

BEFORE THE CANTERBURY REGIONAL COUNCIL

IN THE MATTER OF

The Resource Management Act 1991

AND

IN THE MATTER OF

an application by **Grays Hills Station Limited**
filed under **CRC042661** for a water permit to
take and use surface water from two galleries in
a drain adjacent to Grays River for the irrigation
of Grays Hills Station, Haldon Road.

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

PART B – SITE SPECIFIC DECISION

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1 INTRODUCTION

- 1.1 This is a decision on an application by **Grays Hills Station Limited** (the applicant). It is one of many decisions we have made on 104 applications by various applicants for water permits and associated consents in the Upper Waitaki Catchment.
- 1.2 The decision should be read in combination with our Part A decision, which sets out our findings and approach to various catchment wide issues that are common to multiple applications. References to our Part A decision are made throughout this decision as appropriate.

2 THE PROPOSAL

- 2.1 The applicant proposes to take and use water from Grays River, via two galleries coming off two 'man-made drains' which act as tributaries to the Grays River. The applicant is seeking to abstract up to 100 litres per second with a volume not exceeding 1,140,000 cubic metres per year for the irrigation of 190 hectares within a 1,500 ha command area. The irrigation will be used to irrigate crops and pasture for sheep and beef feed.
- 2.2 The proposed galleries, for which the applicant had obtained consent (but which consent has since expired) are to be 15 m long, 10 m wide and 5 m deep. The galleries approximate locations are shown in Figure 1. The applicant has stated that the galleries will be designed to prevent the entrapment of fish.

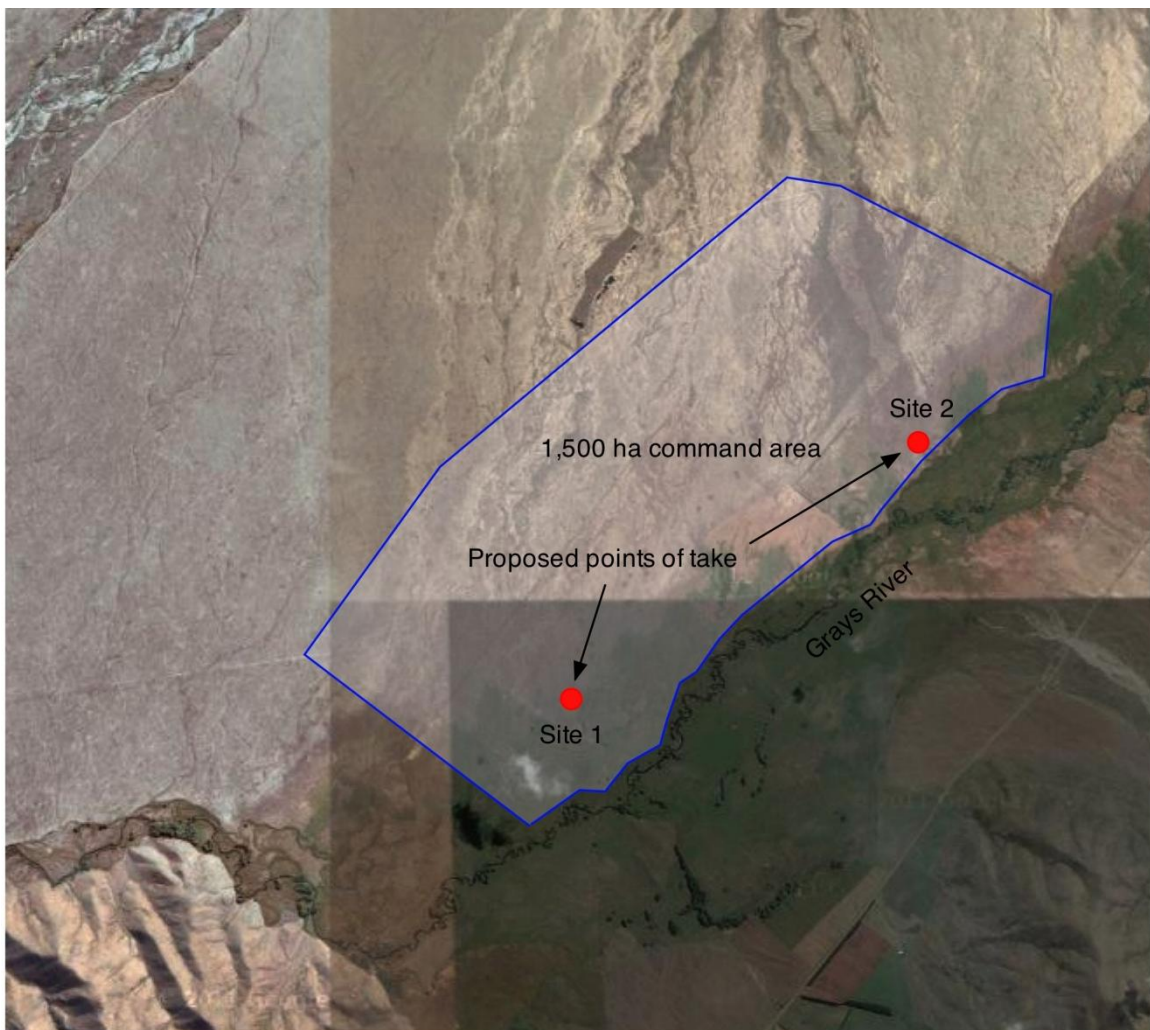


Figure 1. *Indicative location plan*

- 2.3 Water will be conveyed from the galleries through a piped system to the proposed centre pivot irrigator(s) within the 1,500 ha command area. We note that the applicant has not supplied any details relating to size and number of pivots or their approximate locations. The proposed annual

volume does not include any provision for stock water as the applicant considered that the provision of stockwater is covered by section 14(3)(b) of the RMA.

- 2.4 The applicant is proposing that the consent (if granted) be subject to a minimum flow, in the Grays River, of 1,500 litres per second (L/s) at Days Bridge. This proposed minimum flow is lower than that set in the Waitaki Catchment Water Allocation Regional Plan for Grays River (1,800 L/s).

The application

- 2.5 The application is for a water permit to take and use surface water pursuant section 14 of the RMA. Consent is required under the Waitaki Catchment Water Allocation Regional Plan (WCWARP), as discussed below.
- 2.6 The application (CRC042661) was lodged with the Canterbury Regional Council (the Council) on 3 June 2004, prior to the WCWARP becoming operative in July 2006. This application was publicly notified and there were a number of submissions that are referred to later in this decision. The application requested a consent duration until 30 April 2025.

Modifications since notification

- 2.7 Since the application was lodged, the applicant has reduced the rate of take from 200 to 100 L/s. Consequently, the total annual volume sought has also been reduced from 2,304,000 cubic metres (as notified) to the currently proposed 1,140,000 cubic metres. The irrigation area has also been reduced from 384 hectares (ha) to 190 hectares; however, the original 1,500 ha command area remains unchanged.
- 2.8 The general principle for modifications after notification is that amendments are allowed provided they do not increase the scale or intensity of the activity or significantly alter the character or effects of the proposal. The key consideration is prejudice to other parties by allowing the change. In this case, we are satisfied that the change does not significant alter the intensity or effects of the proposal and that no party would be adversely affected by allowing the change.

Related consents

- 2.9 A land use consent (CRC052657) has been granted (and subsequently expired) for the installation of the two galleries (I38/0057 and I380058) from which the proposed water would be taken. According to the S42A report no additional applications have been lodged with the Council by the applicant to construct the proposed galleries.
- 2.10 The applicant also holds Water Permit CRC022037.1 to take water from the Tekapo River for irrigation of 195 hectares of their land on the western side of Grays Hill. This irrigated area is located approximately 10 km to the southwest of the applicant's proposed irrigation site.

3 DESCRIPTION OF THE ENVIRONMENT

- 3.1 The following description of the environment was provided in the S42A Officer's reports referred to below and provides a brief overview of the environmental setting. Further description of the environment including watercourses, and land use are covered in our discussion of the applicant's evidence.
- 3.2 Grays River is a continuously flowing body of water, supported by flow from four main tributaries (Edwards and Sawdon Streams and the Mackenzie and Snow Rivers), a number of 'drains' and groundwater recharge the rivers lower reaches. The drains, which the proposed galleries extract water from, drain the distal end of the Tekapo outwash fan.
- 3.3 These drains flow all year round with flow rates estimated to range from 300 to 400 litres per second at one of the proposed take points and 200 to 300 litres at the other site (refer Figure 1). The drains are typically 1 to 1.5 metres wide, 1 to 1.5 metres deep with a flow depth of 300 millimetres. The drains provide habitat for native fish, benthic organisms, and trout juveniles in the lower reaches.
- 3.4 The Grays River is a reputable brown trout fishery and well used by anglers. In addition upland bullies, Canterbury galaxias, alpine galaxias, rainbow trout, and bignose galaxias have been found in the catchment. Additional species recorded in the New Zealand Freshwater Fish Database are common bully and longfin eel. Four native species (bignose galaxias, Canterbury

galaxias, longfinned eel and upland bully) are all found in the wetland, which forms part of the Grays River block, as shown on Figure 1.

- 3.5 The Grays River wetland on south side of Grays River is identified as a "Site of National Significance" and "Recommended Area for Protection". In addition, the Grays River, upstream of the gallery (Site 2), is a "Site of Significant Wildlife Interest" and a large section of the outwash plains are also identified as a "Recommended Area for Protection".
- 3.6 The proposed irrigation area is predominantly flat land at the base of the valley hills. The irrigation area is set approximately 2 km back from Haldon Road according to the S42A report but may be visible to traffic travelling along it but is unlikely to be visible to traffic travelling along State Highway 8. High voltage power lines owned by Transpower traverse the proposed irrigation area.
- 3.7 We detailed our site visits in Part A and we do not repeat this information here. We did not go onto the property but viewed the general command area from Haldon Road while travelling north toward State Highway 8, and on a fly-over during our helicopter reconnaissance flight.

4 PLANNING INSTRUMENTS

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

Status of the activity

- 4.3 In our Part A decision we provide a detailed discussion of our approach to determining the status of activities. We now apply that approach to the current application.
- 4.4 This application is listed in Schedule 2 of the Resource Management (Waitaki Catchment) Amendment Act 2004. Section 88A therefore does not apply and the relevant plan for this activity is the operative WCWARP.
- 4.5 The following rules from the WCWARP are applicable to this application:
- (a) Rule 2, clause (1) – The applicant proposes a minimum flow of 1,500 L/s in the Grays River at Days Bridge.
 - (i) This is less than the minimum flow required in Table 3 of the WCWARP (1,800 L/s) but equivalent to a revised 5-year 7-day low flow (5Y7DLW). The activity therefore does not comply with this rule. Table 3 of the WCWARP also states that no flow-sharing regime is required for Grays River.
 - (ii) The total rate of take of 100 L/s falls within the allocation limit set for Grays River (excluding the Sawdon and Edward Stream) of 500 litres per second.
 - (b) Rule 6 – The activity is within the allocation limit of 275 million cubic metres for agricultural activities upstream of Waitaki Dam.
 - (c) Rule 16 - Classifying rule – due to the non-compliance with Rule 2 the activity is classified as **non complying**.

- 4.6 Based on the above, the proposal as applied for would be classified as non-complying under Rule 16 of the WCWARP due to its non-compliance with the minimum flow for Grays River. However, for reasons that will become apparent later in this decision, we have not been prepared to accept a lower minimum flow and have therefore imposed the minimum flow from the WCWARP as a condition of consent. The consequence of this change is that the proposal no longer breaches Rule 2 of the WCWARP and we have therefore assessed it as a **discretionary** activity under Rule 15 of the WCWARP.

5 NOTIFICATION AND SUBMISSIONS

- 5.1 The application was publicly notified on 4 August 2009 and 21 submissions in total were received, including:
- (a) 3 in support;
 - (b) 16 in opposition; and
 - (c) 2 neither in support nor opposition.
- 5.2 Table 1 is based on the relevant s42A reports and summarises those submissions that directly referenced the application. In addition to those listed, there were other submitters that presented evidence at the hearing that was relevant to this application. The relevant evidence from submitters is discussed in more detail later in this decision. Please note that all submissions hold equal importance, even if not specifically listed below.

Table 1. Summary of submissions on application CRC042661

Submitter	Reasons	Position
Otamatapaio Station 1993 Ltd	Need to have flow sharing arrangement when river gets low	Oppose
Fish and Game NZ	Popular river for anglers, and game bird hunters. Potential cumulative effects on water quantity	Oppose
Meridian Energy Ltd	Concerned about allocation, water quality, metering and reasonable use	Oppose
Mackenzie Branch, Federated Farmers	Water is important for economic sustainability and farm viability/productivity	Support

- 5.3 Overall, the key effects of concern to submitters include effects on: ecosystems, water quality, allocation limits, minimum flows, natural character and landscape, efficiency of use and cultural values.

6 THE SECTION 42A REPORTS

- 6.1 A section 42A report on the application and submissions was prepared by the Council's Consent Investigating Officer, Ms Penman.
- 6.2 The primary report was supported by a number of specialist s42A reports prepared by Messrs Heller, Hanson, Glasson, McNae and Stewart, and Drs Clothier, Schallenberg, Meredith and Freeman. The key issues addressed by these reports were cumulative water quality effects, landscape effects, and environmental flow and level regimes.
- 6.3 All reports were pre-circulated in advance of the hearing. We have read and considered the content of the reports and refer to them as relevant throughout this decision. Specific points noted from the s42A report are summarised below.

Effects on Other Users

- 6.4 Ms Penman noted that the proposed abstraction is within the allocation limit for this water body. She added that there are no other consented users with the 'remainder of the Grays catchment' allocation.

- 6.5 Ms Penman noted that the applicant proposes to install a measuring device at the point of take in order to monitor how much water the applicant is taking. Ms Penman said that this should be a condition of consent. Given this and that the take is within the allocation limits, Ms Penman was satisfied that effects of the proposed activity on other water users in the Grays River catchment will be minor.

Minimum Flows

- 6.6 Ms Penman acknowledged that the adjusted proposed minimum flow (1,500 L/s) is equivalent to the 5Y7DLF, which is what is required as the minimum flow on "all other rivers and streams". She noted that the applicant stated that, ecological values in the river would be protected at the lower proposed minimum flow.
- 6.7 Mr Stewart (Hydrologist, Rain Effects Limited) was the S42A Officer for hydrological effects. His S42A report was divided into two parts. Part A provided an overview of the environment in the Waitaki catchment, the methods used to calculate a minimum flow and comments on the current minimum flows specified in the WCWARP. Part B of his S42A report provided a specific audit of each application, including Grays River.
- 6.8 Mr Stewart noted that the minimum flow for the Grays River in the WCWARP is 1,800 L/s. He confirmed that this is based on the 5Y7DLF for this site as calculated by the Council and acknowledged that in effect the underlying intention of the 1,800 L/s in the WCWARP is to specify the 5Y7DLF.
- 6.9 According to Mr Stewart it appears that when the Tekapo River was a natural flowing river, it contributed about 3,000 L/s to the Grays River in its lower reaches through groundwater interchange. He added that with the reduction of the Tekapo River's flows, the Grays River's flow, immediately upstream of its confluence with the Tekapo River, had fallen by about 3 cumecs.
- 6.10 Mr Stewart noted that after much discussion and new analyses, the applicant amended their proposal to include a minimum flow of 1,450 L/s. Mr Stewart noted that this has subsequently been increased to a minimum flow of 1,500 L/s. Mr Stewart agreed that a flow of 1,500 L/s should be adopted as the 5Y7DLF for the Grays River at Days Bridge.
- 6.11 The only way to properly determine a more reliable minimum flow is to undertake continuous flow measurement at the Days Bridge site for a period of at least 5 years according to Mr Stewart. He noted that the Council has proposed to install a continuous water level recorder at the Days Bridge site before the end of 2009.
- 6.12 If these applications are granted, Mr Stewart recommended that a minimum flow site for Grays River at Days Bridge is included and a flow of 1,500 L/s would be appropriate. He also recommended that the other provisions set out in Table 3 of the WCWARP for Grays River should apply.

Instream values

- 6.13 Ms Penman noted that the applicant proposes to screen fish on the intakes via a submerged gallery. However, the applicant has not yet specified the details of the minimum requirements for fish exclusion. In order to mitigate effects on ecosystems Ms Penman recommended that the intake galleries should be a minimum depth of 2 metres below the streambed level.
- 6.14 Ms Penman said that she was unable to determine potential effects on ecosystems given there were still submissions that were concerned with ecological values and minimum flows. She noted that the applicant has not provided a detailed assessment of potential effects of a lower minimum flow on ecosystems.

Water efficiency

- 6.15 Ms Penman noted that the applicant's proposed irrigation volume has been calculated based on a blanket allocation of 6,000 cubic metres per hectare as outlined by MIC. Ms Penman added that the applicant had undertaken an assessment of the required volume using method outlined in Policy 16(c) ii which resulted in an annual requirement of 1,216,000 m³/year.
- 6.16 Ms Penman used the Council's GIS system (to determine the required site specific values) and the same method as Ms Begley to audit the applicant's proposed annual volume. According to Ms Penman's calculation an annual volume of 811,300 cubic metres, would be a more appropriate

and efficient volume of water for spray irrigation of this area. Ms Penman recommended this volume in her S42A report.

Water Quality

- 6.17 In terms of effects at the local scale, Ms Penman noted that the applicant considered that effects on water quality will be minor. She noted that the applicant had stated that they are only proposing to increase from approximately 0.2 stock units per hectare to 1 stock unit per hectare which in her opinion was still very low.
- 6.18 Ms Penman noted that no nitrate assessment for the property has been provided and depth to groundwater is unknown. She added that several small tributaries of Grays River run through the proposed irrigation area and that some of the tributaries form a buffer strip along the length of the proposed irrigation area. She added that it may be appropriate to protect the surface water quality from runoff and leaching of nutrients as a result of irrigation. Given the above issues Ms Penman was not satisfied that the adverse effects on water quality from the proposed activity would be minor.

OVERSEER® Audit

- 6.19 Mr McNae undertook an audit of the applicant's OVERSEER modelling. In his initial assessment he flagged a number of potential issues with the applicant's modelling. He provided further comment in his addendum report, which is referred to later in this decision.

Landscape

- 6.20 During her site visit, Ms Penman noted that the proposed irrigation area is not visible from the main road (State Highway 8). However, it is visible from Haldon Road, although set back from the road approximately 2 km.
- 6.21 Ms Penman reviewed the Mackenzie District Plan and note that none of the land area subject to this application is designated as a Site of Natural Significance or a Scenic Viewing Area. However, there is a designated Scenic Viewing Area located between the Grays River and alongside Haldon Road.
- 6.22 Mr Glasson (Section 42A Officer for Landscape Effects) was of the view that adverse landscape effects would be significant. He said that this was due to the irrigation site and pump sheds proximity to Grays River and that it is unclear whether there will be a continuous irrigation pattern across the whole site. He added that no mitigation methods have been proposed.
- 6.23 Mr Glasson stated that adverse landscape effects could be reduced to a moderate - minor level by the use of mitigation methods. He recommended mitigation measures such as creating a natural riparian buffer of 50 m to the Grays River, undertaking irrigation across the site in a continuous pattern, and locating and treating the pump station in a recessive manner. Mr Glasson also added that to assist in maintaining the openness of this site there should be no shelterbelt planting on this site.
- 6.24 Given the conclusions reached by Mr Glasson and the absence of proposed mitigation, Ms Penman was not satisfied that the landscape effects on people, community and amenity values will be minor.

Cultural

- 6.25 Ms Penman noted that Te Runanga o Ngāi Tahu have raised concerns relating to mixing of waters between catchments, deterioration of water quality, dewatering and residual flows, changes to sediment flow and deposition and impacts on sites of cultural significance. Given that there are a number of submissions which identify cultural values, Ms Penman could not conclude whether the actual and potential effects on the cultural values of the area would be minor.

Statutory assessment

- 6.26 Ms Penman considered the relevant provisions of the RPS and WCWARP in her S42A report. In her view the proposal may be contrary to Policies 13, 15-16 of the WCWARP. This is due to there being potential effects on water quality and the applicant has proposed no mitigation in the form of a FEMP. It is noted by the Panel that since Ms Penman wrote her S42A report, the applicant has provided a FEMP. In addition, Ms Penman could not make a conclusion about whether the

application is consistent with Objective 1 given the number of submissions to be heard, particularly in relation to cultural values.

- 6.27 Ms Penman concluded that the proposed water permit is a non-complying activity and must be considered in the context of S104D of the RMA. Ms Penman reiterated that she was not satisfied that the adverse effects of the proposed activity on the environment will be minor when taking into account the proposed mitigation. In particular, she stated effects on water quality, ecosystems (as a result of a lower minimum flow than in the WCWARP) efficiency, landscape and cultural values.
- 6.28 In regards to Part II of the RMA Ms Penman noted that the proposal would allow the development of land to occur, which may provide for the economic and social well-being of the community. The applicant however has not proposed measures to 'safeguard the life-supporting capacity of water' and 'avoid, remedy or mitigate' the potential impacts on surface water quality and landscape values as required in Section 5(2)(c). She added nor had the applicant provided information to confirm that the proposed annual volumes requested are reasonable and consistent with the objectives of Section 5(2)(a), which aims to provide for the needs of future generations. Ms Penman also noted that in her opinion the proposed activities may not meet all the relevant provisions of Section 6 and 7 of the RMA

7 THE APPLICANT'S CASE

- 7.1 Legal counsel for the applicant, Mr Ewan Chapman, presented opening submissions and called three witnesses as follows:
- (a) Mr Mark Urquhart – Owner
 - (b) Ms Cathy Begley – Consultant
 - (c) Mr Richard de Joux – Hydrologist
- 7.2 In addition general briefs of evidence on behalf of all UWAG applicants were presented by Mr Robert Batty (Planner), Mr Andrew McFarlane (Farm Management Consultant) and Mr Andrew Craig (Landscape Architect). We have summarised the key points from submissions in evidence below.

Opening legal submissions

- 7.3 The applicant is part of the Upper Waitaki Applicant Group (UWAG), as described in our Part A decision. Mr Ewan Chapman presented comprehensive opening legal submissions on behalf of all UWAG applicants. He said that there may be matters of a specific legal nature relating to certain applications and those issues will be raised when the specifics of the applications were discussed in closing.
- 7.4 Mr Chapman told us that UWAG represents some 72% of all applicants for water takes. This equates to 31% of the total water volume applied for (excluding stockwater and non-consumptive diverts) and 29% of the total irrigable area.
- 7.5 Mr Chapman emphasised that despite the collective approach adopted for these hearings, each application needs to be considered in isolation from others (allowing for priorities). However Mr Chapman noted that UWAG is not producing any other evidence to support its own assessments of cumulative effects and adopts the MWRL evidence to the extent that it defines nodal thresholds.
- 7.6 While raising some challenge to the outcomes of the mitigation measures proposed by MWRL resulting from the WQS study, Mr Chapman told us that the UWAG members were not presenting their case to say that they cannot or will not meet an area-based NDA threshold. To the contrary, he said that we would be shown that they have taken the model and applied it to all properties and will, with mitigation, meet the thresholds.
- 7.7 Mr Chapman then addressed us on the issue of allocation of assimilative capacity. He contended the approach taken by MWRL that essentially resulted in some farming units mitigating for the nutrient loss of other farming units, was inappropriate. He submitted a more appropriate method of allocation is on the basis of productive use of land. The productive use of the land he said represents the level of nutrient discharge of each farming unit and that should be used; and that

the method of allocation based on dividing allocation on a per hectare basis should not be utilised.

- 7.8 He submitted that by assessing allocation of assimilative capacity on the basis of productive land use to reflect the NDA for each unit, these methods would be more representative and realistic of the nutrient discharge of each farming unit.
- 7.9 In terms of conditions concerning the nodal approach, he told us the essential issue lies with pinpointing who is exceeding their NDA if exceedances are detected at the nodal point. He told us the UWAG applicants' preference is for on-farm management of total nutrient discharge and annual auditing of individual FEMPs. He then referred us to a draft condition from the Rakaia Selwyn groundwater zone hearing, noting it was a very much site-specific condition.
- 7.10 He submitted that on-farm monitoring should be favoured over monitoring at nodal points. He said this did bring in the practicalities of the purpose of employing the FEMP with the result that if a breach of the FEMP occurs, the consent authority would have control to enforce the conditions of the consent against the individual applicant. It also reflects the reality that each farm will be different depending on the type of activity that is undertaken on that farm with their individual tailored farming management practices.
- 7.11 Mr Chapman also said that UWAG had not tabled a final set of conditions or final farm management plans. These matters would be worked through and provided to all parties as the hearing progressed. UWAG was of the view that one suite of conditions was inappropriate. There were variables between sub-catchments, take points, and the "type" of consent applied for which would mean that individual conditions would need to be worked through.

Owner's Submission

- 7.12 **Mr Mark Urquhart** (Owner, Grays Hill Station Limited) explained that they currently run 15,000 sheep (12,000 su) and 400 cattle (1,800 su) on the Station. He explained that the station is mainly flat barren land with light soils and low rainfall with extremely hot summers and long cold winters. Consequently, he told us, this makes the farm prone to drought and highly erodible.
- 7.13 Mr Urquhart told us that he is a third generation farmer and one of his key farming drivers is to be able to give his children the opportunity to farm this land in a better state in the future than it was in the past. According to Mr Urquhart, to achieve this long-term viability he must lessen the threats to the business. He explained the main threat is low rainfall at an average of 425 mm per year; consequently strategic irrigation is the most effective farming policy for the future.
- 7.14 Mr Urquhart then described the current farming practises, which include trading merino wool, and producing lambs sold at 'store' and 'prime'. They retain ~4,000 for replacements or sell on a premium schedule in spring. Mr Urquhart noted that this regime is high cost if feed is short however, if adequate feed is available, both premium and spring markets can be made.
- 7.15 Mr Urquhart explained that the major goal of this application is to improve their lamb growth rates, and market options, by being able to take their store sales through the winter if they choose to. Consequently, as a result of the proposed irrigation, they will have both more lambs and better weights.
- 7.16 According to Mr Urquhart their beef system is simple yet also vital for their stock management. He explained that they have a potential high pasture growth in spring and need to control this flush of growth with the beef stock. They currently run 300 Angus beef cows and sell 220 – 250 calves annually. He explained that the irrigation would enable them to maximise their utilisation of these calves and give the option of taking them through to prime weights.
- 7.17 The benefits of irrigation on these fragile soils are high according to Mr Urquhart, as production can soar from less than one stock unit per hectare to up to 15 stock units per hectare. He expected the irrigation on Grays Hills would increase their stock from 13,500 stock units to 17,500. He explained that this would not only help sustain their farming systems with improved production and reliability but it will have several flow-on effects for the local community.
- 7.18 Mr Urquhart stated that they calculated the area of irrigation applied for carefully to give the scale of development needed to strengthen and grow their current system, but not to develop a new one.

- 7.19 Mr Urquhart acknowledged the importance of the Waitaki River and its hydro energy supply to the nation but added, in his view, it must also complement the future welfare issues of the people living in the catchment. In his opinion, there is currently a poor balance between national electricity generation, national environmental protection and the local community's future.
- 7.20 Mr Urquhart explained that the property's western boundary adjoins the Tekapo River for the majority of its length and he provided details of the rivers flow regime. In Mr Urquhart's view the Tekapo River has now all but lost its ability to function and support an ecosystem due to a loss of spring flushing flows and reduction in regular average flows from the hydro developments.
- 7.21 He stated that reduced flows in the Tekapo River have resulted in normal flows in Grays River being halved due to the lack of groundwater inputs. According to Mr Urquhart, a large flow in the Tekapo River pushes water sideways through the underlying shingle that acts to raise the ground water levels throughout the eastern side of the basin including Grays River.
- 7.22 Mr Urquhart said that they would like to, one day transfer their current water take from Lake George Scott to the Upper Grays River which would help enhance the Upper Tekapo's spawning grounds.
- 7.23 Mr Urquhart noted that protecting the instream values of Grays River is very important to them, and can be enhanced if the farms viability is also enhanced. He said that the proposed development would be carried out at least 500 metres from the road and at least 50 metres from Grays Creek, avoiding viewing issues and stream contamination problems as much as possible. He noted that they have undertaken to fence out 75 ha of their best swamp eco-system, and some smaller areas of stream banks. However, he added that general fencing of streams would be a huge task and one that would have stock management issues, as well as being a constant flood risk.
- 7.24 According to Mr Urquhart soil loss in the Basin is the greatest issue they have to deal with. He explained that soils are fragile and with low rainfall plus hard winter frosts the soils are constantly open to the environment for erosion and often blown away. The proposed irrigation system would not only conserve soil but also grow soil. He added that they intend to use minimum cultivation and establish shelter on the outside of the irrigated areas to further reduce this risk of soil erosion.
- 7.25 Mr Urquhart then told us that the estimated soil loss from their property was 2.2 tonnes per hectare per year and noted that this cannot continue without devastating environmental effects. In his opinion stock cannot take the sole blame for this and it is clear the rabbit population is the best soil 'mover'.
- 7.26 Mr Urquhart concluded his evidence by stating 'doing nothing and making no changes is not an option either he or the nation can afford'.

Overview of the proposed irrigation activity

- 7.27 **Ms Cathy Begley** (consultant GHD Ltd) provided an overview of the application. She explained that the applicant applied for Land Use Consent CRC052657 on the 5 March 2005 to install the two galleries (I38/0057 and I38/0058). This consent was granted in April 2005 and expired in April 2008 without either of the galleries being installed. Ms Begley acknowledged that the application originally sought to take water directly from the drain but has been amended to take water from two galleries located outside the bed of the drain.
- 7.28 Ms Begley included details of the applicant's farm in which she noted that irrigation of the 190 ha is a very important step for the applicant to ensure that they are able to continue to farm the leasehold area in the long-term. Having irrigation also provides the applicant some options prior to entering tenure review, in which potentially half on the farm could be returned to conservation land. She added that with irrigation the applicant would be able to maintain the current stocking rates, even with a reduced farm area.
- 7.29 Ms Begley then outlined the submissions that have been received on the application. She noted that with respect to the LINZ submission, the applicant has gained consent from LINZ to cultivate up to 400 ha of pastoral lease land. She noted that irrigation of cultivated pastoral lease land being a 'permitted activity'.
- 7.30 With respect to F & G's submission, the applicant is proposing an alternative minimum flow (to that in the WCWARP) regime of 1,500 L/s to be measured at Days Bridge. Ms Begley noted that F

& G have agreed that the proposed alternative minimum flow is appropriate. We note that this is not quite the case, as discussed further below.

- 7.31 Ms Begley then provided an assessment of the environmental effects. This assessment included evidence from other expert witnesses representing the applicant. These experts evidence, along with Ms Begley's evidence, have been incorporated in the following paragraphs.

Other Water Users

- 7.32 Ms Begley noted that there are no bores or galleries within a 2 km radius of the applicant's proposed galleries. Therefore, she said, the proposed take from these galleries will not impact upon any other groundwater user. To determine the level of hydraulic connection between the galleries and the drain, she undertook a stream depletion model. Ms Begley's evidence included a description of the assumptions she used in the model
- 7.33 According to Ms Begley the stream depletion model showed that the galleries have a high connection to the unnamed drains. As such the proposed takes will impact not only on the drain flows, but also the Grays River into which the drains flow.
- 7.34 As a result of this Ms Begley acknowledged there is the potential for the proposed take to impact upon other users of the Grays River. She added that the Grampians Station (A N Hope) proposes to take surface water from the Grays River both downstream and upstream of where the two drains meet the Grays River.
- 7.35 While the applicants proposed takes are within the overall allocation limit for the Grays River, there is always the potential that the two competing users could impact upon each other. To ensure that the two competing users do not impact upon each other Ms Begley explained that a water users group is to be established.

Instream values

- 7.36 Ms Begley noted that the minimum flow, specified in the WCWARP (1,800 L/s) along with the allocation regime, aim to ensure that not only the aquatic values of Grays River are protected, but also the aquatic values of the lower Tekapo River. This is because the Grays River, along with a number of other waterways, is one of the main sources of water in the lower Tekapo River.
- 7.37 Ms Begley noted that aquatic ecosystems are one of the values that Policy 4 (setting minimum flows) of the WCWARP aims to protect. Given that the alternative minimum flow is not contrary to Policy 4 (as it is based on a re-calculated 5Y7DLF) Ms Begley noted that the proposed minimum flow would also provide adequate protection to the in-stream values.

Minimum flow

- 7.38 **Mr Richard de Joux** (hydrologist and hydrogeologist, Environmental Consultancy Services Ltd) described the setting of the Grays River in his evidence. He detailed previous estimates of the 5Y7DLF, based on historic gaugings, and noted that correlation was poor. He added that it was his understanding that this correlation was used to determine the current minimum flow of 1,800 L/s at Days Bridge.
- 7.39 Mr de Joux commented that the reduced flows in the Tekapo River, from hydro-development in the 1980's had affected groundwater flow into the Grays River. He calculated the relevant contribution based on more recent gauging and correlation with the Forks River. In his opinion the reduced flows within the Tekapo River have reduced flows in Grays River, at Days Bridge by approximately 500 L/s. He estimated the 5Y7DLF was 1,238 L/s, but acknowledged that the correlation coefficient was poor. He noted that Council Staff disagreed with this assessment.
- 7.40 Council staff were of the view that a better correlation of Grays River flows could be obtained using the Mary Burn flow recorder site. Using that information, Mr de Joux obtained a correlation of 0.8736 and an estimated 5Y7DLF for the Grays River of 1,570 L/s.
- 7.41 Mr de Joux then calculated the 5Y7DLF based available data for 2007-2008 gaugings, which were undertaken during low to median flow range. This estimate provided a correlation coefficient of 0.9637 and in Mr De Joux view is superior to any previously obtained correlation. The estimated 5Y7DLF from this data is 1,450 L/s.

- 7.42 Mr de Joux concluded that in his opinion, it is clear that there has been a reduction in flow rates within the Grays River since the 1980's. For this reason he does not believe it is justifiable to include all historic gaugings (pre Tekapo diversion) when trying to derive a 5Y7DLF minimum flow that is representative of the present day hydrology.
- 7.43 Mr de Joux initially recommended that the minimum flow for the Grays River at Days Bridge should be 1,240 L/s. However he noted that there had been discussions between the applicant, Council staff and submitters regarding an appropriate minimum flow for the Grays River at Days Bridge. This discussion resulted in an agreement of 1,500 L/s as the most appropriate flow for the 5Y7DLF at Days Bridge. Mr de Joux added that it is understood that this flow would be reviewed once more accurate assessments of the flow are obtained following the installation of a flow recorder at Days Bridge.

Water efficiency

- 7.44 This application proposes an annual volume of 1,140,000 m³/year, which is based on the applicant's MIC shareholding (6,000 m³/ha/year). Ms Begley noted that traditionally two methods have been used to determine whether the use of water for irrigation is efficient. The first method is ensuring that the peak application rate is no more than half the water holding capacity of the soil. The second method is through the implementation of an annual volume using one of the two methods set out in Policy 16 (c) of the WCWARP.
- 7.45 The applicant will be applying no more than between 13.6 mm and 31.5 mm per 3 - 7 days, which is no more than half of the average water holding capacity of the soil according to Ms Begley. As such Ms Begley determined the take to be an efficient use of water under this assessment.
- 7.46 Using the soil profiles set out in her evidence Ms Begley determined that an annual volume of 1,129,800 m³/year would be appropriate under Policy 16 (c) ii of the WCWARP. Ms Begley noted that her calculated volume differs significantly from Ms Penman's recommended volume in her S42A report of 811,300 m³/year (that in her opinion used the same method and data).
- 7.47 Ms Begley then noted that Policy 16 (c) (i) of the WCWARP sets an alternative methodology for determining annual irrigation volumes. Based on the Irricalc model (which Ms Begley noted 'complies' with this policy), she calculated a volume of 1,190,512 m³/year would be acceptable. According to Ms Begley as the proposed annual volume is less than the annual volume determined using this methodology it demonstrates an efficient use of water.

Water quality

- 7.48 In her evidence Ms Begley compared the predicted OVERSEER® nutrient discharges to that of the MWLR derived nutrient thresholds. Ms Begley noted that the results of the modelling revealed that the applicant would be able to meet the proposed property thresholds.
- 7.49 In addition to this Ms Begley stated that the applicant is committed to implementing the 'Mandatory Good Agricultural Practices' set out within the Farm Environmental Management Plan (FEMP). According to her implementing these practices would ensure that the OVERSEER® results are validated. This along with ensuring that the property thresholds of the WQS are not exceeded will ensure that the cumulative effects of the use of water for irrigation on water quality are no more than minor.

Cultural

- 7.50 Ms Begley noted that Te Runanga O Ngāi Tahu submitted on all applications in the catchment, seeking that all applications be declined. The primary reasons for this stance was that the applications were considered to be inconsistent with the policies and objectives of the WCWARP, and also at odds with the cultural objectives of the RMA.
- 7.51 Ms Begley acknowledged that Te Runanga O Ngāi Tahu have a significant relationship with the Waitaki Catchment, and as such, appropriate minimum flow conditions, and management of water quality effects is proposed by the applicant to ensure that the potential effects on the environment, including tangata whenua values, are minor.

Mr Andrew Craig – landscape architect

- 7.52 Mr Andrew Craig gave his evidence in two parts. The first part dealt with the general landscape and his overview of the Upper Waitaki landscape and its values. The second part of his evidence dealt more directly with the individual applications.
- 7.53 In his part A evidence, Mr Craig discussed in detail Mr Glasson's mitigation approach and tools, and addressed us on statutory matters concerning the effects of landscape. Broadly, for reasons advanced in Part A, we agree with Mr Craig's assessment of the statutory planning documents in terms of landscape.
- 7.54 Unlike other applications by UWAG members, Mr Craig did not present a separate brief of evidence in respect of the current application. The reason for this was that he only prepared a separate brief of evidence where he considered the proposed irrigation was on a sensitive site. Visual sensitivity was determined by the location of publicly accessible vantage points and the views that could be had from them in relation to irrigation areas. In relation to the current application, Mr Craig considered that it was not a sensitive location in terms of landscape and that the proposal would therefore not negatively impact on landscape values.

Mr Robert Batty, planner

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

Mr Andrew Macfarlane, farm management consultant

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

Farm Environmental Management Plan

- 7.64 The final Farm Environmental Management Plan (FEMP) was tabled in November 2010
- 7.65 The FEMP described Grays Hill Station as comprising 21,900 ha property on Haldon Road north of Lake Benmore, of which half the property is freehold with the remaining half of the property being pastoral lease. The farm has approximately 290 ha of existing irrigation located to the south of the proposed irrigation.
- 7.66 Currently Grays Hill Station rears 12357 su of sheep, and 2972 su of cattle. The proposed irrigation will not change core farming practices on the station, but will enable 30% more stock to be carried. Overall sustainability will improve and the marketing of product will become a lot more assured. The risk of drought will be diminished but not eliminated and the farming system will be more stable. The main plant species on the irrigated area will be lucerne (two thirds) with the remainder in ryegrass or ryecorn.
- 7.67 The FEMP stated that the soils in this area are very light and easily eroded by wind, and therefore cropping large areas of land has to be undertaken with extreme care. It also means that this area is under constant threat from weed and pest species.
- 7.68 The station gets 400-425 mm rainfall annually and has very hot summers up to 35°C and very cold winters (-20°C).
- 7.69 Gray Hills, according to the WQS, lays in the Tekapo River groundwater catchments and direct to Lake Benmore, Grays, Tekapo and Stony River surface water catchments. The FEMP noted that for this farm, the Lake Benmore mitigation requirements were the most stringent. These mitigation requirements (NDA) cap Gray Hills Station's nutrient discharges at 64,114 kg N per annum and 1,374 kg P per annum. We note that Table 3 of the FEMP reports that 0.1 kg P/ha irrigated land of additional mitigation is required (in addition to GAP) in order to meet the WQS stream periphyton guideline, whereas zero (N or P) mitigation is reported as being necessary for Lake Benmore. Therefore the statement that Lake Benmore requirements were most stringent is incorrect.
- 7.70 The FEMP reported that total nutrient losses modelled by OVERSEER® for the proposed farming system were 50,649 and 1,162 kg N and P per year, respectively, which was within the WQS NDA reported above.
- 7.71 We note that the FERA for Grays Hill Station was not completed with the same rigour as other FEMPs we have sighted at this hearing. No guidance is given to the reader as to which risks are most critical, and in fact the general tenor of the FERA is that no changes to farm management are required to mitigate any environmental risks. The FERA notes, however, that (i) the proposed pivots will be ring fenced thus not allowing the stock to freely access the nearby streams, and (ii) the irrigation will not be sited near any permanent water courses
- 7.72 This criticism notwithstanding, the FEMP proposes specific measures to mitigate environmental risk to waterways. These include:
- (a) Fencing off any streams that may run through any green feed areas, if stock are not in these paddocks for large periods of the year then a temporary fence will be adequate
 - (b) Fence off the Grays River as much as possible to restrict stock access to the river
 - (c) 20 metre layback from any water way when applying fertiliser by land based application e.g. bulk spreader
 - (d) Maintain a 5-11 metre irrigation buffer from any water ways (Grays River)
 - (e) Either plant a riparian margin, a filtration zone, or look at putting in a stilling basin 3 as detailed on the map found on p15 of the FEMP.
- 7.73 We note that the 5-11 m irrigation buffer from Grays River is incompatible with the proposed 20m layback from waterways when applying fertiliser. We return to this point later.
- 7.74 The FEMP proposes quarterly surface water quality monitoring of nutrients at upstream and downstream sites on Grays River for 5 years, followed by a review. We note that the only action

arising from a breach of the trigger (no significant decrease in water quality) is a root cause analysis.

8 SUBMITTERS

- 8.1 Set out below is the summary of the issues raised by submitters who appeared before us. We emphasise that we have read and considered all submissions made, both in support and in opposition to the application, as well as reviewing and carefully considering evidence advanced before us.

Minimum flow

- 8.2 Mr Frank Scarf (representing Fish and Game as a Hydrologist) stated the only issue (from Fish and Game's perspective) surrounding the proposed water takes from the Grays River relates to minimum flow. Following detailed analysis of concurrent gauging data Mr Scarf acknowledged that there is consensus among hydrologists acting for various parties that the 5Y7DLF for Grays River at Days Bridge is ~1,500 L/s and less than the 1,800 L/s referred to in the WCWARP.
- 8.3 Mr Scarf noted that he was satisfied that if the Waitaki Catchment Water Allocation Board (which set the flow in the WCWARP) intended that a 5Y7DLF equivalent is appropriate for the Grays River, then 1,500 L/s is the best estimate at this time.
- 8.4 Despite this, Mr Scarf put forward his view that any parties seeking to change any of the minimum flows and allocation provisions established by the WCWARP should do so through a Plan change as opposed to the consents process. In the event that a Plan change is sought, he would support an application to reduce the minimum flow from 1,800 L/s to 1,500 L/s. However until that occurs, if the application is granted it should, in his opinion, be restricted to a minimum flow of 1,800 L/s at Days Bridge. He also added that the applicant should be restricted to the annual volumes detailed in the S42A Report.

Instream values

- 8.5 Mark Webb (representing Fish and Game as a sports fish and game bird ecologist) provided an overview of the Grays River Trout fishery. He noted that trout spawning surveys over three years suggest spawning use of the Grays River is currently quite stable and amounts to about 100 brown trout and 100 rainbow trout annually. Mr Graeme Hughes (Fish and Game Officer) also provided a description of the Grays River and its trout fishery.
- 8.6 Mr Webb noted that there are no issues of significance in the area of the applicant's intake drain for trout or game birds and their habitats. However he shared Mr Scarf's opinion that the minimum flow should be 1,800 L/s at Days Bridge as provided in the Plan. He considered that the consent application process does not provide the opportunity for review of minimum flows in the Plan.

Landscape and Vegetation

- 8.7 Ms Di Lucas (Landscape Architect representing Mackenzie Guardians) noted the applicant's proposed irrigation site is located on an outwash terrace close to the Grays River and crossed by the Edwards Stream. In her view the site is only 19% converted to farming/cultivation and has an overall naturalness rating of 2 (semi-natural grassland, with some remaining biodiversity, degraded or improved).
- 8.8 In terms of view locations Ms Lucas noted that the site is overviewed from the Mackenzie Pass, from Mt John, and from various locations on Haldon Road. In her opinion it forms part of the vast, open naturalistic basin landscape as viewed from SH8 in the north and in the east. Ms Lucas noted that the scale of the site, its open and seamless character to the basin has long been celebrated in art of which she provided examples in her evidence.
- 8.9 In her opinion the introduction of extensive irrigation development would dramatically change this landscape. She also added that as the proposed irrigation area is pastoral lease and shelterbelt establishment would be recommended with the cultivation consent. In her opinion any shelterbelts would exacerbate effects on the outstanding natural landscape, heritage and amenity values. We note that it is not clear from Ms Lucas's evidence which body would require shelterbelts.

- 8.10 The buffering of riparian areas proposed by Mr Glasson is inappropriate mitigation according to Ms Lucas. She concluded, therefore, that the proposed irrigation development is inappropriate.
- 8.11 Dr Susan Walker (Plant Ecologist representing Mackenzie Guardians) categorised this application as of 'greatest' concerns for potential effects on terrestrial ecology (her Appendix 15). Specifically she noted that little current information on terrestrial biodiversity within the proposed irrigation site existed. She added that the proposed irrigation site is a largely undeveloped outwash plain, likely to be habitat for threatened species, and makes an important contribution to intact ecological sequences in the north and east of the Mackenzie Basin.

Derogation Approval

- 8.12 Mr Richard Turner (Meridian Energy Limited) identified that there are discrepancies between the applicant's proposed consent conditions and those common consent conditions agreed with MEL prior to derogation approval being acquired. Mr Turner's evidence acknowledged that a number of applications from this hearing contain these discrepancies.

Cultural values

- 8.13 Mr Horgan told us that Ngāi Tahu had taken a balanced approach when assessing the applications and resisted the temptation to simply oppose all applications in their entirety. More particularly, Ngāi Tahu generally placed its emphasis upon the new (rather than replacement) consent applications and on those that will result in large scale land-use intensification, rather than the taking of water, so as to provide security of supply for existing farming operations.
- 8.14 Mr Horgan told us that Ngāi Tahu had adopted two focal points against which they assessed the applications. The Lower Tekapo River and the upper Haldon Arm were considered jointly to be among the most acute receiving environments for the discharge of nutrients from the irrigation proposals before this hearing. He told us it was also a location where Ngāi Tahu proposes to undertake mahinga kai restoration.
- 8.15 Mr Horgan told us that Ngāi Tahu have an enduring relationship with the Upper Waitaki that is sacred to them and believe that where there is uncertainty about the environmental effects of the proposals a precautionary approach should be adopted.

9 UPDATES TO THE SECTION 42A REPORTS

Instream values

- 9.1 In her Section 42A addendum (post-hearing) Ms Penman noted that the evidence presented by Mr Webb and Mr Scarf for Fish & Game, identified a concern with the proposed minimum flow being sought outside of a plan change. However, despite the lack of a detailed assessment of effects on instream values from a lower minimum flow than given in the WCWARP, Ms Penman stated that she is satisfied that the minimum flow proposed by the applicant has taken into consideration the matters outlined in Policy 4 of the WCWARP. Consequently, she considered that effects on ecosystems no longer remain a concern.

Water efficiency

- 9.2 In her S42A addendum Ms Penman noted that Ms Begley, in her evidence at the hearing, had recalculated the annual volume using Schedule WQN9v2 (Policy 16 (c) ii) of the WCWARP to be 1,129,800 cubic metres per year. Using the same parameters, as Ms Begley, Ms Penman also recalculated her initial recommendation (811,300 m³/year) and stated that 1,101,050 m³/year would represent an efficient use.
- 9.3 In her evidence at the hearing Ms Begley had provided an alternative assessment of efficient use using the Irricalc model of 1,190,515 m³ / year (refer #6.36). Ms Penman stated in her S42A addendum that provided a favourable comparison of the Irricalc input parameters against site specific field measurements is undertaken prior to granting of consent, she would be satisfied that the proposed volume is reasonable for the property. We note that the applicant has provided no such comparison.
- 9.4 Ms Penman also considered that an efficiency condition is appropriate to ensure that water is not applied to the soils above their average water holding capacity, nor onto unproductive areas of land. The applicant has not allowed for any conveyance losses within the proposed annual

volume. However, as this is a new activity, and the water will be piped from the intake points to the irrigation system Ms Penman considered that it is consistent with Policy 19 of the WCWARP.

Water Quality

- 9.5 In her Section 42A report addendum Ms Penman noted that the draft FEMP and water quality assessment provided by Ms Begley and MWRL had been audited by the Council's technical experts. They considered that there are some uncertainties about potential adverse effects and suggested either more information is provided or strict monitoring and response conditions are needed to address cumulative water quality affects.

OVERSEER® Audit

- 9.6 In Mr McNae's S42A addendum he stated that he had received a response from the applicant regarding his initial comments and the only outstanding issues were the use of the 'developed' setting and missing values for 'advanced livestock reconciliation'.
- 9.7 Regarding the omission of advanced livestock reconciliation he noted that a number of applicants stated that 'the farmer gave accurate stock unit figure so no advance stock reconciliation is required'. Mr McNae stated this approach is acceptable provided that the applicant has a strong understanding of what defines the stated stock units as required by OVERSEER.
- 9.8 Regarding the use of the developed setting Mr McNae noted that this appears to have been left as developed based on further evidence presented to hearing by Mr McFarlane. In his evidence Mr McFarlane noted that given his knowledge of high country farms, it is unlikely in his opinion that this property could reach a highly developed state.

Landscape

- 9.9 In her S42A addendum Ms Penman noted that Mr Glasson's opinion has not changed from his original S42A Report. She added that Mr Glasson still considered that without appropriate mitigation (i.e. buffers from river and riparian planting) the effects would not be acceptable.

10 APPLICANT'S RIGHT OF REPLY

- 10.1 As for his opening, Mr Chapman's right of reply was presented on behalf of all UWAG members. However he also provided some specific comment on individual proposals.
- 10.2 In relation to this particular application, Mr Chapman challenged Mr Chris Glasson's recommendation (addendum evidence #36) that there should be no shelter belt planting on the site to assist retaining the openness of this location. Mr Chapman said that:
- (a) this is outside of the scope of what we (the Commissioners) are able to control, and,
 - (b) he noted that the Mackenzie District Plan, which in his submission is a more appropriate planning document to be controlling such aspects, permits the planting of shelter belts within this area, provided certain conditions are met.
- 10.3 Mr Chapman also challenged Ms Penman's recommendation that Grays (and Hope) install a minimum flow site at Days Bridge on the Grays River. Mr Chapman said this was unnecessary as ECan already have a flow recorder at this site.
- 10.4 Turning to more general comments, Mr Chapman challenged Dr Freeman's Table 5, contained within his first addendum report dated 12 January 2010. Mr Chapman contended the list was flawed and considered the correct approach for the ranking of the applications was to determine where they sit in relation to the existing environment.
- 10.5 He noted there had been much emphasis on nutrient management but he contended we should also be considering sustainability of the erosion-prone fragile soils within the catchment. He also submitted we should take note that district plans encourage farming, including irrigation, within these environments; and the tenure review undertaken by the Crown encourages intensification of land use retained in freeholding ownership in order to release more vulnerable pastures to be set aside under Crown ownership.

- 10.6 He also contended we should consider economic implications on the survival of these farms given their investment in infrastructure as a factor. He also noted we should take into account managing the land in light of weed and pest problems and how irrigation assists in that regard.
- 10.7 In terms of staging of implementation, Mr Chapman told us that undoubtedly those UWAG applicants, this applicant among them, may choose to stage the introduction of a new system of irrigation.
- 10.8 We did subsequently receive from Mr Chapman generic conditions and revised FEMPs applicable to all the UWAG applicants.

11 STATUTORY CONTEXT

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

12 EVALUATION OF EFFECTS

- 12.1 Drawing on our review of the application documents, the submissions, the Officers' Reports, the evidence presented at the hearing and our site inspection, we have concluded that the effects we should have regard to are:
- (a) Take issues:
 - (i) Minimum flows
 - (ii) Fish screening
 - (b) Use issues
 - (i) Water efficiency
 - (ii) Landscape
 - (iii) Terrestrial Ecology
 - (iv) Water Quality
 - (v) Cultural
 - (c) Positive effects

Take issues

Minimum Flows

- 12.2 The applicant has proposed a minimum flow on Grays River at Days Bridge of 1,500 L/s compared with the 1,800 L/s specified in Table 3 of the WCWARP. Whilst all affected parties (applicant, ECAN, Fish & Game) agree that 1,500 L/s is the best estimate of 5Y7DLF upon which the WCWARP environmental flow provisions were based, the issue we need to consider is whether the revised minimum flow (1,500 L/s) is appropriate for this consent and will adequately protect instream values and ecosystems.

- 12.3 We note a memorandum dated 26 August 2009 (Gillian Lewis to Dr Bryan Jenkins, CEO ECAN) and countersigned by Dr Jenkins, agreed to a revision of minimum flows (5Y7DLF) for a number of streams and rivers in the Upper Waitaki Catchment for which environment flows were specified in Table 3 of the WCWARP. However the Grays River was not amongst those cited in the memorandum, despite the revised flow data being available by this date. Therefore the minimum flow of 1,800 L/S specified in Table 3 of the WCWARP remains the minimum flow for the Grays River.
- 12.4 We do not agree Mr Scarf or others who suggested a plan change is required to reduce the minimum flow. We have another available option, which is to consider this application as a resource consent for non-complying activity. This resource consent process enables us to depart from the minimum flow of 1800 L/s and grant consent for a non-complying activity with a lower minimum flow, provided we are satisfied that either of the gateway tests under s104(d) can be satisfied.
- 12.5 We acknowledge that all the hydrological experts (Messrs de Joux, Stewart and Scarf) agreed that 1,500 L/s may be a more accurate representation of the 5Y7DLF than that contained in the WCWARP for the Grays River. On this basis, the applicant has encouraged us to make the assumption that this flow will be adequate to protect instream ecosystems, a conclusion that was supported by Ms Penman. However we note that we received no detailed assessment of effects on instream values from the lower minimum flow.
- 12.6 Although we accept the hydrological evidence regarding the 5Y7DLF, we do not think that it is appropriate to assume that this will adequately protect instream values. We consider that a more holistic approach is required for setting environmental flow regime than simply using flow statistics and that the experts have not adequately taken into account the biological effects of reducing the minimum flow.
- 12.7 For example, based on our above discussion on water quality, we consider that lowering the flow in the Grays River increases the likelihood of nuisance periphyton blooms. As the Grays River already has some evidence of being under stress with respect to periphyton, allowing a lower minimum flow will potentially exacerbate that issue.
- 12.8 As discussed further in our evaluation of relevant planning instruments, the Grays River is classified as Hill-Fed upland which has stringent water quality outcomes associated with it (e.g. max 50 mg/m² periphyton). Reducing minimum flow (or more particularly the length of time the river is at such low flows) will make it much harder to comply with these standards. We therefore consider that it would be irresponsible and inappropriate for us to accept the lower minimum flow.
- 12.9 In addition to nutrients and periphyton, the other issue with reduction in minimum flow is fish and invertebrate habitat. Based on the evidence received, we are not satisfied that this issue has been adequately addressed. The only basis presented for the conclusion that instream values will be protected, is that the 1,800 L/s in the WCWARP was not based on any biological assessment either. Hence the 1,500 L/s based on real measurements must be acceptable. Given that the Grays River is a valued trout fishery, we do not think that this provides a sufficient foundation on which to accept a lower minimum flow, which is in this case the environmental flow regime.
- 12.10 For the above reasons, we conclude that lowering the minimum flow to 1,500 L/s as proposed by the applicants may lead to unacceptable adverse effects on instream values and ecosystems. However if the higher minimum flow of 1,800 L/s was imposed by way of conditions, we consider that the effects of the proposal would be acceptable.
- 12.11 We do however agree with Mr Chapman that it is not necessary for the applicant to install measuring and recording equipment at Days Bridge on the Grays River as ECAN already has a flow recorder at this site. We have therefore modified the conditions accordingly.

Fish screening

- 12.12 The design of the gallery intakes was raised as an issue by Ms Penman. Our view is that it can be dealt with by way of conditions if we grant the consent.

Use Issues

Water efficiency

- 12.13 This application proposes an annual volume of 1,140,000 m³/year, which is based on the applicant's MIC shareholding (6,000 m³/ha/year). This is justified as efficient on the basis that it is less than half of the average water holding capacity of the soil and less than the annual volume calculated using Irricalc of 1,190,512 m³/year.
- 12.14 In contrast, Ms Penman completed her calculation using GIS system and the method outlined in Report U05/15 ("the WQN9v2 approach"). She based this calculation on a mixture of heavy, medium and light soils with seasonal rainfall of 175mm. Using these figures, Ms Penman recommended an annual volume of 1,101,050 m³/year would be a more appropriate and efficient volume of water for spray irrigation of the proposed area.
- 12.15 As acknowledged by the applicant, under Policy 16 of the WCWARP there are two acceptable methods for calculating and efficient annual volume. The first is using a soil water balance approach. The applicant contends that Irricalc is such an approach. The second alternative is the WQN9v2 approach used by Ms Penman.
- 12.16 Of the two alternatives, we consider that the available data allows the WQN9v2 approach to be used for calculating annual volumes. We note that the Irricalc methodology requires supporting data and verification based on field measurements when the proposal is in place. As discussed in other decisions, our view is that undertaking such measurements is impractical and as such the Irricalc approach may therefore be inadequate to satisfy the requirements of a soil water balance approach under Policy 16.
- 12.17 Based on the above, we consider that to adopt the annual volume proposed by the applicant may allocate more water than what is required and result in an inefficient use of water. We therefore prefer the annual volume of 1,101,050 m³/year calculated by Ms Penman using the WQN9v2 approach and adopt this as the appropriate volume of water for spray irrigation of the proposed area.

Landscape

- 12.18 Mr Craig undertook a landscape analysis on behalf of all the UWAG applicants using assessment criteria similar to that of Mr Glasson and concluded that any adverse effects arising from the applied for irrigation activity on landscape, character and amenity will be significantly less than minor. In contrast Mr Glasson was of the view that adverse landscape effects from the proposed irrigation on Grays Hill Station would be significant but could be mitigated to a minor level by installing a riparian buffer and ensuring irrigation was continuous (as opposed to patchy) over the property. Ms Lucas for Mackenzie Guardians was of the view that the proposed irrigation was inappropriate given the openness of the landscape and that mitigation as described by Mr Glasson was also inappropriate. We need to consider which of these contrasting opinions we prefer.
- 12.19 In Part A we considered in detail the considerable volume of evidence that had been presented to us on landscape. From the many methodologies and views on landscape presented to us we found that offered by Mr Glasson, who divided the Mackenzie Basin into a selection of discreet units, both practical and useful to help us assess landscape values of each particular unit.
- 12.20 In Mr Glasson's classification, Grays Hill Station is within a "sensitive" landscape (Unit 2) that is more difficult to absorb greening effects without applying significant mitigation measures. As we understood his evidence he was less concerned with views from Haldon Road than he was with the proximity of irrigation to the river and waterways on the site. Thus after discounting views from the road he concentrated on mitigation measures from the waterways. However even within this open landscape, he believed that effects would be minor provided appropriate mitigation measures were put in place. We agree with him that riparian buffering of 50m from Grays river would render any landscape effects minor, and that moreover, a well-designed buffer could also mitigate water quality effects, as discussed below.
- 12.21 Whilst we acknowledge Ms Lucas's point that the site is overviewed from various points, we are of the view that the relatively small area of irrigation will be absorbed within the vistas from these point and that any effects will be minor. In contrast to Mr Glasson she considered view points from the road of the irrigation site were available. However at a distance of at least 2 kilometres we took the view that other than a greening effect at that distance the irrigation

infrastructure, whether it be pivots or hard nosed guns would be very difficult to see. We conclude then that the intrusiveness of the irrigation infrastructure on views from Haldon Road would be no more than minor.

- 12.22 Also as we have noted above we think that Mr Glasson's approach is correct to concentrate on effects on the waterways and stream within the irrigation command area as distinct from long distant views.

Terrestrial Ecology

- 12.23 Dr Walker (for Mackenzie Guardians) presented an uncontested expert opinion that the Grays Hill irrigation site was amongst those of 'greatest' concern for potential effects on terrestrial ecology.
- 12.24 We understand and appreciate Dr Walker's concerns on the lack of information on the terrestrial ecology within the proposed irrigation area, and the effects of any threatened species within that area. However in our opinion the relatively small scale of the proposed irrigation (190 ha) within a much larger command area (1500ha), which in turn is part of a 21,900 ha property renders such effects minor.

Water Quality

- 12.25 In Part A of this decision we rejected the MWRL proposition that all consents sought in this hearing could be granted (with conditions) and without causing cumulative effects. It is incumbent upon us, therefore, to consider (as far as is possible) whether granting this application, in combination with other water permits we grant, will lead to cumulative water quality effects. In this case it means considering the potential effects of granting this application (in combination with others we grant) on:
- (a) the trophic state of the Haldon Arm of Lake Benmore,
 - (b) groundwater chemistry and in particular the MWRL-proposed threshold of 1 mg/L NO₃-N, and
 - (c) periphyton and macrophyte growths in Grays River.
- 12.26 The applicants have proposed various mitigation measures to lessen the risk of their activities contributing to cumulative water quality effects. We need to consider whether the proposed mitigations, are sufficient to avoid a significant water quality problem occurring, and/or whether refinements to the measures proposed are required.
- 12.27 The ultimate receiving water (as far as this application is concerned) is the Haldon Arm of Lake Benmore. In Part A we determined that the Haldon Arm of Lake Benmore can assimilate an increased nutrient load from the granting of consents (with mitigation) and remain within an oligotrophic state. While we did not accept the MWRL proposition as a whole (that all consents could be granted) we did accept that the proposed (MWRL) increased nutrient load from irrigation would not cause a more than a minor effect to the Haldon Arm of Lake Benmore; mainly because of the high inflows from the Ōhau B canal and the concomitant relatively short residence time.
- 12.28 We have also accepted the proposition that effects of irrigation on groundwater may be considered minor where the NO₃-N concentration remains < 1 mg/L. This appears to be a reasonable interpretation of the PNRRP objectives for groundwater in the Mackenzie Basin, and there have been no challenges to it. No specific evidence on groundwater movement or depth on Grays Station other than Mr Urquart's anecdotal account that large flows in the Tekapo River (western side of station) raises the ground water levels throughout the eastern side of the basin including Grays River. Together with evidence that normal flows in Grays River have decreased since the commissioning of the power scheme suggest that there is a strong hydraulic connection between the Tekapo and Grays Rivers, and that historically at least, the Tekapo recharged groundwater that discharged into the Grays. Thus we infer that groundwater used to (and still does when flows in the Tekapo R are high) in a west to east direction. It is therefore reasonable to assume (in the absence of further data) that any leachate from the proposed irrigation area will eventually discharge to the Grays River.
- 12.29 As noted by Mr McIndoe, the purpose of the NO₃-N groundwater provisions in the PNRRP is to protect surface waters. In this regard the main issue is the development of nuisance periphyton growths in Grays River and/or streams draining to Grays River.

- 12.30 In Part A we rejected the MWRL proposition that we should allow a 25% increase in periphyton above that calculated as the current biomass in the WQS. Apart from its arbitrary development, we are of the view that to accept the 25% increase guideline is contrary to the PNRRP; both the version at the time of this application, and the current version, which both have objectives to maintain or improve effects related to water quality, and not permit a degradation. As noted in Part A we are of the view that the MfE periphyton guidelines are applicable in the Mackenzie Basin environment and should be used. We are, therefore, unable to accept the MWRL calculations with respect to limiting ecosystem.
- 12.31 We note the evidence of Dr Coffey for MWRL who reported nuisance growths of periphyton at the 'downstream' Grays site in the absence of any irrigation in this sub-catchment. In our view this reinforces the likelihood of a strong groundwater connection between the Maryburn, Tekapo and Grays River, and that leachate from irrigation may cross surface water boundaries.
- 12.32 We note that OVERSEER modelling for this property was carried out using the developed setting, following advice from the applicants consultant (Mr McFarlane) that the property is unlikely to ever reach a 'highly developed' state. We acknowledge that this is probably correct, but point out that Dr Snow and others advocated using the "Highly developed" setting for pragmatic reasons designed to compensate for OVERSEER's inability to accurately predict leaching rates from the shallow soils common on the Mackenzie Basin. The soils on Grays Hill are in that category, and therefore it is likely that the OVERSEER predictions made for this property are underestimated.
- 12.33 Using the more conservative figures for N loss given in Dr Snow's evidence for future farm scenarios (Appendix 4, Table A3) and assuming minimum flow conditions, it is possible that leaching losses could result in nuisance growths of periphyton. This risk can be mitigated we believe through setting back the irrigation area some distance from the edge of the river, and through well designed riparian buffers between the irrigation area and Grays River. We note that such a buffer would also mitigate landscape effects as noted above.
- 12.34 We agree with Ms Penman that there are a number of streams crossing the command area, and that the applicant has not addressed any potential environmental effects on these streams. However as with the Grays River, we are of the view that because of the size of the command area, effects on these streams can be only minor if there is a reasonable set-back distance from them, and there are riparian buffers installed should the groundwater direction indicate a reasonable risk of leachate discharging to them.
- 12.35 We note that the applicant has volunteered at least 5-11 m set back distances from streams, and 20 m set-back distances from land based fertiliser application. Given the very large command area within which the applicant will install their irrigation area, we are of the view that both irrigation and fertiliser application set-back distances should be standardised to at least 20 m and we have reflected this in conditions. We note that this measure also assist to mitigate the landscape effects of the proposal as discussed above.

Cultural

- 12.36 The Ngāi Tahu submission was to oppose the granting of all consents based on the uncertainties of effects on water quality and groundwater and the potential flow-on effects to mahinga kai. However during the hearing this stance was clarified with Mr Horgan explaining their emphasis was on the new (rather than replacement) consent applications and those that will result in large scale land use intensification, rather than the taking of water so as to provide security of supply for existing farming operations. We are of the view that Grays Hill Station fits into this latter category. Mr Horgan also told us that provided the smaller applicants carry out appropriate riparian planting and fencing, and undertake not to significantly increase the intensity of their farming operations, then Ngāi Tahu does not oppose the grant of consent.
- 12.37 The applicant provided no assessment of cultural values. The general area is part of the traditional trails that linked to the waterways and passes into the basin and supported seasonal mahinga kai activity. There are no "recorded" archaeological sites in the general area of Grays Station.
- 12.38 Ms Penman raised the issue of cross mixing of waters as being a concern that might affect Ngāi Tahu interests, we do not consider that is a relevant issue in respect of this application given the water take, use and discharge is within the same sub-catchment.
- 12.39 As Ngāi Tahu have not made a specific representation on Grays Hill we have chosen to consider the cultural implications in relation to the mitigation measures they propose to minimise offsite

nutrient losses. While the overall stock carried by Grays Hill station will increase by 30%, the effects of this will be distributed over the whole station. Our view is that Ngāi Tahu's position can be preserved through conditions imposed with the granting of these consents.

Positive effects

12.40 We acknowledge that the proposed irrigation will have positive effects including improving the sustainability of the farming system of Grays Hill. It will result in a moderate increase in stock numbers with improved production and reliability but without changing the farming system. The economic benefits will have flow-on effects for the local community. In addition the irrigation will protect a reasonable tract of land from the effects of wind erosion and support efforts to control invasive species.

Key conclusions on effects

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

12.42 We are not satisfied that the proposed minimum flow of 1,500 L/s for the Grays River is acceptable and consider that the higher minimum flow of 1,800L/s should be imposed to ensure that the instream values of the Grays River are safeguarded.

12.43 We are not satisfied that applicants estimate of annual volume meets efficiency requirements. However we do accept the lower estimate calculated by Ms Penman using WQN9v2.

12.44 In relation to landscape effects, we of the view that the relatively small area of irrigation will be absorbed within the wider vistas and that any effects on the landscape will be minor, provided appropriate mitigation is imposed.

12.45 Any effects on terrestrial ecology are minor given the relatively small scale of the proposed irrigation within a much larger command area, which in turn is part of a much larger property.

12.46 In respect of water quality, we are satisfied that any risk can be adequately mitigated by set-back the irrigation area some distance from the edge of the river, and through well designed riparian buffers between the irrigation area and Grays River.

12.47 Ngāi Tahu's position can be preserved through conditions imposed with the granting of these consents.

12.48 It will have positive effects in terms of improving the sustainability of the farming system, protecting vulnerable land from wind erosion and assisting with management of invasive species.

13 EVALUATION OF RELEVANT PLANNING INSTRUMENTS

13.1 Under s 104(1)(b) of the RMA, we are required to have regard to the relevant provisions of a range of different planning instruments. Our Part A decision provides a broad assessment of those planning instruments and sets out the approach we have applied to identification and consideration of the relevant provisions. The following part of our decision should be read in combination with that Part A discussion.

13.2 In relation to the current application, we consider that the most relevant and helpful provisions are found in the regional plans, including in particular the WCWARP and the NRRP. In addition, the Proposed and Operative CRPS and the relevant District Plans are of assistance in relation to landscape issues that arise.

13.3 The following sections of this decision provide our evaluation of the key objectives and policies from these planning instruments. We have organised our discussion in accordance with the key issues arising for this application.

Water quality

13.4 In relation to water quality, the key documents we have considered are the WCWARP (incorporating the objectives of the PNRPP and the operative NRRP provisions).

WCWARP

- 13.5 In relation to the WCWARP, we consider that Objective 1 is the critical objective. In particular, Objective 1(b) seeks to safeguard life-supporting capacity of rivers, lakes, and Objective 1(d) seeks to safeguard the integrity, form, functioning and resilience of a braided river system.
- 13.6 We have determined that granting these consents with conditions (incorporating mitigations set out in the FEMP) will help to minimise nutrient loss from the irrigated area. The load arising from this activity will not cause (in combination with other consents we grant in the Haldon Arm catchment) more than minor effects of the trophic status of the Haldon Arm of Lake Benmore.
- 13.7 We are also satisfied that the activity, with mitigations, should not result in nuisance growths of periphyton in Grays River and can be managed by way of conditions requiring the ratcheting back of irrigation in the event that monitoring demonstrates the exceedance of thresholds..
- 13.8 Overall, we conclude that a grant of consent, with conditions, would be consistent with Objective 1(b) and 1(d) WCWARP.
- 13.9 Objective 1(c) requires us to manage waterbodies in a way that maintains natural landscape and amenity characteristics and qualities that people appreciate and enjoy. Given our findings in terms of effects on water quality and periphyton growths, then our view is that granting consent would be consistent with Objective 1(c).
- 13.10 We note that Objectives 2, 3, 4, and 5 are “in the round” deal with and provide for the allocation of water. The critical qualification is that water can be allocated provided that to do so is consistent with Objective 1. Given the findings we have made about Objective 1 we conclude that allocating water in terms of the balance objectives would be consistent with the overall scheme of the WCWARP. We reach this view taking into account the national and local costs and benefits (environmental, social, cultural and economic) of the proposal, as required by Objective 3.
- 13.11 Policy 13 links the WCWARP to the PNRRP (as it existed at the time) by requiring us to have regard to how the exercise of the consent could result in water quality objectives of the PNRRP not being achieved. As we explained in our Part A decision, we have considered the objectives of the PNRRP and the now operative NRRP in relation to the current proposal. However we have generally given greater weight to the NRRP provisions on the basis that they represent the current approach for achieving the common goal of protecting water quality.

NRRP

- 13.12 Under the NRRP, Lake Benmore (including the Haldon Arm) is classified as an “Artificial On-River Lake” under the NRRP. Objective WQL1.2 of the NRRP seeks to ensure that the water quality of the lake is managed to at least achieve the outcomes specified in Table 6, including a maximum Trophic Level Index (“TLI”) of 3 (i.e. oligotrophic-mesotrophic boundary). For the reasons discussed above, we consider that granting consent to the proposal would be consistent with this objective and would not (in combination with others we grant) caused the TLI maximum to be breached.
- 13.13 The Grays River is classified as Hill-fed Upland under the NRRP. Objective WQL1.1 of the NRRP seeks to ensure that the water quality of such rivers is managed to at least achieve the outcomes specified in Table 5. A key indicator for these applications is that maximum chlorophyll-*a* should be less than 50 mg /m² (periphyton guideline for safeguarding aquatic biodiversity and also recreation). Hill-fed rivers also have associated water quality performance standards for DRP and DIN (Table WQL16) of 0.006 and 0.21 mg/L, respectively.
- 13.14 We understand that the applicant and reporting officer agreed on periphyton water quality conditions that included a 120 mg/m² Chlorophyll *a* standard (and an early warning trigger of 90 mg/m² Chlorophyll *a*) for the Irishman Creek. We appreciate that when those parties reached that agreement the NRRP was not operative, and issues relating to water quality objectives and standards had not reached the status that we have today.
- 13.15 We must have regard to the current provisions of the NRRP and therefore we have given considerable thought to the situation that applies to the Grays River. We note the following:
- (a) Dr Coffey’s (MWRL) evidence of nuisance growths occurred in downstream reaches of Grays River in the apparent absence of irrigation;

- (b) Dr Coffey's evidence that the structure of aquatic macroinvertebrate communities indicated instream habitat quality available for macroinvertebrates was poor at Sampling Site Grays Upper and fair at Sampling Site Grays Node. Dr Coffey suggested that habitat rather than water quality may be the cause;
- (c) Evidence of groundwater transfer between the Tekapo River and Grays River at high flows;
- (d) Evidence that flows in Grays River have been reduced markedly since the completion of the Waitaki Hydroelectricity Scheme;
- (e) Tributaries of Grays River are classified as "Hill-fed Upland" which have the same maximum periphyton standard (50 mg/m² chlorophyll a) but water quality performance standards for DRP and DIN of 0.006 and 0.21 mg/L respectively; and
- (f) The New Zealand Periphyton Guidelines, that we were provided with at the hearing and heard were a critical source for the NRRP specified outcome, provide for 50 mg/m² chlorophyll a as a guideline for oligotrophic streams with diverse "clean-water" benthic invertebrate communities. While there is scant data, Dr Coffey's evidence suggests that this may not apply to Grays River.

13.16 Because the plan is unequivocal with respect to water quality outcomes expected for Grays River and tributary inflows have the same or high water quality expectations, we consider that the standard trigger for Grays River should be 50 mg/m² chlorophyll a together with water quality performance standards for DRP and DIN of 0.006 and 0.21 mg/l respectively, Because 50 mg/m² chlorophyll a is indicative of oligotrophic water quality, and also because the methodology for periphyton biomass estimation below this threshold is subject to significant error our view is that there is no case for having an early warning trigger. Thus we have modified the condition set to reflect this standard trigger and the provisions for reducing irrigated area in the event these conditions are breached.

Conclusions on water quality provisions

13.17 Overall then having regard to the scheme of the WCWARP and the NRRP we reach a conclusion that granting consent in this case to the proposal (subject to conditions) would be consistent with the key objectives and policies of both of these plans relating to water quality.

Environmental flow and level regimes

13.18 Policies 3 and 4 of the WCWARP refer to the setting of environmental flow and level regimes to achieve the objectives of the WCWARP. In addition, Policy 12 seeks to establish an allocation for each relevant activity within the catchment and requires consideration of the effects on other users. This is reflected in the rules of the PNRRP which specifies minimum flows and levels for water bodies and allocation limits for specific activities.

13.19 As discussed in detail above in our evaluation of effects, the applicant is proposing to adopt a minimum flow that does not comply with the requirements of the WCWARP and has not provided sufficient evidence to convince us that this is appropriate. On this basis we consider that the proposal is contrary to these objectives and policies of the WCWARP regarding environmental flows and levels. However if the minimum flow was increased to 1,800 L/s in accordance with the WCWARP requirements, the proposal would be consistent with these provisions.

Efficient use of water

13.20 Policies 15 – 20 provide for an efficient use of water so that net benefits are derived from its use and are maximised and waste minimised. In particular, Policy 16 requires us to consider whether the exercise of these consents would meet a reasonable use test in relation to both the instantaneous rate of abstraction and the annual volume for take, use, dam or divert. As discussed in our evaluation of effects, provided that the lower annual volume calculated by the s42 officer is adopted, we are satisfied that the rates and annual volumes reflect an efficient and effective use of water and that the reasonable use test can be met.

13.21 Objective 4 of the WCWARP requires us to promote the achievement of a high level of technical efficiency in the use of allocated water. Application by spray within the constraints of an annual volume will require a high degree of efficiency to ensure that crops and pasture are not stressed in extreme conditions and water is not wasted.

Landscape and amenity

- 13.22 We discussed the relevant objectives and policies for landscape in our Part A Decision. In summary these are primarily found in the Proposed and Operative CRPS and the NRRP. In broad terms these provisions seek the protection of outstanding natural landscapes from inappropriate use and development.
- 13.23 In considering these provisions we are informed by the provisions of the Mackenzie District Plan which identifies the applicant's property as a rural zoning. In reference to Planning Map 34 from the Mackenzie District Plan we do see as Ms Penman pointed out that the proposal site is not affected by any scenic viewing areas or sites of natural significance as identified within the District Plan.
- 13.24 The objectives and policies contained within the Mackenzie District Plan broadly mimic those that are contained in the higher order policy documents. Objective 3A seeks to protect and sustain the distinctive outstanding landscape and features of the district from subdivision and development that would detract from those landscapes. Objective 3B seeks to encourage a healthy productive economy, environment and community within and maintain the identity of the Mackenzie Country. Objective 3C deals with landscape values and seeks the protection of natural character of the landscape and margins of lakes, rivers, wetlands and for natural processes and elements that contribute to the district's overall character and amenity.
- 13.25 Related policies seek the same or similar outcomes, namely recognising the basin has a distinctive and highly valued landscape containing outstanding natural landscapes through the Mackenzie Basin subzone within the rural zone and protect the basin from inappropriate use and development. Policy 3C seeks to avoid adverse impacts of structures on outstanding natural landscape features of the basin.
- 13.26 We have taken into account the recent Environment Court decision by Judge Jackson [*High Country Rosehip Orchards Ltd & Ors v Mackenzie District Council* 2011 NZEnvc387] in which the Court considered the objectives and policies of the Mackenzie Plan as they related to landscape. We note that the decision is an interim decision in all respects with the exception that it is a final decision in respect of finding that the Mackenzie Basin as a whole (with some exceptions) is an outstanding natural landscape.
- 13.27 We too in our approach have accepted that the Mackenzie Basin is an outstanding natural landscape. However in assessing this particular proposal primarily for the reasons discussed in our evaluation of effects we do not consider that the proposed development here is inappropriate within this landscape.
- 13.28 We say this principally because the views from Haldon Road note which we note has been identified by the Court as one of the important tourist routes are distant views. The actual area of irrigation here proposed is at any one time 190 hectares within a 1500 hectare command area. The small area combined with the distance we have referred to will mean that impacts on views from Haldon Road are, we think, negligible.
- 13.29 The key issue the application gives rise to is how well the irrigation activity sits alongside the Grays River which is a highly natural element of the landscape. Mr Glasson addresses this by requiring natural riparian buffers of 50metres on both sides of the Grays River, which would reduce the landscape effects to a moderate/minor level. We agree and think taking this step would ensure that grant of this application is consistent with policies, objectives 3A, 3B & 3C and the relevant policies.
- 13.30 For completeness we do note that the Court considered Grays Hill within its decision at paragraphs 346 – 349. The Court in its broad view of the site did note that the property has extensive areas on the Tekapo-Grays flats which might be appropriate for more intense farming. It did encourage irrigation if it were to occur closer to Haldon Road to minimise interference effects with the wild life and flora on the river corridors. While this proposal is not close to Haldon Road there is care taken to ensure that through the mitigation measures proposed by Mr Glasson that effects on wild life and flora are around the river corridors would be protected by the proposed mitigation buffers.
- 13.31 Overall then we consider that granting consent to this proposal will be consistent with the relevant objectives and policies relating to landscape.

Tangata whenua

- 13.32 Objective 1(a) of the WCWARP relates to the integrity of mauri and is closely linked to Objective 1(b). Mr Mikaere (for MWRL) submitted that there are two aspects of mauri; the tangible and the intangible and that we could only properly deal with tangible. His view was that the tangibles are able to be addressed if mauri is considered as representing the health of the particular water body in question. Given that we consider that by granting these consents with conditions and with the mitigation measures proposed by the applicant that sustainable water quality outcomes can be achieved, it follows that the integrity of the mauri will be attained.
- 13.33 Objective WQN1 from Chapter 5 NRRP seeks to enable present and future generations to access the region's surface-water and groundwater resources to gain cultural, social, recreational, economic, and other benefits while (c) safe-guarding their value for providing mahinga kai for Ngāi Tahu and (d) protecting wāhi tapu and other wāhi taonga of value to Ngāi Tahu. This Objective aligns with one of the principal aspirations expressed by Ngāi Tahu during the hearing of enhancing mahinga kai resources and supporting ecosystems. Our finding is that there is unlikely to be deterioration in water quality of the Haldon Arm as a consequence of this proposal and that this application is consistent with this Objective.
- 13.34 Objective WQN1 (a) and (d) from Chapter 7 NRRP seek to achieve no overall reduction in the contribution wetlands make to the relationship of Ngāi Tahu and their culture and traditions with their ancestral lands, water, mahinga kai sites, wāhi tapu, and wāhi taonga. We find that this proposal is within the acceptable thresholds for water quality and would be consistent with this Objective.

Key conclusions on planning instruments

- 13.35 For all of the above reasons we consider that, with the imposition of appropriate conditions (including a higher minimum flow, lower annual volume and riparian buffers) granting consent would be consistent with the objectives and policies of the relevant plans. We have reached this conclusion taking into account the relevant planning provisions in respect of water quality, efficiency, environmental flows, landscape, and tangata whenua values.

14 EVALUATION OF OTHER RELEVANT S104 MATTERS

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

15 PART 2 RMA

- 15.1 Section 104(1) states that the matters which we have discussed above are subject to Part 2, which covers section 5 through section 8 inclusive. These sections are set out in full in our Part A decision and are discussed below in the context of the current application.

Section 6 – Matters of National Importance

- 15.2 Section 6 identifies matters of national importance that we must "recognise and provide for" when making our decision, including in particular preserving the natural character of lakes and rivers (s6(a)), protecting outstanding natural features and landscapes (s6(b)) and the relationship of Māori with the environment (s6(e)).
- 15.3 In respect of s6(a) we recognise that preservation of the natural character of lakes and rivers is the imperative. We think that because of our finding in terms of the water quality issues, which takes into account mitigation measures, the grant of consent recognises and provides for the preservation of the natural character of lakes and rivers.
- 15.4 In terms of s6(b), we have evaluated the natural features and landscape, primarily by reference to the relevant planning instruments. We reach the view that the grant of consent in this case is not inappropriate because it will not, in our view, diminish the natural features and landscapes in any significant way.
- 15.5 In terms of section 6(c), it is our view, taking into account the evidence received, that there are not areas of significant indigenous vegetation and significant habitats of indigenous fauna that are at risk thus requiring protection as a consequence of the grant of consent.

- 15.6 In relation to section 6(e) we are cognisant of the relationship that Ngāi Tahu hold with the natural resources of this area, and while no specific values were specified by Ngāi Tahu in relation to this application, we believe that the mitigation measures and conditions provide for the cultural relationship to this catchment that is of importance to Ngāi Tahu.
- 15.7 For the above reasons, we consider that granting consent to the proposal would recognise and provide for s6 matters, as we are required to do under the RMA.

Section 7 – Other Matters

- 15.8 Section 7 lists “*other*” matters that we shall “*have particular regard to*”. We make the following observations in relation to each of those matters as they are relevant to this application, referring to the sub paragraph numbers of s7:
- 15.9 Sub-section (a) refers to kaitiakitangā. We consider that the proposed activity with mitigation measures and conditions sits within the acceptable environmental parameters outlined by Ngāi Tahu such that that it will not cause distress to the function of kaitiakitangā.
- 15.10 Sub-section (b) relates to the efficient use and development of natural and physical resources. Relevantly in this case is water. We have determined that the volumes of water we are prepared to grant and the methodology of its conveyance and distribution, results in the efficient use and development of the water resource.
- 15.11 Sub-section (c) refers to the maintenance and enhancement of amenity values. Maintenance and enhancement of amenity values will be achieved in this instance through utilising mitigation measures such as those provided in the FEMP and the additional measures we impose through conditions.
- 15.12 In terms of sub-sections (d) and (f), we have had particular regard to the intrinsic values of ecosystems and the maintenance and enhancement of the quality of the environment. We consider that through the grant of consent with the conditions imposed (including setback distances of irrigated land from water courses and a higher minimum flow for Grays River), such values will be safeguarded.
- 15.13 Having particular regard to the above matters in the context of section 7, we conclude that the grant of consent could be supported

Section 8 – Treaty of Waitangi

- 15.14 Finally, section 8 requires that we shall take into account the principles of the Treaty of Waitangi (Te Tiriti o Waitangi).
- 15.15 The cultural values of tangata whenua are appropriately recognised in the relevant planning documents applicable to the Mackenzie Basin sufficient to alert applicants to the need to address such values. We are satisfied that the notification of the appropriate Runangā and tribal authority has been followed and that the applicant was a contributor to the general assessment of the impact of irrigation activities on cultural values.
- 15.16 We are satisfied that the consultation procedures provided Ngāi Tahu the opportunity to understand and respond to the proposed activity.

Section 5 – Purpose of the RMA

- 15.17 Turning now to the overall purpose of the RMA, that is, “to promote the sustainable management of natural and physical resources”.
- 15.18 In our view the proposal will promote the sustainable management of natural and physical resources. We have determined that the effects of irrigation will be no more than minor on the Haldon Arm of Lake Benmore and can be managed by way of conditions to prevent more than minor effects on groundwater and Grays River. These conditions include interventions should monitoring demonstrate that a more than minor effect on Grays River is likely.
- 15.19 Irrigation will allow the productive use of hitherto degraded and unproductive land that has little conservation value. It will provide an economic benefit to the applicant as well as enhance the economic and social well-being of the community, and the wider region. In addition irrigation will have a positive effect on controlling invasive species on the 190 ha irrigated area. The applicant

has also undertaken (by way of conditions) to undertake various enhancement initiatives such as fencing and riparian planting that should enhance aquatic habitat of Grays River.

16 OVERALL EVALUATION

- 16.1 If an application for a non-complying activity passes through either of the jurisdictional hurdles in s104D, then there is discretion as to whether consent should be granted. This requires an overall judgment to achieve the purpose of the Act and is arrived at by:
- (a) Taking into account all the relevant matters identified under s 104;
 - (b) Avoiding consideration of any irrelevant matters;
 - (c) Giving different weight to the matters identified under s 104 — depending on our opinion as to how they are affected by the application of s 5(2)(a), (b), and (c) and ss 6-8 — to the particular facts of the case; and then in light of the above; and
 - (d) Allowing for comparison of conflicting considerations, the scale or degree of conflict, and their relative significance or proportion in the final outcome.
- 16.2 Following our finding in Part A that all consents in the Haldon could be granted without causing a more than minor effect on the trophic status of that waterbody, the major impediments to the granting of consent were
- (a) water quality of Grays River;
 - (b) instream flows and values of Grays River; and
 - (c) landscape effects.
- 16.3 We concluded that these effects were minor, or could be made minor through consent conditions. In particular, we have imposed a minimum flow of 1,800 L/s on the Grays River in accordance with the WCWARP and required a 50m riparian buffer on each side of the Grays River to mitigate effects on the landscape and water quality. Taking into account the safeguards provided by consents monitoring conditions we are comfortable with allowing the proposal to proceed.
- 16.4 Other factors in our consideration were the positive effects of the irrigation, both in economic terms and also in terms of stabilising land from the effects of wind erosion and assisting in the management of the invasive Hieracium and wilding pines.
- 16.5 Having reviewed the application documents, all the submissions, taking into account the evidence to the hearing and taking into account all relevant provisions of the RMA and other relevant statutory instruments we have concluded that the outcome which best achieves the purpose of the Act is to **grant** consent.

17 CONDITIONS

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

- 17.4 In addition, we make the following comments on conditions relating to nutrients and thresholds. These comments are written in a general style that applies to all applications before us. However they are relevant to this application. We have incorporated the intent of these comments into the conditions attached to this decision.

Nutrients and Thresholds

- 17.5 In Part A we rejected the MWRL proposition that we could grant all the applications before us with conditions.
- 17.6 Much of the evidence on conditions presented by all parties to this hearing centred on the issue of determining whether grantees in a particular subcatchment had breached the nutrient allowance at a particular node, and if they had, how ECan could determine either which consent holder had caused the breach and whether one or all consent holders needed to take corrective action.
- 17.7 In rejecting the MWRL case, which relied upon existing irrigators lessening their nutrient load so that there would be assimilative capacity for new irrigators, we need to record our approach to ensuring that consents we grant do not cumulatively result in the trophic level index (TLI) of Lake Benmore exceeding 2.75, or the TLI of the Wairepo Arm of Lake Ruataniwha exceeding 4.00. As we recorded in Part A our view is that for those waterbodies, the difference between current nutrient load, and the load resulting in unacceptable increases in the TLI of these waterbodies is so small that it would be risky to try and allocate that new load. In the case of applications before us draining to the Haldon Arm we are confident that this condition does not apply and we are confident that the TLI threshold will not be breached even if all applications for consent before us are granted.
- 17.8 For those applications that we are inclined to grant, we have assessed their 'cumulative effects', taking careful note of the complete package of mitigation measures they propose on their property. These mitigation measures may be in relation to a separate application before us but on the same property and therefore 'captured' in the FEMP. We note that priority order is not an issue with respect to applications in the Haldon Arm.
- 17.9 We have kept a check on new irrigation resulting in additional nitrogen and phosphorus loads proposed by applicants in relation to those mitigation measures and not granted consents that would, in our view, lead to a significant net increase.
- 17.10 This approach will, in our view, ensure that the TLI of the critical lake ecosystems does not rise as a result of our granting these applications, and may even decline. This approach is, we believe, consistent with the NRRP, which has as an objective and maintenance or improvement of water quality. It also has the advantage, in our view, of taking the pressure off cumulative effects monitoring with all the ensuing uncertainties and difficulties discussed in Part A,
- 17.11 Recognising that streams and rivers in the catchment are nutrient limited by nitrogen and/or phosphorus, and that the NZ (MfE) Periphyton Guidelines provide appropriate thresholds for managing nuisance periphyton growths does, we believe, provide another monitoring tool for not only ensuring that streams and rivers are suitable for recreation and provide suitable habitat for invertebrates and fish, but also provide another defence to downstream lake ecosystems. The reporting of breaches in periphyton guidelines together with correction mitigation actions, provide a tool to prevent excess nutrients reaching the lakes.
- 17.12 The advantage of stream water quality and periphyton monitoring is that it puts more emphasis on local monitoring and less emphasis on uncertain (given our findings on the WQS) modelling. We are of the view that as far as possible, consent monitoring should be related directly to the applicant's activities.
- 17.13 We noted that the agreed conditions between the applicant, Council Officer and submitters included a condition to monitor the Grays River, but the thresholds that triggered a management response from the consent holders were more lenient (90 mg/m² chlorophyll than the 50 mg/m² condition we have imposed. This is because the now operative NRRP classification of the Grays River indicates it is a high value water body and deserving of that protection. We note that the applicant should be able to comply with this condition, and that the risks of not complying increase the closer the irrigation area is to the River. Given the large command area in relation to the proposed irrigation area we think that this is achievable.

- 17.14 In the case of new applicants in the Haldon Arm irrigating significant areas of land we consider it prudent that they should monitor the principal resource potentially affected by their activities, to ensure that the TLI threshold in the NRRP is not breached. We say this even though the modelling evidence gives some assurance that this will not be the case. We anticipate that future applicants affecting the Haldon Arm will be similarly required to contribute to the lake monitoring.
- 17.15 If TLI were to increase above the agreed trigger points then the lake monitoring conditions would serve a resource management purpose; particularly in conjunction with the condition to ratchet back existing irrigation.

18 DECISION

- 18.1 Pursuant to the powers delegated to us by the Canterbury Regional Council; and
- 18.2 For all of the above reasons and pursuant to sections 104, 104B and 104D of the Resource Management Act 1991, we **GRANT** application **CRC042661** by Grays Hills Station Limited for the following activity:
- Take and use water from two galleries at a combined maximum rate of 100 litres per second, with a volume not exceeding 1,101,050 cubic metres per year for the irrigation of 190 hectares within a 1500 hectare command area at Grays Hills Station, Haldon Road.
- 18.3 Pursuant to section 108 RMA, the grant of consent is subject to the conditions specified at **Appendix A**, which conditions form part of this decision and consent.
- 18.4 The duration of CRC042661 shall be until the 30th April 2025.

DECISION DATED AT CHRISTCHURCH THIS 29th DAY OF MARCH 2012

Signed by:

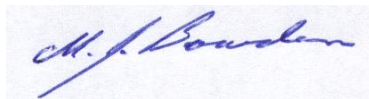
Paul Rogers



Dr James Cooke



Michael Bowden

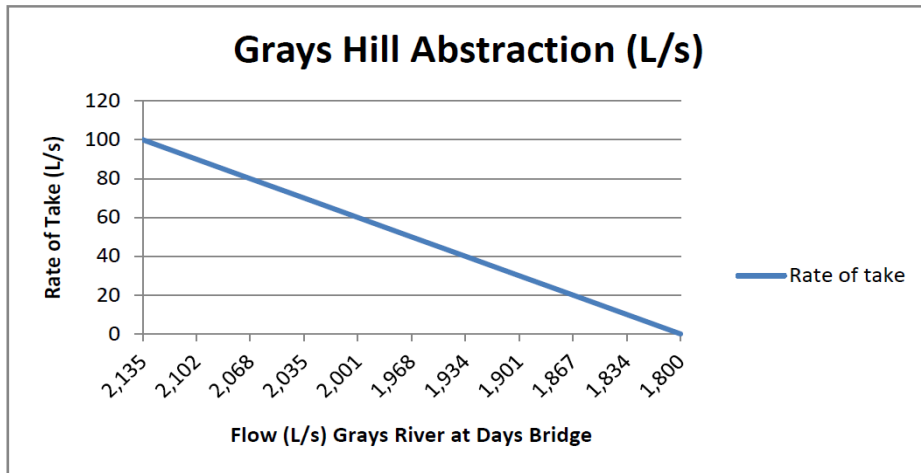


Edward Ellison



Take of water

1. Water shall only be taken from galleries I38/0057 and I38/0058 located at or about map reference NZMS I38:050-617 and NZMS I38: 081-642 at the property referred to as Gray Hills Station.
2. Water for irrigation shall only be used between 1 September and the following 30 April at a rate not exceeding 100 litres per second, with a volume not exceeding 8,640 cubic metres per day (being from 12am to 12am the following day) and 1,101,050 cubic metres per year (measured between 1 September and the following 30 April).
3. Subject to Condition 0, whenever the flow in Gray River, as measured by the Canterbury Regional Council calculated as the mean flow for the previous 24 hour period (midnight to midnight) at Days Bridge (map reference NZMS 260 I38:037-601):
 - (a) is equal or greater than 2,135 litres per second, the maximum rate at which water is taken shall not exceed 100 litres per second;
 - (b) falls below the flow shown for irrigation on the horizontal axis of the following minimum flow graph, then the rate of abstraction permitted in terms of this permit shall not exceed those shown as corresponding flows on the vertical axis;
 - (c) is equal to or less than 1,800 litres per second the taking of water in terms of this permit for irrigation purposes shall cease.



4. Where the Canterbury Regional Council, in consultation with a Water Users Committee representing, but not limited to, surface water and hydraulically connected groundwater users who are subject to the above minimum flow, has determined upon a water sharing regime that limits the total abstraction from the resource as referred to above, then the taking of water in accordance with that determination shall be deemed to be in compliance with Condition 3.

Use of water

5. Water shall only be used for the spray irrigation of 190 hectares of crops and pasture per irrigation season for grazing sheep, beef, deer and non-milking dairy cows within the area of land shown on attached **Plan CRC042661-A**, which forms part of this consent.
6. There shall be a minimum 20 metre setback, where there is no irrigation, from any permanently flowing waterways within the irrigation area marked on **Plan CRC042661-A**.
7. There shall be a minimum 50 m setback from the Grays River where no irrigation shall occur. This area shall be fenced off from stock and riparian planting shall be established and maintained along the margin of the Grays River.

8. Water for irrigation shall only be used on or applied to land that is subject to a memorandum of encumbrance that complies with the requirements of the agreement entitled "Agreement in Relation to the Allocation of Water for Irrigation" between Meridian Energy Limited and the Mackenzie Irrigation Company Limited dated the 31st of October 2006.
9. The consent holder shall, six months prior to this consent being exercised, provide to the Canterbury Regional Council a certificate from the Consent Holder's solicitor certifying that the memorandum of encumbrance is registered on the computer registers for the land shown on **Plan CRC042661-A** and any other evidence of registration as the Canterbury Regional Council may require (if any).
10. The consent holder shall take all practicable steps to:
 - (a) Ensure that the volume of water used for irrigation does not exceed that required for the soil to reach field capacity; and
 - (b) Avoid leakage from pipes and structures; and
 - (c) Avoid the use of water onto non-productive land such as impermeable surfaces and river or stream riparian strips.

Water metering – Take of water

11. The consent holder shall, prior to exercising this consent, install:
 - (a) a water meter(s) that has an international accreditation or an equivalent New Zealand calibration endorsement suitable for use with an electronic recording device, from which the rate and the volume of water taken can be determined to within an accuracy of plus or minus five percent at a location(s) that will ensure the total take of water under this consent is measured; and
 - (b) a tamper-proof electronic recording device such as a data logger that shall record (or log) the flow totals every 15 minutes.
12. If the water meter specified in Condition 11(a) is not an electromagnetic or ultrasonic meter, the consent holder shall, prior to the first exercise of this consent install or make available an easily accessible straight pipe(s) at a location where the total water take is passing through, with no fittings or obstructions that may create turbulent flow conditions, of a length at least 15 times the diameter of the pipe, as part of the pump outlet plumbing or within the mainline distribution system, to allow the Canterbury Regional Council to conduct independent measurements.
13. The measuring and recording device(s) specified in Condition 11 shall:
 - (a) be set to wrap the data from the measuring device(s) such that the oldest data will be automatically overwritten by the newest data (i.e. cyclic recording);
 - (b) store the entire season's data in each 12-month period from 1 July to 30 June in the following year, which shall be downloaded and stored in a commonly used format and provided to the Canterbury Regional Council upon request in a form and to a standard specified in writing by the Canterbury Regional Council;
 - (c) unless certified by a suitably qualified person that telemetry is not feasible, be connected to a telemetry system which collects and stores all of the data continuously with an independent network provider who will make that data available in a commonly used format at all times to the Canterbury Regional Council and the consent holder.
 - (d) be installed by a suitably qualified person in accordance with ISO 1100/1-1981 (or equivalent) and the manufacturer's instructions;
 - (a) be maintained throughout the duration of the consent in accordance with the manufacturer's instructions; and
 - (b) be accessible to the Canterbury Regional Council at all times for inspection and/or data retrieval.

14. No data in the recording device(s) shall be deliberately changed or deleted.
15. All practicable measures shall be taken to ensure that the water meter and recording device(s) specified in Condition 11 are at all times fully functional and meet the accuracy standard stated in that condition.
16. Within one month of the installation of the measuring or recording device(s) specified in Conditions 11 (or any subsequent replacement devices), the consent holder shall provide a certificate to the Canterbury Regional Council, attention: RMA Compliance and Enforcement Manager, signed by a suitably qualified person certifying, and demonstrating by means of a clear diagram, that:
 - (a) the measuring and recording device(s) is installed in accordance with the manufacturer's specifications; and
 - (b) data from the recording device(s) can be readily accessed and/or retrieved in accordance with these conditions.
17. At five yearly intervals or at any time when requested by the Canterbury Regional Council, the consent holder shall provide a certificate to the Canterbury Regional Council, attention: RMA Compliance and Enforcement Manager, signed by a suitably qualified person certifying that:
 - (a) the water meter(s) is measuring the rate of water taken as specified in these conditions; and
 - (b) the tamper-proof electronic recording device is operating as specified in these conditions.

Fish Screen

18. The consent holder shall ensure that water is abstracted using a gallery intake and shall be designed to prevent native and exotic fish species from entering the system.
19. The fish screen shall be designed by a person with experience in freshwater ecology and fish screening techniques, and constructed in a manner that ensures the principals of the NIWA fish screening guidelines (Fish Screening: Good Practice Guidelines for Canterbury, NIWA Client Report 2007-092, October 2007, or other revision of these guidelines. (Copy available on www.ecan.govt.nz)) are achieved.
20. No water may be taken in terms of this permit until, upon completion of the intake structure a report is provided to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager. The report shall be prepared by the consent holder for certification and shall demonstrate compliance with the following:
 - (a) Design plan for the gallery specifying gallery dimensions;
 - (b) Detail of depths and sizes of layers of gravel over the gallery;
 - (c) Photographic evidence of key stages of construction of the gallery, including demonstrating compliance with gravel specifications in sub clause (c)(ii) above; and
 - (d) Any ongoing maintenance required by the manufacturer is carried out in accordance with their specifications.
21. The intake structure shall be maintained in good working order. Records shall be kept of all inspections and maintenance. And those records shall be provided to the Canterbury Regional Council upon request.

Nutrient Loading

22. For the purposes of interpretation of the conditions of this consent the Grays Hill Station shall be defined as the areas in certificates of title and Pastoral Lease numbers CB88417, CB150/52, CB164/45-7, CB30A/658, CB45D/54, CB512/36, CB523/255, which total 21,513 hectares.
23. The consent holder shall prepare once per year:

- (e) an Overseer® nutrient budgeting model report not less than one month prior to the commencement of the irrigation season; and
 - (f) a report of the annual farm nutrient loading for Gray Hill Station using the model Overseer® (AgResearch model version number 5.4.3 or later).
24. When undertaking the modelling outlined in Condition 23, the consent holder shall use either weather records collected on-farm or from constructed data from the nearest weather station.
 25. A copy of the reports prepared in accordance with Condition 23 shall be given to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager within one month of their completion.
 26. The consent holder shall not commence annual irrigation under this consent unless the annual (1 July to 30 June) nutrient loading (the nutrient discharge allowances (NDAs)) as estimated in accordance with Condition 23 from Gray Hill Station does not exceed 64,114 kg of Nitrogen and 1,374 kg of Phosphorus.
 27. The NDAs, incorporating any reductions required by receiving water quality nutrient trigger conditions, shall be complied with from the commencement of consent.
 28. Where Overseer, or Overseer modelling, is referred for the purposes of calculating or determining compliance with the NDA limits associated with activities on the property, it shall be undertaken by an independent person with an Advanced Sustainable Nutrient Management Certificate issued by Massey University or an equivalent qualification
 29. The consent holder shall at all times comply with the Farm Environmental Management Plan (FEMP) in particular, the mitigation measures and monitoring set out in section 5 of the FEMP for Grays Hill Station, a copy of which is attached to these conditions and marked **CRC042661-B** and forms part of these conditions.
 30. Subject to Condition 29, the consent holder shall implement, and update annually the FEMP for Gray Hill Station and supply to Environment Canterbury on an annual basis within two months of commencement of the current irrigation season. The FEMP shall include:
 - (a) Verification of compliance with NDAs (incorporating any reductions required by receiving water quality nutrient trigger conditions) by farm nutrient modelling using the model Overseer (AgResearch model version number 5.4.3 or later).
 - (b) When undertaking the modelling outlined in clause (b), the consent holder shall use either weather records collected on-farm or from constructed data from the nearest weather station.
 - (c) Implementation of Mandatory Good Agricultural Practices (“MGAPS”) and requirements to manage in accordance with the Gray Hill Station Overseer model inputs specified in the attached Appendix A of the FEMP – Grays Hills Station Overseer® parameter report. Appendix A forms part of this consent.
 - (d) A property specific environmental risk assessment (including a description of the risks to water quality arising from the physical layout of the property and its operation which are not factored in as an Overseer parameter) prepared by a suitably qualified person which identifies any farm specific environmental risks along with measures to mitigate the farm specific environmental risks.
 - (e) A requirement to review the risk assessment if there are any significant changes in land use practice.
 31. Detailed records shall be maintained of fertilizer application rates, types of crops (including winter feed/forage crops), cultivation methods, stock units by reference to type, breed and age, prediction of realistic crop yields that are used to determine crop requirements and all other inputs to the Overseer nutrient budgeting model.
 32. A report on Overseer modelling shall be provided within one month of completion of the Overseer modelling by the person with the qualifications described in Condition 27 and no later than two months prior to the start of the next irrigation season to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager. The consent holder shall

supply to the Canterbury Regional Council all model inputs relied upon for the annual Overseer® modelling.

33. Changes may be made to the Gray Hill Station Overseer model inputs, provided that written certification is provided that the change is modelled using Overseer, and that the result of that modelling demonstrates that the NDAs are not exceeded. A copy of that certification plus a copy of the resultant Overseer parameter report shall be provided to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, prior to the implementation of that change.

Subdivision

34. The NDAs shall be recalculated if there is a sale or transfer of any part, but not the whole, of the total farm area of 21,513 hectares. The recalculated NDAs shall be undertaken to accurately redistribute the NDA between the resultant properties and shall replace the NDAs specified in Condition 26. The new NDAs may be recalculated on any proportion as long as the total of all the NDAs does not exceed the NDAs of the parent title as set out in Condition 26. The recalculation of the NDAs shall be undertaken and certified using Overseer, completed and provided to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager together with a copy of the full Parameter report, within one month of the sale or transfer.

Fertiliser and soil management

35. Fertiliser shall be managed and applied in accordance with 'The Code of Practice for Nutrient Management (With Emphasis on Fertiliser Use) NZFMRA 07' or any subsequent updates.
36. The consent holder shall keep a record of all fertiliser applications applied to the property, including fertiliser type, concentration, date and location of application, climatic conditions, mode of application and any report of the fertiliser contractor regarding the calibration of the spreader.
37. For land based spreading of fertiliser:
 - (a) where an independent fertiliser spreading contractor is used the consent holder shall keep a record of the contractor used, which can be supplied to the Canterbury Regional Council upon request; or
 - (b) where the applicant's own fertiliser spreaders are used, the consent holder shall test and calibrate the fertiliser spreaders at least annually, and every five years the fertiliser spreader will be certified by a suitably qualified person in accordance with 'The Code of Practice for Nutrient Management (With Emphasis on Fertiliser Use) NZFMRA 07' or any subsequent updates and the results of testing shall be provided to the Canterbury Regional Council upon request.
38. Nitrogen fertiliser shall not be applied to land between 31st May and 1st September.
39. All fertiliser brought onto the property which is not immediately applied to the land shall be stored in a covered area that incorporates all practicable measures to prevent the fertiliser entering waterways.
40. Applications of nitrogen fertiliser shall not exceed 50 kg nitrogen / hectare per application.
41. If liquid fertilisers, excluding liquid effluent, are stored on-site for more than three working days, the consent holder shall ensure that the fertiliser is stored in a bunded tank, at least 110% of the volume of the tank to avoid any discharge to surface or groundwater and such that it is also protected from vehicle movements.
42. Fertiliser filling areas shall not occur within 50 metres from a water course, spring or bore.
43. For land based spreading, fertiliser should not be applied within 20 metres of a watercourse.
44. Where practicable, the consent holder shall:
 - (g) use direct drilling as the principal method for establishing pastures; and

- (h) sow and irrigate all cultivated areas within the irrigation area as soon as possible following ground disturbance.

Irrigation Infrastructure

- 45. The consent holder shall ensure that all new irrigation infrastructure (not on the property at the time of commencement of this consent) is:
 - (i) designed and certified by a suitably qualified independent expert holding a National Certificate in Irrigation Evaluation Level 4, and installed in accordance with the certified design. Copies of certified design documents shall be provided to the Canterbury Regional Council upon request; and
 - (j) tested within 12 months of the first installation of the new irrigation infrastructure and afterwards every five years in accordance with the 'Irrigation Code of Practice and Irrigation Design Standards, Irrigation NZ, March 2007' (code of practice) by a suitably qualified independent expert.
- 46. Within two months of the testing referred to in Condition 45(b) the expert shall prepare a report outlining their findings and shall identify any changes needed to comply with the code of practice. Any such changes shall be implemented within five years from the date of the report. A copy of the report shall be provided to the Canterbury Regional Council Attention: RMA Compliance and Enforcement Manager, within three months of the report being completed.
- 47. If existing irrigation infrastructure is being used, the consent holder shall obtain an evaluation report prepared by a suitably qualified person, on the following terms:
 - (k) The evaluation shall determine the system's current performance in accordance with the Code of Practice for Irrigation Evaluation.
 - (l) This report shall be obtained within three months of the first exercise of the consent.
 - (m) Any recommendations identified in the report shall be implemented within five years from the date of receipt of the report.
 - (n) A copy of the report shall be forwarded to the Canterbury Regional Council within three months of the report being completed.

Fertigation

- 48. If the irrigation system used in association with taking water in terms of this permit is to be used to distribute effluent, fertiliser or any other added contaminant, then one of the following shall be installed upstream of the point of addition of the effluent, fertiliser or other added contaminant:
 - (a) a reduced pressure zone device (RPZD), or
 - (b) a pressure vacuum breaker (PVB), or
 - (c) an air gap backflow prevention system.
- 49. Installation of a RPZD or a PVB shall be in accordance with section 9 (PVB) or section 12 (RPZD) of Australian/New Zealand Standard AS/NZS 2845.1 Water supply - Backflow prevention devices, Part 1: Materials, design and performance requirements, or an equivalent standard.
- 50. An air gap backflow prevention system shall have an unobstructed vertical air gap separation of at least twice the diameter of the inlet pipe, from the lowest point of the inlet pipe to the flood level rim of the receptacle into which it discharges.
- 51. Field testing and maintenance shall be carried out of an RPZD or a PVB at commissioning of the use of the system for application of effluent or fertiliser and annually afterwards, in accordance with AS 2845.3 Water supply—Backflow prevention devices, Part 3: Field testing and maintenance, or an equivalent standard.

52. An air gap backflow prevention system shall be tested at commissioning and annually afterwards. Maintenance shall be undertaken as necessary to ensure that backflow prevention is effective.
53. Installation, testing and maintenance shall be undertaken by a certified irrigation evaluator. A report on the annual testing shall be provided to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, within two weeks of initial commissioning and within two weeks of each annual testing. Each report shall be accompanied with the name, qualifications and experience of the person who undertook the installation, testing or maintenance

River water quality monitoring and response

54. The water quality of the Grays River shall be monitored from the commencement of this consent as follows:
- (a) The location for monitoring of Grays River shall be as follows unless minor changes are required to ensure that monitoring occurs upstream of all intakes and downstream of the irrigation area to appropriately monitor the localised river effects arising from the exercise of this consent:
 - i. Map reference: NZMS 260 I38:100-657 immediately upstream of all irrigation takes on the Gray River. (
 - ii. Map reference: NZMS 260 I38: 033-602 downstream of the discharge.
 - (b) Water quality variables monitored shall include:
 - i. dissolved inorganic nitrogen (DIN);
 - ii. dissolved reactive phosphorus (DRP);
 - iii. dissolved oxygen;
 - iv. conductivity;
 - v. turbidity;
 - vi. water temperature
 - vii. periphyton biomass as chlorophyll *a* per square metre (chl *a*); and
 - viii. *E. Coli*.
 - (c) This monitoring may be carried out on an individual basis, or may be prepared in collaboration with other consent holders, or on a collective basis by a suitable independent body appointed by all relevant consent holders in the sub catchment.
 - (d) Frequency of monitoring: Once per month from 01 December to 30 April each year, with a minimum of three weeks between sampling. (Table has quarterly)
 - (e) Methods: The methods of sampling and analysis shall be those that are generally accepted by the scientific community as appropriate for monitoring river water quality and periphyton biomass. The methods of sampling shall be documented and made available to the Canterbury Regional Council on request.
 - (f) The water quality monitoring shall be undertaken by a suitably qualified and/or experienced person who demonstrates that they understand the appropriate methods to use for surface water quality sampling, including preservation of samples. That person shall certify in writing that each batch of samples has been sampled and preserved in accordance with generally accepted scientific methods. A copy of those certifications and the person's qualifications shall be provided to the Canterbury Regional Council on request.

- (g) The laboratory undertaking analyses shall be accredited for those analyses by International Accreditation New Zealand (IANZ) or an equivalent accreditation organisation that has Mutual Recognition Agreement with IANZ.
 - (h) The results of all sampling shall be provided to the Canterbury Regional Council Attention: RMA Compliance and Enforcement Manager by 30 May each year. This shall include copies of reports from the laboratory that undertook the analyses.
55. If the monitoring undertaken in accordance with Condition 54 shows that the average sample result for the downstream monitoring site specified in Condition 54 over the period December to April is greater than 0.21 mg/L of DIN; or 0.006 mg/L DRP; or 50 mg chl *a*/ m² (environmental standard trigger), then the consent holder shall commission a report into the cause of the breach of the environmental standard trigger.
56. The reports referred to in Condition 55 shall:
- (a) be prepared by an expert review panel consisting of two qualified and experienced independent scientists. One of the scientists shall be nominated by the Canterbury Regional Council, and the other shall be appointed by the consent holder; and
 - (b) include the experts' conclusion on whether the exceedance(s) were as a result of natural influences, one off events, or in whole or part by nutrient loss associated with the irrigation authorised by this consent; and
 - (c) include an assessment as to whether the exceedance measured by the monitoring is likely to continue; and
 - (d) be completed by 30 July following the sampling; and
 - (e) be provided to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, by 30 August following the sampling.
57. If both the authors of the report prepared in accordance with Condition 55 conclude, after considering all the relevant available information, including on-site monitoring, sub-catchment monitoring, and catchment resource consent compliance and audit reports made available by the Canterbury Regional Council, that the cause of the breach of the environmental standard trigger was unlikely to have been caused in whole or in part by nutrient loss associated with the irrigation authorised by this consent, then no further action needs to be undertaken by the consent holder.
58. If the report prepared in accordance with Condition 55 concludes that the environmental standard trigger has been exceeded because of farm land use practices, then:
- (a) the NDA, as specified in Condition 26, shall be reduced by 5% x Irrigation Proportion Factor (IPF) for the irrigation season subsequent to the monitoring period. The IPF shall be the proportion of the area under irrigation (at the time of the exceedance) under this resource consent divided by the total farm area (i.e. 190 irrigated hectares divided by the total farm area of 21,513 hectares); and
 - (b) the consent holder shall prepare and implement a Remedial Action Plan in accordance with Condition 60(b).
59. If a required reduction in nutrient load is in effect under 58(a) and monitoring for that period shows that the average sample results for the downstream monitoring site over the period December to April is:
- (a) greater than 0.21 mg/L of DIN; or 0.006 mg/L DRP; or 50 mg chl *a*/ m² (environmental standard trigger), then there shall be a further NDA reduction of 10% x IPF for the subsequent irrigation season.
 - (b) less than or equal to 0.21 mg/L of DIN; or 0.006 mg/l of DRP; or 50 mg chl *a*/ m² (environmental standard trigger), then for the subsequent season no NDA reduction shall be required under this condition, and the full NDA for the property, as specified in Condition 26 shall be restored.
60. In relation to the Remedial Action Plan referred to in Condition 58(b):

- (a) It shall set out the methods and timeframes for altering and/or adapting farm land use practices to ensure that the exceedance in the environmental standard trigger, is returned as soon as practicable to and maintained below the average sample results of 0.21 mg/L of DIN; or 0.006 mg/L of DRP; or 50 mg chl a/ m² (environmental standard trigger) for the downstream monitoring site, over the period December to April.
- (b) It shall be prepared by a suitably qualified and experienced person using Overseer or an equivalent method to demonstrate that the actions to be undertaken will achieve the necessary nutrient reductions as soon as practicable.
- (c) If the Remedial Action Plan is prepared in collaboration with other consent holders who are required to prepare a Remedial Action Plan for this sub catchment a common Remedial Action Plan shall be deemed to comply with this condition.
- (d) Any actions required by the Remedial Action Plan shall be incorporated into the consent holder's FEMP. The amended FEMP shall be implemented as soon as physically possible.
- (e) The consent holder shall provide the Canterbury Regional Council with the Remedial Action Plan and an amended FEMP upon request.

Lake water quality monitoring and response

61. The water quality of the Haldon (Northern) Arm of Lake Benmore and Lower Lake Benmore shall be monitored in accordance with this condition from the commencement of consent as follows:

- (a) Locations:
 - i. Haldon (Northern) Arm, Map reference: NZMS 260 H39:8823-3531 (NZTopo50 CA16:7828-7366)
 - ii. Lower Lake Benmore, Map reference: NZMS 260 H39:8802-2371 (NZTopo50 CA16:7808-6205)
- (b) Depths: depth integrated 0-10m, 25m, 50m
- (c) Water quality variables:
 - i. total nitrogen;
 - ii. ammonia;
 - iii. nitrate;
 - iv. nitrite;
 - v. total Kjeldahl nitrogen;
 - vi. total phosphorus;
 - vii. dissolved reactive phosphorus;
 - viii. Secchi disc depth; and
 - ix. chlorophyll *a*.
- (d) Calculated key water quality variable: Trophic Lake Index (TLI), using the following equations:
 - i. $TLc = 2.22 + 2.54 \log (\text{chlorophyll } a)$
 - ii. $TLp = 0.218 + 2.92 \log (\text{total phosphorus})$
 - iii. $TLn = -3.61 + 3.01 \log (\text{total nitrogen})$

iv. $TLI = \Sigma (TLc + TLp + TLn)/3$

- (e) Frequency of monitoring: Once per month from 01 December to 30 April each year, with a minimum of three weeks between sampling.
 - (f) Methods: The methods of sampling and analysis shall be those that are generally accepted by the scientific community as appropriate for monitoring lake water quality. The methods of sampling shall be documented and made available to the Canterbury Regional Council on request.
 - (g) The water quality monitoring shall be undertaken by a suitably qualified and/or experienced person that demonstrates that they understand the appropriate methods to use for lake water quality sampling, including depth integrated sampling, and preservation of samples. That person shall certify in writing that each batch of samples has been sampled and preserved in accordance with generally accepted scientific methods. A copy of those certifications and the person's qualifications shall be provided to the Canterbury Regional Council on request.
 - (h) The laboratory undertaking analyses shall be accredited for those analyses by International Accreditation New Zealand (IANZ) or an equivalent accreditation organisation that has Mutual Recognition Agreement with IANZ and shall be capable of analysing the variables listed in subparagraph c above with detection limits generally recognised by the scientific community as appropriate for oligotrophic lakes.
 - (i) The results of all sampling including the calculated average summer TLI, shall be provided to the Canterbury Regional Council Attention: RMA Compliance and Enforcement Manager by 30 May each year. This shall include copies of reports from the laboratory that undertook the analyses.
62. If the monitoring undertaken in accordance with Condition 61 shows that the average TLI for the 1 - 10 m depth integrated samples for either the Haldon Arm monitoring site or the Lower Benmore monitoring site over the period December to April is greater than 2.75 (early warning trigger) but does not exceed 3.0 (environmental standard trigger), then:
- (a) the NDA, as specified in Condition 26, shall be reduced by 5% x the Irrigation Proportion Factor (IPF) for the irrigation season subsequent to the monitoring period. The IPF shall be the proportion of the area under irrigation (i.e. 190 irrigated hectares divided by the total farm area of 21,513 hectares); and
 - (b) a report into the cause of the breach of the early warning trigger shall be prepared by a person with an appropriate post-graduate science qualification, by 30 July following the sampling. A copy of this report shall be provided to the Canterbury Regional Council Attention: RMA Compliance and Enforcement Manager, by 30 August following the sampling.
63. If a reduction in nutrient loading is required under Condition 62(a) and monitoring in the period that that reduction applies shows that the average TLI for the 1 - 10 m depth integrated samples for the monitoring site over the period December to April:
- (a) continues to be greater than 2.75 but does not exceed 3.0 then there shall be a further NDA reduction of 5% x IPF for the subsequent irrigation season.
 - (b) is less than 2.75, then for the subsequent season the full NDA for the property, as specified in Condition 26 shall be restored.
64. If the monitoring undertaken in accordance with Condition 61 shows that the average TLI for the 1 - 10 m depth integrated samples for either the Haldon Arm monitoring site or the Lower Benmore monitoring site over the period December to April is greater than 3.0 (environmental standard trigger), then
- (a) the NDA, as specified in Condition 26, shall be reduced by 10% x Irrigation Proportion Factor (IPF) for the irrigation season subsequent to the monitoring period. The IPF shall be the proportion of the area under irrigation (i.e. 190 irrigated hectares divided by the total farm area of 21,513 hectares); and

- (b) a report into the cause of the breach of the environmental standard trigger shall be prepared by a person with an appropriate post-graduate science qualification, by 30 July following the sampling. A copy of this report shall be provided to the Canterbury Regional Council Attention: RMA Compliance and Enforcement Manager, by 30 August following the sampling.
65. If a reduction in nutrient loading is required under Condition 64(a) and monitoring in the period that that reduction applies shows that the average TLI for the 1 – 10 m depth integrated samples for either the Haldon Arm monitoring site or the Lower Benmore monitoring site over the period December to April:
- (a) continues to be greater than 3.0 then there shall be a further NDA reduction of 15% x IPF for the subsequent irrigation season and rising to 20% compounding reductions for any further irrigation season.
- (b) continues to be greater than 2.75 but does not exceed 3.0 then there shall be a further NDA reduction of 5% x IPF for the subsequent irrigation season.
- (c) is less than 2.75, then for the subsequent season the full NDA for the property, as specified in Condition 26 shall be restored.
66. The nutrient load reductions and investigation referred to in Conditions 62 to 65 inclusive shall not be required if a two person expert scientist panel (with one expert nominated by the Canterbury Regional Council) both conclude after considering all the relevant available information (including catchment resource consent compliance, FEMP compliance monitoring pertaining to this consent and audit reports made available by the Canterbury Regional Council) that the cause of the breach of the early warning trigger or environmental standard (as applicable) was unlikely to have been caused in whole or in part by nutrient loss associated with the irrigation authorised by this consent.

Administrative conditions

67. The Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, shall be informed immediately on first exercise of this consent by the consent holder.
68. The Canterbury Regional Council may, once per year, on any of the last five working days of March or July serve notice of its intention to review the conditions of this resource consent for the purposes of dealing with any adverse effect on the environment which may arise from the exercise of the resource consent and which it is appropriate to deal with at a later stage, including (but not limited to) amending the flow in the Gray River at which abstraction is required to be reduced or discontinued.
69. The lapsing date for the purposes of section 125 of the Resource Management Act shall be five years from the commencement of this consent.

Advice notes:

- *In relation to the lake monitoring required under Condition 61, it is anticipated that all consent holders subject to this condition would coordinate and cooperate together to ensure that the lake water quality monitoring is undertaken and the costs of that monitoring is shared between those consent holders. The Canterbury Regional Council may provide resources to facilitate that coordination and recover the costs of that facilitation from the relevant resource consent holders as a cost of supervising and administering the resource consents. Any non-compliance with water quality monitoring requirements would be a matter for all relevant consent holders and may be the subject of enforcement proceedings.*
- *The discharge of effluent, fertiliser or any contaminant would require authorisation as a permitted activity or via a discharge permit. Contact the Canterbury Regional Council for advice on the relevant regional rules.*
- *If any additional land use consents are required to carry out the proposed activity, those consents must be obtained before giving effect to this consent.*

