirmed in the evidence of Dr Robson, based on the modelled output from OVERSEER, the predicted average annual nitrogen leaching losses from Killermont Station is 8,838-9,284kg N/year for the preferred and the alternative system comprising

³⁷ This includes 1500 kg N from Killermont (SHL)

of no irrigation on Pebbly block and 172-177 P/year. These predicted loss rates are below the maximum nutrient discharge allowance for the subject site.

- 8.80 The proposed farm system on the main block is a partially irrigated beef, deer and sheep unit. The predominant land cover on the main block would be high performance pasture, along with limited forage for pasture renewal. On the Pebbly Block, a cut and carry system is proposed, to provide dry matter to local dairy farms. Dairy effluent will be imported and dry matter exported. No stock will be grazed on the Pebbly Block, this is the preferred system. An alternative farm system is that the Pebbly Block is to remain in its current condition and all the proposed irrigation to be conducted on the Home Block. In this alternative system, effluent will be brought on to the Home Block and all blocks would be grazed and have supplements removed to be exported from the farm.
- 8.81 As discussed above the FEMP for Killermont Station identifies site specific environmental risks on the farm and includes mitigation measures to address these risks. A number of farm management practices and mitigation techniques have been recommended in the FEMP to ensure that the proposed irrigation and subsequent intensive farming on Killermont Station does not result in adverse effects on water quality.

Ecology Effects

- 8.82 Dr Bartlett in her evidence has concluded that the ecological values on Killermont Station are extremely limited due to the cultivated crop and grazing of the land resulting in almost all indigenous vegetation being lost. Furthermore, the poor vegetation cover is likely to result in ongoing soil loss. On that basis Dr Bartlett concludes that the irrigation of the land will result in a net benefit when compared with the current situation as it will ensure that vegetation cover is consistently provided for.
- 8.83 Dr Bartlett acknowledges that there will be some vegetation disturbance for the construction of intake structures, but again the low ecological value of the vegetation in these locations means that the adverse effects associated with construction will be not more than minor in this regard.
- 8.84 Dr Bartlett recommends that the fencing of some riparian margins within Killermont Station should take place, in particular Manuka Creek.

- 8.85 An aquatic and avifauna ecology assessment has also been undertaken by Dr Goldsmith. The key points from her evidence are addressed with each specific irrigation area discussed below.

Efficient and Reasonable Use of Water

- 8.86 The efficient use of water has been raised as a potential issue for all four irrigation proposals on Killermont Station. As Mr McIndoe has stated an 80% application efficiency can be achieved with the irrigation as proposed.

Woolshed Scheme – CRC041776 and CRC041777

- 8.87 Killermont Station is seeking consent to take and use water (CRC041777) at a maximum rate of 175 litres per second, a maximum volume of 15,120 cubic metres per day, and 1,680,000 litres per year, from the Ahuriri River for spray irrigation of up to 300ha of pasture land (Woolshed Scheme). Furthermore, consent is being sought for a water take structure within the bed of the Ahuriri River (CRC041776). Beyond the general matters addressed above the following specific issues have been raised with respect to this consent application, which also need to be addressed.

- 8.88 Dr Goldsmith states that the gallery intake will need to comply with fish screening guidelines and this can be accounted for by a condition of consent. Furthermore, the construction of the intake structure should occur outside the main periods for fish spawning and bird breeding. Again, a condition of consent to this effect would ensure that such restrictions are provided for with any consent granted.

- 8.89 Concerns have been raised in the Section 42A report in relation to the potential impact of the proposed water take structure on the two rock walls installed by NZTA to protect State Highway 8 from erosion. Mr McIndoe has stated that construction works can be undertaken without disturbing the existing structures.

Pebbly Block – CRC041330, CRC041331 and CRC041332

- 8.90 The Section 42A report recommends that consent be granted for two of the three consents that relate to the Pebbly Block irrigation proposal at Killermont Station. Specifically, it is recommended that the landuse consent (CRC041330) to maintain an existing water intake structure, and a water permit (CRC041332)

to discharge surplus water into the Ahuriri River, be granted as applied for. I concur with the Section 42A report in this regard.

- 8.91 The third consent application (CRC041331) relates to a water permit to take and use water at a maximum rate of 100 litres per second, at a maximum volume of 8,640 cubic metres per day, and a maximum volume of 1,209,600 cubic metres per year, from the Ahuriri River. The water would be used for the spray irrigation of 216ha of pasture on the Pebbly Block.
- 8.92 Beyond the general matters addressed above the following specific issues have been raised with respect to this consent application, which also need to be addressed.
- 8.93 The potential landscape impacts of irrigating the Pebbly Block have been addressed separately to the balance of Killermont Station by Mr Brown in his evidence. As outlined above landscape effects on this site will be mitigated through the use of K-line irrigators. As I have already mentioned and reiterate throughout this evidence, landscape in my view is not a relevant Regional Council issue. Further certificate of compliances have issued by the Waitaki District for the irrigation infrastructure on the subject site (**Appendix D**). In my view landscape effects are not significant.
- 8.94 An appropriately dimensioned fish screen will be applied to the existing intake structure to prevent fish from entering the water race. Such measures, coupled with an abstraction rate which accords with the WCO, will mean that the proposal will have an environmental effect that is no more than minor on ecosystems within the Ahuriri River. This is consistent with the evidence of Dr Goldsmith.

Manuka Creek – CRC041798

- 8.95 The Manuka Creek application is to take and use surface water for spray irrigation of 75ha of pasture. The water take would be at a maximum rate of 37 litres per second and a maximum volume of 450,000 cubic metres per year. It is noted that many of the issues raised in the Section 42A report with respect to this application have been addressed under the general matters listed above.

8.96 The Section 42A report concludes that the localised effects on water quality by this proposal would be negligible and I concur with this view. The cumulative effects on water quality have been addressed above.

8.97 Killermont Station has obtained from ECan a resource consent for a gallery intake structure and pipeline (CRC100698) associated with the consent application to take water from Manuka Creek. A copy of this consent is attached to my evidence as **Appendix E**.

Frosty Gully - CRC040180 and CRC040181

8.98 The two consent applications relating to Frosty Gully are replacement consents for two existing consents (WTK836261A and WTK836261B) that are currently being given effect to. The applications are for the taking and use of water at a maximum rate of 20 litres per second, at a volume not exceeding 170,000 cubic metres per year, and also for the damming of Frosty Gully to a height of 2.5m, impounding 200 cubic metres of water, for the spray irrigation of 28ha of pasture at Killermont Station. Beyond the general matters addressed above, the Section 42A report has raised concerns in relation to the following matters.

8.99 Dr. Goldsmith has responded in her evidence to the issue raised in the Section 42A report relating to fish passage being affected by the dam. Dr. Goldsmith has concluded that the outlet of the dam does not appear to present a barrier to the movement of fish between the lower and upper reaches of Frosty Gully. The presence of juvenile brown trout upstream of the dam indicates that fish are able to move upstream from the Omarama Stream, through Manuka Creek to Frosty Gully.

8.100 The applicant is happy for a condition of consent to be included requiring the installation of a water meter, should consent be granted as applied for.

8.101 A key difference with the Frosty Creek applications is that the activity is already being given effect to under existing consents and therefore the environmental effects are known and can be readily accounted for. Given the evidence presented, I am of the opinion that the environmental effects associated with the proposal are not more than minor.

Conclusion – Environmental Effects

8.102 The four applications dealt with in this evidence have been subjected to a rigorous evaluation of the actual and potential environmental effects that would result. In my opinion, the primary area for enquiry in this regard relates to the actual or potential effects on water quality within the catchment. All four applicants are participants and contributors to the water quality study prepared under the guidance of MWRL. All of the applicants are prepared to adopt the comprehensive catchment wide management approach advocated within that study. For all four properties, nutrient budgets have been set, and it is feasible to manage the properties in a manner whereby discharges of N and P will meet predetermined thresholds. This has meant that an innovative and considered management approach to farming operations needs to be adopted. The FEMPs produced for each property describe the management responses in greater detail. Given the willingness of each of the applicants to adopt these management responses, it is my opinion that the environmental effects arising from the proposed taking and use of water for irrigation purposes will be not more than minor.

9. MITIGATION AND CONDITIONS

9.1 The Applicants have engaged a team of independent specialists who have thoroughly investigated the effects arising from the abstraction and use of water on the subject properties both on an individual and cumulative basis. On the basis of this evidence it is my view consents can be granted. However, any consents granted will of course need to be subject to appropriate mitigation measures imposed by way of conditions.

9.2 The principal concern in the Upper Waitaki Catchment from the intensified land and irrigation use is nutrient enrichment of groundwater, streams and lakes. The two contaminants of primary concern are nitrogen and phosphorus. As identified by Dr Robson numerous tools are available to assist with the mitigation of effects associated with nutrient transfer. Having considered the level of mitigation required to achieve the recommended thresholds, it is concluded that with the diligent and objective implementation of the tools available, the required thresholds can be achieved. As already referred to, it is recommended that each farm property be subject to a FEMP, which incorporates a range of mitigation measures tailored to the individual property based on advice from a

number of different experts. Dr Robson has provided a detailed overview of the FEMP requirements that each property will adhere to.

- 9.3 The objectives of the FEMP are to ensure that the proposed farm system can meet the nutrient mitigation requirements set out by the cumulative WQS, and to identify and mitigate other farm specific environmental risks that arise from the inherent characteristics of the farm or from the proposed farm system and its management. The FEMP contains mitigation and management measures designed specifically for each property to fulfil the objectives. The FEMP establishes the limits of Total N and Total P application for each property to achieve compliance with the WQS on an annual basis. The FEMP identifies specific environmental risks that could occur on each property and the mitigation necessary to address any potential risks. The FEMP also outlines the monitoring required to ensure compliance with the thresholds in the WQS and an auditing system.
- 9.4 In my evidence on behalf of MWRL I outlined a number of conditions that should apply to all MWRL participants in addition to any property specific conditions that will also need to be considered. The key conditions in this regard require the promulgation of FEMP's. I note that the various Section 42A reports were prepared without the benefit of having the FEMPs to assist in overall understanding and implementation of the specific mitigation on each property. This has lead to uncertainty in regards to mitigation measures and water quality outcomes. In review of the conditions presented on behalf of MWRL, the Reporting Officers have suggested that the conditions require more specificity, rather than a heavier reliance on an adaptive management approach. The approach to conditions has been refined. Where possible environmental performance standards have been extracted from the various FEMPs and included as specific conditions which should be applied on an application specific basis. A revised version of the conditions is to be attached to opening legal submissions.
- 9.5 The conditions still require a FEMP to be prepared and conditions require a monitoring regime to be developed for each farm property. The monitoring will determine the necessary mitigation response. Sole reliance on performance standards will not be sufficiently reflexive and responsive to the farm

management regime to be adopted, and therefore elements of adaptive management need to remain to allow this to occur.

- 9.6 Monitoring is a critical aspect of the overall mitigation and success of the FEMP in achieving its objectives. As mentioned above on farm monitoring will be required and the extent of this for each property is outlined in the evidence of Dr Robson. As well as on farm monitoring an auditing plan will be required. The audit plan examines both the compliance with the WQS thresholds and the management options implemented to address identified site specific environmental issues and thresholds.
- 9.7 To address any cumulative effects on water quality the conditions require consent holders to prepare a sub-catchment monitoring plan. This plan will require monitoring of off farm groundwater and surface water quality in the sub catchment. The conditions anticipate that this plan is better to be prepared in collaboration with other consent holders in the sub catchment in order to achieve a more integrated approach. Prior to being submitted to the consent authority for certification, the plan will be reviewed by an appropriate qualified environmental scientist to ensure the monitoring and methodology proposed is sufficiently robust.
- 9.8 The conditions also require the consent holder to contribute towards the costs inherent in conducting water quality monitoring of the key lakes within the catchment (for example Lake Benmore). These conditions anticipate that this monitoring will be undertaken on a collective basis on behalf of all consent holders in the Upper Waitaki catchment by a suitable body. Alternatively the conditions allow for this monitoring to be undertaken by the consent authority.
- 9.9 If any of the above monitoring indicates that the nutrient values are reaching a set proportion of the maximum threshold limit as established for individual farms and sub catchments, then this will trigger an early warning response to be implemented by the consent holder. The conditions require that a report is prepared by an appropriately qualified person to assess the likely reasons for the increase in nutrient levels, and the likelihood of the maximum threshold being exceeded. The consent holder is then required to identify the best practicable measures for ensuring that the threshold is not exceeded. If the monitoring shows that the maximum threshold is exceeded, the conditions

require an immediate response. Monitoring is increased and if the results indicate that the threshold remains over the threshold limit for a number of weeks then the annual allocation of water shall be reduced for the subsequent irrigation season. The conditions also require the input from two appropriately qualified experts who will determine whether or not the exceedance is likely to have been caused by activities unrelated to irrigation and farm effluent disposal. If it is determined that the cause is unrelated to farm activities then monitoring can be reduced and the water take limitations can be lifted.

9.10 The conditions attached to the legal opening submissions will also provide for site specific matters relating to each property including construction, use and maintenance of structures, and discharges. The conditions will provide for management of the water take in accordance with agreements in place between Mackenzie Irrigation Company and Meridian. The take and land use conditions are also generally consistent with those proposed within the Section 42A reports.

9.11 It is my view that the conditions described generally above and those that will be submitted as part of the legal opening submissions form a comprehensive basis for appropriate mitigation, having considered all the relevant actual and potential effects.

10. CONCLUSIONS

10.1 The Applicants I represent to today seek to abstract water from Lake Ohau and/or the Ahuriri River and its tributaries. As outlined in the evidence the abstractions from Lake Ohau are minor, and will not have any discernible effect on water quantity. As confirmed in the evidence of Mr McIndoe the abstractions from the Ahuriri River will comply with the minimum flow and allocation regime established by the WCO. The cumulative abstraction is also consistent with the agreement between Meridian and the McKenzie Irrigation Company to make available a maximum quantity of 150 million cubic metres of water to be used for an additional irrigation of 25,000ha in the upper catchment. Mr McIndoe has also confirmed that the proposed abstraction rates represent a reasonable and efficient use of water.

10.2 The use of water for irrigation purposes and intensified agricultural use has been assessed by Dr Robson, Dr Bartlett and Dr Ryder. Increases in nutrient

levels in ground and surface waters will be mitigated through the preparation and implementation of a site specific FEMP as discussed in my evidence above. Site specific mitigation during the construction of intake structures and enhanced riparian management will also assist in managing the effects of intensified land use on the subject properties. In my view any localised adverse effects arising from a result of these proposals can be adequately mitigated, to a point where they are no more than minor.

- 10.3 As outlined in my evidence on behalf of MWRL, the WRP advocates a whole catchment approach when dealing with allocation issues and the effects that emanate from water allocation. The WQS prepared on behalf of MWRL provides farmers with appropriate methods for managing farming operations in order to successfully intensify productive activities, whilst at the same time ensuring that environmental bottom lines are maintained. The Applicants will adhere to the obligations inherent in the WQS, and this is achieved through the application of the conditions outlined in this evidence. In my opinion, the approach promoted in the conditions needs to be rigorously applied throughout the catchment. Subject to this occurring, it is my opinion that sustainable management of the Upper Waitaki Catchment will be achieved.
- 10.4 Based on the available evidence and having exercised broad overall judgement, it is my view that the applications are generally not contrary to the objectives and policies of the WCO, the RPS, the WRP and the proposed NRRP. The proposed abstractions will contribute significantly to the long term needs of the people and communities of the Upper Waitaki, and the use of water for irrigation and agricultural purposes will generate significant economic and social benefits for that community and the region.
- 10.5 In my opinion, all consents should be granted, subject to appropriate conditions of the nature described in the preceding section of my evidence.

J C KYLE

9 OCTOBER 2009

APPENDIX A

Summary of Recent Project Experience

- TrustPower Limited – Wairau Hydro Electric Power Scheme, water related consents
- TrustPower Limited - Proposed Wind Farm, Kaiwera Downs, Southland.
- Meridian Energy Limited – Project Hayes Wind Farm
- Meridian Energy Limited – Mokihinui Hydro Scheme
- Genesis Power Limited – Awhitu Wind Farm
- Genesis Power Limited – Tongariro Power Development, Water Related Consents
- Genesis Power Limited – Provision of advice regarding the preparation of appropriate Plan provision pertaining to the Huntly Power Station and Meremere sites.
- Williamson Holdings Limited – providing advice with respect to a large scale irrigation proposal in the Upper Waitaki catchment.
- Queenstown Airport Corporation – provision of resource management advice for the airport and its surrounds.
- Marlborough District Council – Business Park Plan Change
- Ravensdown Fertiliser Limited – Coastal and Air Discharge Consent Renewal
- Infinity Investment Group – Pegasus Town, Canterbury
- Infinity Investment Group – Hillend Station, Wanaka
- Infinity Investment Group – Peninsula Bay Plan Change, Wanaka
- Kuku Mara Partnerships – Large Scale Marine Farms, Marlborough
- Marine Farming Industry – Plan Appeals, Tasman Aquaculture Inquiry
- Armada Holdings – Luggate Village, Central Otago
- Willowridge Developments – 3 Parks Plan Change, Wanaka
- Ryman Healthcare – Rest Home and Hospital Facility, Roslyn, Dunedin
- Minaret Resources Limited – Sugarloaf Project, Lowburn, Central Otago
- Otago Land Group Limited – Mitre 10 Mega , Andersons Bay, Dunedin
- Otago Land Group Limited – Smiths City Redevelopment, Andersons Bay Dunedin
- Matukituki Trust – Residential Development, Roys Peninsula, Wanaka

- Nicholls Property Group – Commercial Development, George Street, Dunedin
- Department of Corrections – New Corrections Facility, Milton, Otago
- Department of Child Youth and Family – Youth Justice Facility, Rolleston, Canterbury
- Telecom New Zealand Limited – Mobile Phone and Landline Infrastructure Developments, South Island
- Southland District Council – Hearing Commissioner
- Environment Southland – Hearing Commissioner
- Southern Health – Rezoning Southern Hospital Development, Invercargill

APPENDIX B

Summary of Consents

APPENDIX C

Meridian Energy Limited – Derogation Approvals

APPENDIX D

Waitaki District Council Consents

APPENDIX E

Killermont Station ECan Consent for Intake Structure