

IN THE MATTER of the Resource
Management Act
1991

AND

IN THE MATTER of the Proposed
Canterbury Land &
Water Regional Plan

STATEMENT OF EVIDENCE OF PHILIP HUNTER MITCHELL

4 February 2013

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1. INTRODUCTION

Qualifications and Experience

- 1.1 I hold the degrees of Bachelor of Engineering (Hons) and Doctor of Philosophy, both from the University of Canterbury. I am a director of Mitchell Partnerships Limited, an environmental consulting practice with offices in Auckland, Tauranga and Dunedin, which I established in July 1997. Previously I was the Managing Director of Kingett Mitchell & Associates Ltd, a firm that I co-founded in 1987.
- 1.2 I am a past president of the Resource Management Law Association and a Full Member of the New Zealand Planning Institute.
- 1.3 I have practised in the resource management area for the past 28 years. My specialist areas of practice are: providing resource management advice to the private and public sectors, facilitating public consultation processes, undertaking planning analyses, managing resource consent acquisition projects and developing resource consent conditions. I have also acted as a Hearings Commissioner on a number of occasions and am accredited as a Hearing Chair.
- 1.4 I have been engaged by Genesis Energy to provide resource management and planning advice in respect of Proposed Canterbury Land & Water Regional Plan.
- 1.5 I confirm that I have read the Code of Conduct for expert witnesses contained in the Environment Court Practice Note and that I agree to comply with it. I confirm that I have considered all the material facts that I am aware of that might alter or detract from the opinions I express. In particular, unless I state otherwise, this evidence is within my sphere of expertise and I have not omitted to consider material facts known to me that might alter or detract from the opinions I express.

Scope of Evidence

1.6 In my evidence I will:

- Summarise, in resource management terms, the significance of the Tekapo Power Scheme;
- Discuss the statutory considerations under the Resource Management Act 1991 ("**RMA**") which I consider to be relevant to the development of the Proposed Canterbury Land & Water Regional Plan ("**Proposed Plan**"); and
- Set out the provisions of the Proposed Plan that I consider should be amended.

1.7 A redlined/strikethrough version of the Proposed Plan provisions is attached to my evidence as Appendix 1 (hereafter referred to as "**my strikethrough version**"). My strikethrough version incorporates changes I consider appropriate following a review of the Genesis Energy submission, Officers' Reports and their strikethrough version of the individual provisions contained therein (hereafter referred to as "**Council's strikethrough version**" of provisions), and consideration of the submissions and further submissions of other parties. To assist the Commissioners, I have used Council's strikethrough version of the Proposed Plan as a base document with my changes shown in redline.

2. BACKGROUND

2.1 The ongoing operation of the Tekapo Power Scheme is inherently intertwined with the natural and physical resources of the Canterbury region, and the Waitaki Catchment in particular.

2.2 In respect of the social, economic and cultural wellbeing of Canterbury and, more broadly, the South Island and New Zealand, Mr Wilson has outlined the benefits provided by the Tekapo Power Scheme. They include the generation

of approximately 980 gigawatt hours (“**GWh**”) per annum of renewable electricity at Tekapo A and B Power Stations, and important contributions to the security of New Zealand’s electricity supply.

2.3 The Tekapo Power Scheme is totally reliant on being able to store water in, and manage lake levels of, Lake Tekapo, and on being able to reticulate water from Lake Tekapo through a series of power stations and canals. Those operations are authorised by a series of resource consents to take, dam, divert and discharge water which expire in 2025. Those resource consents are attached to my evidence as Appendix 2. The key resource consent conditions which affect how much, and how long water can be stored in Lake Tekapo for use in the Tekapo Power Scheme, and hence the ability to generate electricity using that power scheme, are as follows:

- Specific controls on the management of water levels in Lake Tekapo, including the obligation to minimise as far as practicable any adverse effects on the exercise of rights on the Waitaki Power Scheme.
- Requirements to release periodic “recreational flows” into the Tekapo River at specified periods of the year.
- Restrictions on the rate water can be taken from Lake Tekapo into the Tekapo A Power Station and/or from the Tekapo River into the Tekapo Canal, and on the rate water can be discharged from the Tekapo B Power Station.
- Specific controls on the management of spill to the Tekapo River.

2.4 There is no requirement to release a permanent residual flow into the Tekapo River.

2.5 As Mr Wilson outlined, a change in the manner that the Tekapo Power Scheme is able to store water in, and take water from, Lake Tekapo, and any additional requirements to provide new or additional minimum flows into the Tekapo River, could have significant impacts on the quantum of electricity generated by the Tekapo Power Scheme. Any change which allows other parties to take

additional water from Lake Tekapo could also have similar effects. As Mr Wilson has also outlined, those changes would also affect Meridian Energy's Waitaki Power Stations which also use the water augmented from Lake Tekapo by the Tekapo Power Scheme.

- 2.6 The Waitaki Catchment Water Allocation Plan ("**Waitaki Plan**") contains the objectives, policies and rules relating to the taking, damming or diversion of surface water by the Tekapo Power Scheme. Council's strikethrough version of Section 2.9 of the Proposed Plan acknowledges that those provisions prevail over the Proposed Plan, and that by virtue of Section 14 of the Resource Management (Waitaki Catchment) Amendment Act 2004, it is the Regional Plan for the allocation of water in that part of the Waitaki Catchment. Section 2.9 also notes that any inconsistency between the Plans must be interpreted in favour of the Waitaki Plan. As such, unless and until this legal position is changed, I understand that the Proposed Plan would only directly affect the s9, s13 and s15 activities associated with the Tekapo Power Scheme, and not its access to water.
- 2.7 However, Section 2.9 of the Proposed Plan makes it clear that it is Council's intention to, in time, incorporate the Waitaki Plan into the Proposed Plan. The natural place for this to occur is within the Waitaki subsection contained in Chapter 15 of the Proposed Plan. When that process happens, I expect that the objectives and policies of Chapters 3 and 4 of the Proposed Plan will inform and influence the development of the Waitaki subsection in Chapter 15. Depending on its final form, the objective and policy framework in Sections 3 and 4 of the Proposed Plan will therefore either help or hinder the establishment of a flow and water allocation framework for the Waitaki Catchment which takes account of the unique circumstances of its existing environment, including the importance of protecting and providing for the operation of the catchment's hydroelectricity generation schemes.
- 2.8 In that regard, the key concern of Genesis Energy in respect of the Proposed Plan is how it may affect any amended water allocation provisions for the Waitaki Catchment which are at a later date incorporated into the Proposed Plan and which affect the following:

- The continued ability of the Tekapo Power Scheme to store water in, and manage the lake levels of, Lake Tekapo.
- The obligations of the Tekapo Power Scheme in respect of minimum flows in the Tekapo River.
- The ability for other values / users to be allocated water in a manner which adversely affects the Tekapo Power Scheme.

2.9 One final matter I would like to highlight is the authorisation for the continued use of the Tekapo Power Scheme structures which are located within the bed of a lake or river. The use of those structures is reliant on permitted activity rule BLR 2 in the Canterbury Natural Resources Regional Plan (“**NRRP**”). Therefore, should the Proposed Plan include rule(s) which make the use of those structures any other activity status, I understand that by virtue of the requirements of s20A(2) of the RMA, Genesis Energy would have to apply for a resource consent from the Regional Council within six months after the date the rule becomes operative for the use of those structures to lawfully continue.

3. STATUTORY CONSIDERATIONS

3.1 Expressed in the simplest of terms, the Proposed Plan must promote the sustainable management of natural and physical resources as defined in s5 of the RMA.

3.2 There are two general elements of sustainable management in the context of s5 that must be addressed within the Proposed Plan. They are:

- Enabling people and communities to provide for their social, economic and cultural wellbeing; and
- Protecting the quality of the environment.

3.3 Striking the appropriate balance between these is a challenge producing any planning document as the two considerations are often conflicting. However, in

the case of the Proposed Plan, guidance is provided within the higher level RMA derived planning documents. Guidance is also provided by the Canterbury Water Management Strategy ("**CWMS**"). However, the CWMS is only one of the relevant considerations and its importance should not, in my opinion, be overemphasised. More specifically, in my opinion it is not appropriate for the detailed management direction of the CWMS to be simply "cut and pasted" into the Proposed Plan as the priorities of the CWMS are not confined to RMA considerations. As such, inclusion of CWMS content in the Proposed Plan should only be done to the extent that it is considered it is the most appropriate way of satisfying the relevant RMA statutory tests, including giving effect to the higher level RMA planning documents and achieving the purpose of the Act¹.

- 3.4 The s42A Report² and Chapter 3 and 5 of the s32 Report³ provide an overview of the other statutory considerations relevant to the development of the Proposed Plan under the RMA and the Environment Canterbury (Temporary Commissioners and Improved Water Management) Act 2010 ("**ECan Act**"). In my view those sections accurately identify the other statutory matters relevant to the development of the Proposed Plan.
- 3.5 However, neither the s32 nor s42A Reports contain any substantive analysis for how specific electricity generation related matters should be considered in the Proposed Plan. Therefore, to provide some context to changes I propose later in my evidence (which involve adding electricity related provisions), I firstly summarise why I consider it necessary that the Proposed Plan specifically provides for the region's electricity generation infrastructure.

¹ See page 12 of the Report of the Hearing Commissioners on the Proposed Canterbury Regional Policy Statement 2011.

² Proposed Canterbury Land & Water Regional Plan Section 42A Report - Volume 1 For Hearing Group 1 Prepared under the Resource Management Act 1991 January 2013.

³ Proposed Canterbury Land & Water Regional Plan Section 32 Report Prepared under the Resource Management Act 1991 August 2012.

Section 5 of the Act

3.6 In the context of s5 of the RMA, I consider the following matters to be of particular relevance when considering the region's electricity generation infrastructure:

- Canterbury's hydroelectricity generation schemes are nationally significant longstanding "physical resources" that have been part of the existing environment since first work began on the Waitaki Dam in the 1930s, and they are subject to the principle of sustainable management.
- Canterbury's hydroelectricity generation schemes enable people and communities (locally, regionally and nationally) to provide for their social, economic and cultural wellbeing and for their health and safety.
- The water abstracted by the schemes is used efficiently, and generates electricity within multiple power stations.
- The Canterbury hydroelectricity power schemes form a substantial body of renewable electricity generation, with the Waitaki based schemes alone contributing, on average, 25% of New Zealand's renewable electricity generation⁴.
- The Canterbury hydroelectricity power schemes are of national significance in providing security of supply to New Zealand's electricity network, particularly in the South Island. The Waitaki based schemes alone provide approximately 60% of New Zealand's controllable hydro storage capacity⁵.
- Electricity is a vital resource for New Zealand. There can be no sustainable management of natural and physical resources without energy, of which electricity is a major component⁶.

⁴ Statement of Evidence of Lee Athol Wilson, page 34.

⁵ Statement of Evidence of Lee Athol Wilson, page 28.

⁶ Genesis Power Limited v Franklin District Council [2005] NZRMA 541 at [64].

- If the operation of Canterbury's hydroelectricity power schemes are constrained, including restricting their access to water, it will adversely affect the ability of the schemes to generate electricity.
- The hydroelectricity power schemes, including the Tekapo Power Scheme, are subject to a detailed operational regime that robustly addresses their effects on the environment.

3.7 In my view, these circumstances mean that the Proposed Plan should recognise the national and regional significance of Canterbury's hydroelectricity power schemes both individually, and cumulatively.

National Policy Statement on Renewable Electricity Generation

3.8 Under section 67(3) of the RMA the Proposed Plan must give effect to the National Policy Statement on Renewable Electricity Generation ("**NPSREG**"). The meaning of "give effect to" in this context is discussed at length in the s42A Report⁷, and that analysis accords with my understanding that it requires the Proposed Plan to "positively implement" the NPSREG. While this does not mean the Proposed Plan needs to reiterate each and every provision in the NPSREG to give effect to it, I consider it does require that an appropriate level of protection be afforded to existing hydroelectricity generation infrastructure, including the Tekapo Power Scheme, and that it enables the upgrading of existing and development of new renewable electricity generation infrastructure. In my opinion, the key matters contained in the NPSREG in that regard are:

- It makes the development, operation, maintenance and upgrading of new and existing renewable electricity generation activities and the benefits of that generation matters of national significance.
- It acknowledges that the maintenance of generation output from existing activities may require the protection of those assets, their operational capacity, and the continued availability of the renewable resource on which they rely⁸.

⁷ S42A Report, Page 25 -26.
⁸ NPSREG, Policy B a) and b)

- It requires particular regard be had to managing the effects of renewable electricity generation in a manner which allows for the operational requirements of those facilities⁹.
- It requires the Proposed Plan to include objectives, policies and methods to provide for the development, operation, maintenance and upgrading of new and existing hydroelectricity generation facilities¹⁰.

The Canterbury Regional Policy Statement

- 3.9 The Proposed Plan must give effect to the Canterbury Regional Policy Statement 2013 (“**RPS**”)¹¹. While the need to give effect to the RPS is addressed in both the s32 and s42A Reports, the analysis in those reports is predominantly confined to highlighting key provisions of the water chapter. While that chapter is undoubtedly of particular importance to the Proposed Plan, the Proposed Plan is required to give effect to the RPS as a whole, not just one chapter. In my opinion that requires a broader analysis of the other chapters which are relevant to the management of water and land.
- 3.10 I have reviewed the RPS, and although not addressed in detail in the s32 or s42A analyses, I consider the provisions of the Proposed Plan do, for the most part, give effect to the policy direction of the RPS. However, notable exceptions are that the Proposed Plan does not make provision for existing electricity generation infrastructure, nor the need to provide for the continuation of existing activities which involve substantial investment in infrastructure.
- 3.11 In that regard, the RPS includes the following provisions:

Policy 5.3.9 – Regionally significant infrastructure¹² (Wider Region)

...

Methods

The Canterbury Regional Council:

Will:

⁹ NPSREG, Policy C1

¹⁰ NPSREG, Policy E2

¹¹ S67(3) of the RMA.

¹² The definition of regionally significant infrastructure in the RPS encompasses “National, regional and local renewable electricity generation activities of any scale”.

- (1) Set out objectives and policies, and may include methods in regional plans which:
 - (a) provide for regionally significant infrastructure by reducing constraints on their efficient and effective operation, maintenance and upgrade.
 - (b) avoid development that may impact on regionally significant infrastructure
 - (c) avoid, remedy or mitigate the adverse effects of regionally significant infrastructure on the environment.

Policy 7.3.11 – Existing activities and infrastructure

...

Methods

The Canterbury Regional Council:

Will:

- (1) Set out objectives and policies, and may include methods in regional plans (including environmental flow and water allocation regimes) that:
 - (a) Recognise and provide for the continuation of existing hydro-electricity and irrigation schemes and other existing water takes, uses, damming and diversions, which involve substantial investment in infrastructure, as appropriate; and
 - (b) Require these existing activities to make on-going improvements in water efficiency and reductions in adverse environmental effects, as appropriate, including through reviewing conditions on resource consents.

Policy 16.3.3 – Benefits of renewable energy generation facilities

...

Methods

The Canterbury Regional Council:

Will:

- (1) Set out objectives and policies, and may include methods in regional plans that recognise the local, regional and national benefits of a renewable energy supply, including security of supply, providing for electricity capacity, and assisting in meeting international climate obligations.

Policy 16.3.5 — Efficient, reliable and resilient electricity generation within Canterbury

...

Methods

The Canterbury Regional Council:

Will:

- (1) Set out objectives and policies, and may include methods in regional plans to:
 - (a) avoid activities on the beds of lakes and rivers, and uses and developments that impact on the generation capacity from, and/or the maintenance and upgrading of consented and existing electricity generation infrastructure; and
 - (b) provide for the full operation, and maintenance and/ or upgrading of, existing generation infrastructure;
 - (c) provide for activities associated with the investigation, identification and assessment of potential sites and energy sources for electricity generation;
 - (d) enable the upgrading of existing and establishment of new electricity generation infrastructure within the coastal marine area and in the beds of lakes and rivers, while avoiding, remedying or mitigating adverse effects including through the use of best practice approaches to design, construction and effect management.

3.12 I note giving effect to the RPS does not require repeating each and every provision in the Proposed Plan. However, the RPS needs to be positively implemented, and, in my opinion, the prescriptive and clear nature of the directions contained in the above implementation methods means that remaining silent, or neutral on the matter in the Proposed Plan does not give effect to the RPS, as is required by the RMA.

4. SUMMARY OF SUGGESTED AMENDMENTS TO THE PROPOSED PLAN

4.1 Given the significant influence Canterbury's hydroelectricity schemes have on the region's major catchments and the mandatory direction of the RPS (in particular) to provide for their use, development and protection, I consider

providing clear strategic direction for their management is an important and necessary component of the Proposed Plan.

4.2 While the Proposed Plan addresses in some detail the use, development and protection of the region's natural resources, it is silent on the use, development and protection of its existing hydroelectricity generation schemes.

4.3 By way of an overview, I consider the Proposed Plan should be amended as follows:

- Addition of new provisions addressing electricity generation infrastructure to provide much needed clarity.
- Changes to the policy direction contained in the existing policies which address electricity generation.
- Addition of a new policy which recognises the need to provide for existing users and uses.
- Addition of a new controlled activity rule for all activities associated with an existing hydroelectricity generation scheme.
- Amendments to Rule 5.132 so it only applies to the existing dam structures of hydroelectricity generation schemes at the time they require replacement resource consents.
- Changes to Policy 4.2, 4.41 and Policy 4.52 which I consider inappropriately specify a "no adverse effects threshold" for certain disturbance, discharge, damming, diversion or abstraction activities.

4.4 I will discuss each of these changes in more detail below.

5. CHANGES TO THE OBJECTIVE AND POLICY PROVISIONS FOR EXISTING WATER USERS / ELECTRICITY GENERATION

5.1 Council's strikethrough version of the Proposed Plan contains, in my opinion, a more complete set of objectives than the notified version, in that they address more fully the importance of the use and development of the region's water resources for social and economic wellbeing. While I consider the objectives contain a degree of repetition and could be reworded to improve their clarity, I consider that they adequately address the relevant matters in the appropriate way, especially in respect of giving effect to the RPS.

5.2 However, I consider the policies of the Proposed Plan to be lacking in respect of the direction they provide for managing the region's electricity generation infrastructure.

5.3 Section 4 contains eight "strategic policies". Section 2.2 of the Proposed Plan states that these strategic policies provide the overall direction for the integrated management of land and water in the region. Those policies provide very limited strategic direction in respect of electricity generation infrastructure, as follows:

- Policy 4.4 – (when setting flow and allocation regimes providing for electricity generation infrastructure) is a second order priority behind maintaining the life supporting capacity of ecosystems, supporting customary uses and providing for community and stockwater supplies.
- Policy 4.8 - the harvest and storage of water by hydroelectricity generation schemes should contribute to, or should not frustrate the attainment of the regional concept for water harvest, storage and distribution set out in Schedule 16 of the Proposed Plan, or the priority outcomes expressed in the relevant Zone Implementation Programme ("ZIP").

5.4 The only other explicit mention of electricity generation is in Policy 4.48, which is one of the 85 "Activity and Resource Policies". It states:

Existing hydro-generation and irrigation schemes are recognised as a part of the existing environment. In consenting the schemes, it is expected that there will be improvements in the efficiency of water use and conveyance assessed over the life of the consent and reductions in any adverse effects on flows and levels in water bodies in order to maximise the term of the consent.

- 5.5 There is also no general policy which recognises and provides for existing water users which would lend policy support to providing for existing hydroelectricity generation infrastructure¹³.
- 5.6 In my opinion, modified and additional provisions need to be included in the Proposed Plan so that it appropriately recognises and provides for electricity generation infrastructure. I address each provision below.

New Electricity Generation Specific Provisions and Revision of Policy 4.48

- 5.7 I consider the Proposed Plan contains ample policy direction for managing the effects of electricity generation¹⁴. Therefore I do not consider it is necessary to include electricity specific provisions in the “effects” provisions. However, I consider that new strategic policy is needed along the following lines:

Electricity Generation

4.XX The generation output of existing hydroelectricity generation schemes will be maintained, and their ongoing operation provided for.

4.XX The upgrading of existing and establishment of new electricity generation infrastructure is to be encouraged.

¹³ I note Policy 4.6 provides a concession when replacing existing resource consents in catchments which are over-allocated, however, even that concession is contingent on there being “significant and enduring improvements in the efficiency of water use and reductions in any adverse effects”. This approach pre-supposes that such significant and enduring improvements can be made. Thus, for example, what is the position if a facility is already operating at maximum efficiency.

¹⁴ For example Policy 4.1 and Policy 4.2.

4.XX Activities, uses and developments that impact on the generation capacity from, and / or the maintenance and upgrading of consented and existing electricity generation infrastructure will be avoided.

5.8 I support the provisions of Policy 4.48 that state that existing hydro-generation and irrigation schemes are to be recognised as part of the existing environment. That confirms the legal position as I understand it. However, I do not agree with the inclusion of the caveat whereby the existing hydroelectricity generation schemes must improve their efficiency of water use and reduce their adverse effects on flows and levels in water bodies in order to maximise their term of consent. My understanding is that the Tekapo Power Scheme already satisfies this criterion in any case.

5.9 Moreover, efficiency matters are already covered at length in Policies 4.66 – 4.70, and I consider that those provisions provide sufficient guidance on the matter. As such, I consider Policy 4.48 should be amended in the following manner:

4.48 Existing hydro-generation and irrigation schemes are recognised as part of the existing environment. ~~In re-consenting the schemes, it is expected that there will be improvements in the efficiency of water use and conveyance assessed over the life of the consent and reductions in any adverse effects on flows and levels in water bodies in order to maximise the term of consent.~~

5.10 I also consider the changes contained in the Council's strikethrough version of Policy 4.47 are important as they seek to remove the direction that an existing hydroelectricity generation scheme must improve its efficiency even if it is demonstrated the use of water by the scheme is already efficient.

5.11 Further, I consider it would be desirable to include Policy 4.48 in the strategic policy section of the Proposed Plan because of:

- The national significance of the Canterbury electricity generation schemes;
- The hydroelectricity generation facilities already exist and will not be dismantled; and
- The important role they play in determining the hydrological characteristics of several Canterbury rivers.

5.12 I also consider inclusion of Policy 4.48 in the strategic policies section is important as it puts recognition of the flow regimes of existing hydroelectricity schemes on an equal footing in the policy hierarchy as, for example, the environmental protection requirements of Policy 4.1 and Policy 4.2, which address the matters of environmental quality and Policy 4.8 which addresses desired CWMS outcomes. This would, in my opinion, better reflect the s5 purpose.

5.13 Alternatively, a new subsection in the Activity and Resource Policies titled “Electricity Generation” could be created and the new policies and revised Policy 4.48 could be located there. This is the approach I have taken in my strikethrough version.

Policy 4.4

5.14 In my view Policy 4.4 needs to be revised substantively.

5.15 I note a number of submitters have sought changes which would delete or change the prioritisation of uses contained in Policy 4.4. The s42A Report dismissed those submissions on the basis that the RMA supports prioritisation of water allocation and on the basis that altering or removing the hierarchy of priorities contained in Policy 4.4 would detract from the implementation of the CWMS¹⁵.

5.16 I agree that the RMA allows for the prioritisation of uses when allocating water, and I also agree that implementation of the CWMS should be a relevant

¹⁵ S42A Report – page 105.

consideration when setting flow and allocation regimes. However, directing that limits for all catchments should be set solely on the basis of the first and second order priority concept should not be mandatory as it does not adequately address the national significance of hydro-generation and a “one size fits all” approach does not address current realities in, for example, the Waitaki Catchment.

- 5.17 I accept that in some catchments that may be the case, but not all. In the Waitaki Catchment for example, Part 2 of the RMA, the provisions of the NPSREG and the RPS all confirm substantial weight should be afforded to providing for the allocation requirements of the existing hydroelectricity generation schemes in the catchment. Achieving a sustainable management outcome in this catchment may require this to be done at the expense of some or all of those matters prescribed by Policy 4.4 as first order priorities. Further, I understand the flow and the current allocation regime set out in the Waitaki Plan could not be said to be in line with the first and second order priority concept outlined in Policy 4.4.
- 5.18 In my opinion, the importance of providing for those matters listed as first order priorities when setting limits is also already highlighted sufficiently within the other policies of the Proposed Plan. There are other policies which, for example, make it clear that provision for the life-supporting capacity of ecosystems¹⁶, provision for customary uses¹⁷ and provision for community and stockwater drinking water supplies¹⁸ are a priority of the Proposed Plan.
- 5.19 Specifying that limits must be set in line with the first and second order priority concept in all catchments is not, in my opinion, the most appropriate way of achieving flow and allocation regimes that promote sustainable management of natural and physical resources.
- 5.20 In its place, I consider a new policy should be included. The version I have suggested is similar to that promoted by Trustpower¹⁹ and outlines that (a) limits will be used in each catchment to manage freshwater; and (b) that those limits

¹⁶ For example Policy 4.1, Policy 4.2, Table 1a and Table 1b.

¹⁷ For example Policy 4.3 and Policy 4.52

¹⁸ For example Policy 4.20, Policy 4.46 and Policy 4.47.

¹⁹ Submission No 250.31.

will be set based on the circumstances of the particular catchment. I consider it is important that the Proposed Plan retains policy that any limits must recognise the use of water for activities which support social and economic wellbeing especially as there is no other strategic policy direction in that regard. Suggested wording is as follows:

4.4 Limits will be set for individual catchments catchment which provide for a variety of matters as is appropriate considering the specific circumstances of that catchment, including but not necessarily limited to the maintenance of the life-supporting capacity of ecosystems, the support of customary uses, provision for community and stock drinking water supplies, provision for hydro-electricity generation and irrigation schemes and other abstractive activities, and recreational activities.

- 5.21 Should the Commissioners consider it desirable to retain explicit mention of the first and second order priorities in the Proposed Plan, I consider that this should occur within the 'Abstraction of Water' section of the 'Activity and Resource' policies. It should also be framed as being a "matter to be had regard to" when setting flow and allocation regimes, and not the "underlying principle". Suggested wording is as follows:

4.XX Particular regard will be given to the vision and principles of the Canterbury Water Management Strategy.

- 5.22 For the sake of completeness, I also note that should the Commissioners choose to retain an element of priority in Policy 4.4, for the reasons outlined in Section 3 of my evidence, I consider that provision for existing hydroelectricity generation schemes needs to be added as a first order priority.

Policy 4.8

- 5.23 In my opinion, the direction in Policy 4.8 that existing hydroelectricity generation schemes not frustrate the "regional concept", or "priority outcomes recorded in the relevant ZIP" is also inappropriate and jars with the s5 purpose.
- 5.24 I appreciate the effort which is being made within the region to address its water availability issues under the auspices of the CWMS through Regional and Zone

Implementation Committees. I can also see how it would be useful to include reference to that effort in the strategic policies of the Proposed Plan, and for that matter, within the individual sub-regional chapters later in the Proposed Plan. However, I find it difficult to comprehend why the continued operation of nationally significant electricity generation infrastructure should be contingent on it not frustrating what I understand to be a highly fluid body of conceptual ideas for manipulating the region's water between and within catchments which, to my knowledge, have not been tested under the auspices of an RMA process. I also disagree that the priority outcomes in the relevant ZIP should be afforded significant weight, given those documents have not been developed and tested within an RMA forum. In my opinion, this type of situation where regional interests are potentially advanced at the expense of nationally significant electricity generation infrastructure, is one that the NPSREG is intended to protect against.

- 5.25 I also note the s42A Report seems silent on the matter. Rather, the reasoning provided in the s42A Report for retaining the policy is confined to concerns that without the policy, new developments could frustrate the attainment of the regional concept / ZIP outcomes²⁰.
- 5.26 In my opinion, Policy 4.8 should be amended so that the "Regional Concept" and "ZIP matters" only be relevant to new schemes. This removes the notion that the operation of existing nationally significant hydroelectricity generation infrastructure should be subservient to the regional concept and ZIP priority outcomes. The changes I consider should be made to Policy 4.8 to remedy the matter are outlined below:

4.8 The harvest and storage of water for new irrigation or new hydro-electricity generation schemes contribute to or do not frustrate the attainment of the regional concept for water harvest, storage and distribution set out in Schedule 16 or the priority outcomes expressed in the relevant ZIP.

²⁰ S42A Report – page 109.

Other Matters

- 5.27 I note I have also suggested some consequential amendments to the wording of the introductory sections of the Proposed Plan which address electricity generation more appropriately.
- 5.28 I have also suggested the inclusion of an additional policy in the 'Abstraction' section which recognises the need to provide for existing users in a general fashion. In my opinion, this is a key policy direction that is currently missing from the Proposed Plan, and as I outlined in Section 3 of my evidence, the RPS is clear in its direction the continued operation of such uses should be provided for.

6. CONTROLLED ACTIVITY RULE FOR APPLICATIONS TO RE-CONSENT EXISTING HYDROELECTRICITY GENERATION SCHEMES

- 6.1 It is clear from the evidence of Mr Wilson that the hydroelectricity schemes in Canterbury are of national significance, and together they form a substantial body of renewable electricity generation. They also represent substantial sunk investment cost and in the context of the RMA are longstanding "physical resources" which have formed part of the existing environment since the middle of the last century.
- 6.2 For all these reasons I agree with the statement in Section 1.2.6 of the Proposed Plan that:
- There is no practical alternative to the continued use of the existing hydroelectricity schemes; and
 - When considering the place of these schemes in the sustainable management of Canterbury's natural and physical resources, focus should be on how the hydroelectricity schemes manage their effects on the environment, rather than debating the merits of their continued existence.

- 6.3 Accordingly resource consents for all ongoing uses of existing electricity generation infrastructure should be provided for as a controlled activity. The notified version of the Proposed Plan specifies a number of different activity statuses to activities associated with existing hydroelectricity schemes²¹, and, when bundled, they would make the applications to replace these consents either a full discretionary or potentially non-complying activities. I also note that in the description of the rule framework in Section 2.3, the Regional Council supports simplifying the consenting process and endorses the “rule bundling approach”. Specific wording for my suggested controlled activity rule is set out in Appendix 1.
- 6.4 I note the s42A Report expresses the view that affording controlled activity status to all activities associated with existing hydroelectricity generation schemes is inappropriate as some of those activities may be contentious particularly given the National Policy Statement for Freshwater Management 2011 (“**NPSFW**”)²². In my view this is not a valid reason for not attributing controlled activity status. Those matters that are contentious can be dealt with through the matters over which control is reserved, as provided for in the matters I have set out in Appendix 1. Should, for example, it be decided the current flow regime of a hydroelectricity generation scheme is inappropriate it is inconceivable to me that the consent would be declined and the scheme would be expected to cease operating. Rather, what would, and should happen, is an appropriate flow regime would be prescribed within the conditions of the consent that was granted.
- 6.5 I also note that this approach is not unusual in a national context and there are various examples around New Zealand where replacement consents for

²¹ For example, with respect to the major consents for the Tekapo Power Scheme:

- The take and /or diversion of water from Lake Tekapo, the Tekapo River would likely be a restricted discretionary activity under Rule 5.96;
- The damming of water by the Tekapo Control Gates and Lake George Scott weir would likely be a non-complying activity under Rule 5.130 of the notified version of the Proposed Plan or a discretionary activity under Rule 5.129 of Council's strikethrough version;
- The discharge of water from via the Tekapo Control Structure to the Tekapo River Tekapo B Power Station to Lake Pukaki would likely be a permitted activity under Rule 5.77 or discretionary activity under Rule 5.6;
- The use of structures excluding the dam structures would likely be a permitted activity under Rule 5.117, and the use of the dam structures would be a controlled activity under Rule 5.132.

²² S42A Report, page 378.

existing hydroelectricity generation infrastructure are assigned controlled activity status²³.

7. RULE 5.132 – THE USE OF STRUCTURES

7.1 As outlined in Section 2 of my evidence, the use of structures associated with the Tekapo Power Scheme (and I also understand the Waitaki Power Scheme) is authorised by Permitted Activity Rule BLR 2 of the NRRP. Rule 5.132 of the Proposed Plan would make the use of those structures a controlled activity. While the s42A Report states that *“this Rule is intended to capture existing structures at the time they are required to renew resource consents”* I understand that by virtue of the requirements of section 20A(2) of the RMA, Genesis Energy would have to apply for a resource consent from the Regional Council within six months after the date the rule becomes operative for the use of those structures to lawfully continue. I note the s42A Report has recommended changing the rule so it only addresses lawfully established dam structures, however, in my view this does not resolve the issue. I agree with the Officers that the appropriate time for the use of the structures to be reassessed is when the other consents for lawfully established hydroelectricity schemes are being renewed²⁴, and therefore I propose the following changes to Rule 5.132 (noting I have included Council’s strikethrough version as the base version of the rule):

5.132 The use and maintenance of a ~~structure in the bed of a river associated with a~~ lawfully established dam ~~hydroelectricity power scheme~~ that existed on 1 November 2013 is a controlled activity, provided that if the dam is associated with a lawfully established hydroelectricity power scheme that existed on 1

²³

For example:

- Horizons Region – Replacement consents for the take, use, dam, diversion or discharge of water associated with lawfully established hydroelectricity schemes are controlled activities under Rules 13-26A, 15-5A and 16-9A of the Proposed One Plan. This region contains several hydro schemes.
- Waikato Region – Replacement consents for existing structures, dams, diversion, takes, discharges, maintenance, removal of bed materials are controlled activities under Rule 3.6.4.10, 3.6.4.11 and 4.6.3.2 of the Waikato Regional Plan. These cover the Waikato Hydro Scheme and the Tongariro Power Scheme.

²⁴

S42A Report, page 378.

November 2013 and provided that the resource consent which lawfully established the damming of water behind that dam on 1 November 2013 has expired or has been surrendered.

The CRC reserves control over the following matters:

1. The maintenance of, or improvement of, fish passage.
2. The risk of dam failure;
3. Whether and how fish are prevented from entering any intake structures;
4. Passage of flood waters.

5.XX Notwithstanding Rule 5.132, the use and maintenance of a dam associated with a lawfully established hydroelectricity power scheme that existed on 1 November 2013 is a permitted activity while the resource consent which lawfully established the damming of water behind the dam structure remains operative.

8. FRESHWATER OUTCOMES AND THE EXISTING ENVIRONMENT

- 8.1 The default outcomes referred to in Policy 4.1 make categorical statements as to the freshwater outcomes Canterbury's rivers will be managed to achieve. These include direction that water bodies be managed so that, by way of examples: "passage for migratory fish species will be maintained"; and "natural continuity of river flow is maintained from source to sea, without reaches being induced to run dry". Those outcomes are not achieved, and cannot practically be achieved in some catchments. The particular example I wish to highlight is the Waitaki Catchment, where the default provisions in Policy 4.1 are incompatible with the ongoing operation of the existing hydroelectricity generation schemes in that catchment.
- 8.2 I acknowledge that there is provision made for catchment specific outcomes to be set and that the above-mentioned default provisions would initially be subservient to the provisions of the Waitaki Plan. However, I consider that a specific cross-linkage is required in the Proposed Plan to make it explicit that

the default provisions are not intended to apply in the future to the Waitaki Catchment.

- 8.3 This can be achieved by including a footnote on the table attached to Policy 4.1 (Table 1a).

9. NO ADVERSE EFFECTS POLICIES

- 9.1 Policy 4.3, Policy 4.41 and Policy 4.52 direct certain activities to not diminish or to not adversely affect certain cultural and / or natural values. It is well established that the RMA is not a “no adverse effects” statute, and in my opinion, the absolute nature of the policies is not appropriate in the absence of any evidence supporting such policies insofar as they relate to existing hydroelectricity schemes. I will address each of these policies below.

Policy 4.3

- 9.2 The notified version of Policy 4.3 requires the discharge of contaminants to water or the damming, diversion or abstraction of any water or disturbance to the bed of a fresh water body to “not diminish” any values of cultural significance to Ngai Tahu. I note, in response to submissions, including those of Ngai Tahu, the s42A Report has recommended a replacement policy which directs the cultural values of each catchment be identified and provided for in the sub-regional sections of the Proposed Plan. I support the revised wording.

Policy 4.41 and Policy 4.52

- 9.3 Based on the discussion in the s42A Report, I understand the intent of Policy 4.41 and Policy 4.52 is to establish a baseline of acceptable effects for certain types of activities in the region²⁵. Policy 4.41 is absolute in its direction that the damming or diversion of certain rivers will not have adverse effects on a list of specified values. Policy 4.52 takes a similar approach to the diversion of water from one catchment or water body to another. In response to submissions, the

²⁵ S42A Report, page 231.

s42A Report has sought to lower that threshold to encompass those activities which have “negligible” adverse effects on the list of specified values.

- 9.4 I consider that the premise behind these two policies is incorrectly framed, and the changes recommended in the s42A Report do nothing to change that. The degree of acceptable adverse effects of an activity should be determined on a case by case basis and will differ depending on the specific circumstances. The appropriateness threshold cannot and should not be determined in the broad as existing hydroelectricity schemes would, by definition, fall foul of those provisions.
- 9.5 The approach of Policy 4.41 and Policy 4.52 is also inconsistent with the direction of the RPS in relation to managing the effects of activities. The RPS, while being very clear in its direction that avoiding effects on certain values should be afforded additional weight, it does not promote an absolute baseline of acceptability. It also clearly anticipates the continuation of existing regionally significant infrastructure (which includes existing hydroelectricity and community scale irrigation schemes and their significant dam and diversion activities) and that those activities will continue to have adverse effects on the environment²⁶.
- 9.6 For all the reasons above, the changes I consider should be made to Policy 4.41 and Policy 4.52 to change their approach are as follows.

Policy 4.41

The damming or diversion of any alpine or hill-fed river will avoid adverse effects on the following values, and where that is not practicable, remedy or mitigate them ~~does not adversely affect:~~

- (a) values of significance to Ngāi Tahu associated with the mainstem;
- (b) the passage of floods and freshes needed to maintain river processes, ecosystem health and the removal of vegetation encroaching onto the bed of the mainstem;
- (c) sediment transport within the river and to the coast;
- (d) fish passage; and
- (e) downstream water quality.

Policy 4.52

The discharge of water resulting from moving water from one catchment or water body to another will avoid adverse effects on the following values, and where that is not practicable, remedy or mitigate them ~~in particular does not:~~

- (a) ~~facilitate~~ the transfer of unwanted fish species, plant pests or unwanted organisms into catchments where they are not already present;

²⁶

See for example Policy 5.3.9, Policy 5.3.11, Policy 7.3.7 and Policy 16.3.5 of the RPS.

- (b) ~~does not have a more than a negligible adverse effect on~~ adversely affect Ngāi Tahu values;
- (c) ~~does not have a more than a negligible adverse effect on~~ adversely affect the natural character of the receiving water;
- (d) ~~does not adversely affect~~ existing drinking water treatment systems to ensure to the extent that they are still no longer able to effectively treat the water to achieve the standards set out in the Drinking-water Standards for New Zealand 2005; and
- (e) ~~does not have a more than a negligible adverse effect on~~ adversely affect fish migration.

10. CONCLUSION

- 10.1 Mr Wilson has contextualised the fundamental importance the role the Tekapo Power Scheme specifically, and the Canterbury's hydroelectricity generation facilities generally, fill in New Zealand's electricity generating network. Those facilities represent significant sunk investment, and the ability of those existing facilities to generate electricity, and provide security of supply to New Zealand's electricity generation network, is completely reliant on continued access to water, and the efficient operation of their ancillary infrastructure.
- 10.2 In my opinion, the Proposed Plan does not have sufficient regard to the fundamental importance of the Tekapo Power Scheme, or, more generally the Canterbury region's hydroelectricity facilities. The Proposed Plan does not provide adequate protection to these existing hydroelectricity generation facilities, and in turn, does not provide adequate protection to the security of New Zealand's electricity supply.
- 10.3 In my opinion, a number of amendments are required to ensure that the Proposed Plan promotes the sustainable management of the Canterbury region's natural and physical resources.

APPENDIX 1

Strikethrough Version of the Proposed Plan

**MY PROPOSED CHANGES IN RED. COUNCIL STRIKETHROUGH VERSION OF
PROVISIONS CONTAINED IN THE S42A REPORT USED AS THE BASE
DOCUMENT**

NOTE: ONLY THOSE PROVISIONS I HAVE SUGGESTED CHANGES TO WITHIN MY EVIDENCE ARE INCLUDED BELOW

Section 1 - Introduction, Issues & Major Responses

1.2 Land and Water Resources Management Issues – the Need for an Integrated Approach

1.2.6 Managing New and Existing Activities

The RMA requires particular consideration be given to existing activities in the allocation of natural resources. The RMA requires all resource consents to be considered subject to Part 2 of the RMA, and gives the consent authority the power to review consent conditions in particular circumstances⁶⁰. In managing water in catchments that are not under stress it is still possible to recognise and provide for existing activities for those catchments. Where abstractions or discharges are over-allocated, alternative management techniques are needed. For applicants seeking a replacement consent, the RMA provides particular recognition through sections 124-124C and s104(2A) which states that the consent authority must have regard to the value of the investment of the existing consent holder.⁶¹

Existing infrastructure associated with large-scale irrigation and hydro-electricity generation schemes are recognised as part of the existing environment and have both positive and adverse effects that last throughout the period that the structure exists and operates for. When resource consents expire for this infrastructure and associated water abstractions and discharges,⁶² the activity must be reassessed as if new even when there is no practical alternative to continuing to use the existing infrastructure. In these cases, rather than debating whether the infrastructure should exist at all, a more useful approach is to focus on managing the effects of the activities on improving the efficiency, and reducing the environmental effects, of taking and using the water.

...

1.3.3 Statutory Planning for Managing Land and Water, and the Role of the Land and Water Regional Plan

The primary legislation for managing natural resources in New Zealand, including land and water, is the RMA, except for land that is managed under the Conservation Act 1987 and the statutes in the First Schedule to that Act. The RMA promotes the sustainable management of natural and physical resources. This involves managing the resources of the Canterbury Region in ways that provide for the needs of current and future generations. The LWRP must also give effect to the objectives and policies specified in any operative national policy statement. Currently there are three national policy statements (NPS). The LWRP has been prepared to give effect to these documents as required by the RMA. In doing this, it has been recognised that no NPS takes precedence over any other and that any resolution of conflict between competing objectives and policies within Canterbury may be informed by the provisions of the RPS 2013 and the LWRP. The National Policy Statement for Freshwater Management ("Freshwater NPS") requires regional councils to address the over-allocation of water in catchments for abstraction or discharges. Regional plans must give effect to the NPS. The NPS for Renewable Electricity Generation requires that Regional Councils recognise and provide for the national significance of renewable generation activities, including having particular regard to the maintenance of the generation output of existing renewable generation activities.

Regional and District Councils all have functions set out under the RMA with powers and duties to exercise those functions. The RMA provides for a series of planning instruments for managing natural and physical resources, including land and water. Figure 1 shows the hierarchy of planning instruments relating to land and water under the RMA, and the relationship between them.

Section 30 of the RMA gives regional councils some specific functions around the control of the use of any land (including the beds of lakes and rivers) for the purposes of soil conservation, water quality, water quantity and the maintenance of ecosystems in water bodies, the avoidance or mitigation of natural hazards, and the prevention or mitigation of effects from the use, storage, transport or disposal of hazardous substances. Regional councils also have functions around controlling the planting of plants in the beds of lakes and rivers, the maintenance of indigenous biological diversity and the integration of strategic infrastructure and land use.

District councils, under section 31 of the RMA, have more general functions to control the effects of the use, development or protection of land. Close co-operation is needed between the Regional Council and District Councils in relation to the respective regional and district plans to ensure complementary approaches that avoid duplication.

In addition, a regional plan cannot be interpreted or applied in a way that is inconsistent with the “Recovery Strategy for Greater Christchurch Mahere Haumanutanga o Waitaha” (“Recovery Strategy”), which came into effect on 1 June 2012.

Sections 3-8 of the Recovery Strategy have statutory effect under the Christchurch Earthquake Recovery Act 2011. The Recovery Strategy forms part of and is read together with RMA plans. The Recovery Strategy prevails where there is any inconsistency.

Regional councils also have functions relating to land and water under other legislation. In particular, the Biosecurity Act that manages the control of plant and animal pests. This is done through the Regional Pest Management Strategy.

...

SECTION 4 POLICIES

Strategic Policies

Policy 4.1

Lakes, rivers, wetlands and aquifers will meet the fresh water outcomes set in Sections 6-15 within the specified timeframes. If outcomes have not been established for a catchment, then each type of lake, river or aquifer will meet the outcomes set out in Table 1 by 2023.

Table 1a Outcomes for Canterbury Rivers

Management unit	Sub-unit	Ecological health indicators			Macrophyte indicators	Periphyton indicators			Siltation indicator	Microbiological indicator
		QMCI* [min score]	Dissolved oxygen [min saturation] (%)	Temperature [max] (°C)	Emergent macrophytes [max cover of bed] (%)	Total macrophytes [max cover of bed] (%)	Chlorophyll a [max biomass] (mg/m²)	Filamentous algae >20mm [max cover of bed] (%)	Fine sediment <2 mm diameter [max cover of bed] (%)	Suitability for contact recreation [SFRG*]
Natural state		Rivers are maintained in a natural state								
Alpine - upland	urban	5 - 6	90	20	No value set	No value set	50	10	10	Good
Alpine - lower							120	20		Good to Fair
Hill-fed - upland							50	10	15	Good
Hill-fed - lower							200	30		Good to Fair
		3.5						20	No value set	
Lake-fed		6					200	30	10	Good
Banks Peninsula		4 - 5					120	20	20	No value set
Spring-fed -upland		6			20	30	50	10		Good
Spring-fed - lower basins	5	30	30	200	30	10	Fair			
Spring-fed -plains	urban	4.5 - 5	70		30	50	200	30	20	No value set
		3.5			30	60	200	30	30	No value set
All river management units		Toxin producing cyanobacteria shall not render the river unsuitable for recreation or animal drinking water.								
		Fish shall not be rendered unsuitable for human consumption by contaminants in a river.								
		The natural colour of the water in a river shall not be altered.								
		Natural frequency of hāpua, coastal lake, lagoon and river openings is not altered.								
		Passage for migratory fish species is maintained unless restrictions are required to protect populations of native fish.**								
		Natural continuity of river flow is maintained from source to sea, without reaches being induced to run dry.**								
		Variability of flow, including floods and freshes, avoids “flat-lining”, enables fish passage and mobilises bed material.**								

*Key:

QMCI = quantitative macroinvertebrate community index

SFRG = Suitability for Recreation Grade from Microbiological Water Quality Guidelines for Marine and Freshwater Recreational Areas 2003

**** Does not apply to the Waitaki Catchment.**

...

Policy 4.4

~~Water is managed through the setting of limits will be set for each catchment which provide for a variety of catchment specific values including but not necessarily limited to the maintenance of to maintain the life-supporting capacity of ecosystems, support customary uses, and provide for community supplies and stock drinking water supplies, as a first priority and to meet the needs of people and communities for water for irrigation, hydro-electricity generation and other economic activities and to maintain river flows and lake levels needed for recreational activities, as a second priority.~~

...

Policy 4.8

The harvest and storage of water for **new** irrigation or **new** hydro-electricity generation schemes contribute to or do not frustrate the attainment of the regional concept for water harvest, storage and distribution set out in Schedule 16 or the priority outcomes expressed in the relevant ZIP or a water quantity limit set in sections 6-15.

Policy 4.48

Existing hydro-electricity generation and irrigation schemes and their water takes are recognised as a part of the existing environment ~~it is expected that there will be improvements in the efficiency of water use and conveyance (assessed over the life of the consent) and reductions in any adverse effects on flows and levels in water bodies in order to maximise the term of the consent.~~

[NOTE I HAVE RELOCATED POLICY 4.48 INTO THIS NEW SECTION WITHOUT SHOWING THE MOVE AS A TRACK CHANGE]

Activity and Resource Policies

...

Damming and Diversion of Water Bodies

...

Policy 4.41

The damming or diversion of any alpine or hill-fed river will avoid adverse effects on the following values, and where that is not practicable remedy or mitigate them does not have more than a negligible adverse effect on ~~adversely affect:~~

- (a) values of significance to Ngāi Tahu associated with the mainstem;
- (b) the passage of floods and freshes needed to maintain river processes, ecosystem health and the removal of vegetation encroaching onto the bed of the mainstem;
- (c) sediment transport within the river and to the coast;
- (d) fish passage; ~~and~~
- (e) downstream water quality
- (f) the ecological values of the river;
- (g) threatened native riverbed populations and significant indigenous biodiversity; and
- (h) recreation activities.

...

Electricity Generation

Policy 4.XX

The generation output of existing hydroelectricity generation schemes will be maintained, and their ongoing operation provided for.

Policy 4.XX

The upgrading of existing and establishment of new electricity generation infrastructure is to be encouraged.

Policy 4.XX

Activities, uses and developments that impact on the generation capacity from, and / or the maintenance and upgrading of consented and existing electricity generation infrastructure will be avoided.

...

Abstraction of Water

...

Policy 4.XX

The continuation of existing water takes, damming and diversions which involve substantial investment in infrastructure will be recognised and provided for.

Policy 4.48

~~Existing hydro-electricity generation and irrigation schemes and their water takes are recognised as a part of the existing environment it is expected that there will be improvements in the efficiency of water use and conveyance (assessed over the life of the consent) and reductions in any adverse effects on flows and levels in water bodies in order to maximise the term of the consent.~~ [MOVED TO NEW ELECTRICITY GENERATION SECTION]

...

Policy 4.52

The discharge of water resulting from moving water from one catchment or water body to another will avoid adverse effects on the following values, and where that is not practicable remedy or mitigate them in particular ~~does not:~~

- (a) ~~facilitate~~ the transfer of unwanted fish species, plant pests or ~~unwanted~~ organisms into catchments where they are not already present;
- (b) ~~does not have a more than a negligible adverse effect on~~ ~~adversely affect~~ Ngāi Tahu values;
- (c) ~~does not have a more than a negligible adverse effect on~~ ~~adversely affect~~ the natural character of the receiving water;
- (d) ~~does not adversely affect~~ existing drinking water treatment systems to ensure to the extent that they are still no longer able to effectively treat the water to achieve the standards set out in the Drinking-water Standards for New Zealand 2005; and
- (e) ~~does not have a more than a negligible adverse effect on~~ ~~adversely affect~~ fish migration.

Section 5 - Region-wide Rules

...

Existing Hydroelectricity Generation

Rule 5.XX

The lawfully established:

1. Take and use of water (including non-consumptive use);
2. Damming and diversion of water;
3. Discharge of water to water;
4. Discharge of contaminants to water; and
5. Use of structures

associated with a hydro-electricity power scheme that existed on the date this regional plan becomes operative and is listed in Schedule XX, is a controlled activity provided the following conditions are met:

1. The consent application(s) replace existing consents.
2. There is no increase to the existing volume or rate of take or diversion.
3. There is no increase to the existing volume of discharge or the nature of contaminants.

The Canterbury Regional Council reserves control over the following matters:

1. The volume and rate of water taken and the timing of the take;
2. Intake velocity and screening requirements;
3. The range, or rate of change of levels or flows of water;
4. Water levels and residual flows;
5. Compliance with minimum flow requirements;
6. Measures to avoid, remedy or mitigate any adverse effects on the following:
 - (a) tangata whenua values;
 - (b) lawfully established users of the river or stream;

- (c) the operation on downstream sediment transport processes;
- (d) aquatic ecosystems, areas of significant indigenous vegetation, significant habitats of indigenous fauna;
- (e) outstanding natural features and natural character;
- (f) amenity values (including recreation), and existing public access to and along the margins of rivers and lakes;
- 7. Measures to manage or provide for fish passage;
- 8. Measures to manage land stability and erosion;
- 9. Measures to control flooding;
- 10. Measures to improve technical efficiency in water use;
- 11. Contaminant concentrations and loading rates;
- 12. Measures required to comply with s107(1) RMA;
- 13. Maintenance and contingency requirements;
- 14. Monitoring and information requirements;
- 15. Duration of consent;
- 16. Review of consent conditions; and
- 17. Compliance monitoring.

...

Dams and Damming

...

Rule 5.132

The use and maintenance of a ~~structure in the bed of a river associated with a lawfully established dam hydroelectricity power scheme~~ that existed on 1 November 2013 is a controlled activity, provided that if the dam is associated with a lawfully established hydroelectricity power scheme that existed on 1 November 2013 the following conditions are met:

1. The resource consent which lawfully established the damming of water behind that dam on 1 November 2013 has expired or has been surrendered.

The CRC reserves control over the following matters:

1. The maintenance of, or improvement of, fish passage.
2. The risk of dam failure;
3. Whether and how fish are prevented from entering any intake structures;
4. Passage of flood waters.

Rule 5.XX

The use and maintenance of a dam associated with a lawfully established hydroelectricity power scheme that existed on 1 November 2013 is a permitted activity while the resource consent which lawfully established the damming of water behind the dam structure remains operative.

APPENDIX 2

Tekapo Power Scheme Resource Consents

RESOURCE CONSENT CRC905301.4
Pursuant to Section 104 of the Resource Management Act 1991
The Canterbury Regional Council (known as Environment Canterbury)

GRANTS TO:	Genesis Power Limited
A WATER PERMIT:	to dam Tekapo River to control and operate Lake Tekapo between the levels of 701.80 and 710.90 metres (msl) at or about map reference NZMS 260 137:080-860 (Lake Tekapo Control Structure).
DATE DECISION:	31 May 2011
EXPIRY DATE:	30 April 2025
LOCATION:	Lake Tekapo, TEKAPO

SUBJECT TO THE FOLLOWING CONDITIONS:

- 0) This right is subject to the Conditions 1,2,5,6,8,13 as per attached schedule.
- 1) The Grantee shall exercise this right in conjunction with all other rights which the Grantee holds in connection with the generation of electricity within the Waitaki River system, in such a manner as to minimise, as far as practicable, any adverse effects of the exercise of the rights on the Waitaki River system.
- 2) The Grantee shall measure and record the lake water levels, related to mean sea level (Lyttelton datum), at a frequency not less than every 60 minutes, to the satisfaction of the Water Resources Manager, Canterbury Regional Council, and the records supplied to the Council annually.
- 5)
 - a) The consent holder shall ensure that the following dam safety reviews of the Lake Tekapo Control Structure are undertaken, and shall be carried out as a minimum in accordance with the New Zealand Society of Large Dam's Dam Safety Guidelines, dated November 2000, or subsequent editions.
 - i. A Comprehensive Safety Review, to be carried out five yearly, by independent, appropriately qualified personnel.
 - ii. A Civil Review, to be carried out annually.
 - b) Reports detailing the findings of each review shall be provided to Canterbury Regional Council as detailed below. The reports shall include comment on any specific issues pertaining to the hydraulic safety of the structure.
 - i. A report detailing the findings of each Comprehensive Safety Review shall be provided to Canterbury Regional Council within two months of the completion of each review.
 - ii. A report detailing the findings of each Civil Review shall be provided to Canterbury Regional Council by 30 September each year for the review ended 30 June in the same year.
- 6) The Grantee shall exercise this right, in relation to the Design Flood Level, Maximum Control Level, Minimum Control Level and Extreme Minimum Control Level, in accordance with the provisions contained in "Tekapo Power Scheme, Appendix A, Extracts of Waitaki Operating Rules (9 November 1990) as modified by an order pursuant to section 122 of the Electricity Industry Act 2010" (attached).
- 8) The Grantee shall manage and operate spill flows in accordance with the provisions contained in "Tekapo Power Scheme, Appendix A, Extracts of Waitaki Operating Rules (9 November 1990) as modified by an order pursuant to section 122 of the Electricity Industry Act 2010" (attached).

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Kaitiaki Takekōwhiri

- 13) The Grantee shall release the following flows, as measured immediately below the Lake Tekapo Control Structure, into the Tekapo River each year for the recreational purposes represented by the New Zealand Canoeing Association Incorporated, at the specified dates and times, unless the New Zealand Canoeing Association Incorporated does not require the releases:
- a) Labour Weekend Flows for at least six continuous hours each day between 8 am and 5 pm increasing to not less than 60 cumecs continuously for four hours out of the six hour total on the Saturday and Sunday and not less than 40 cumecs continuously for four hours on Monday and a flow of not less than 30 cumecs during the other hours.
 - b) November and December Flows on two weekends in each November and December. The flows shall be for at least six continuous hours each day between 8 am and 5 pm with a continuous flow of not less than 40 cumecs for at least four hours on one day, and a continuous flow of not less than 60 cumecs for at least four hours on the other day and a flow of not less than 30 cumecs during the other hours.
 - c) January Flow on one weekend in January. The flow shall be for at least 6 continuous hours each day between 8 am and 5 pm, with a flow of not less than 60 cumecs for at least five hours on one day, and a flow of not less than 40 cumecs for at least four hours on the other day and a flow of not less than 30 cumecs during the other hours.
 - d) Flows on no more than five further days between 1 November and 31 January following: These flows shall be for at least six continuous hours per day, between 8 am and 5 pm, with the flows on not more than three of the days being not less than 60 cumecs for four continuous hours of the six, and on the others not less than 40 cumecs for at least four continuous hours of the six and a flow of not less than 30 cumecs during the other hours, PROVIDED THAT if the level of Lake Tekapo is below 704.5m on any of the specified dates then the flow shall not be released and the scheduled flow release shall be rescheduled to an alternative date between 1 November and 31 January, as determined by the Water Resources Manager, Canterbury Regional Council after discussion with the Grantee and the New Zealand Canoeing Association Incorporated. NOTE 1: The specified dates will be determined by the Water Resources Manager, Canterbury Regional Council before 30 June each year after discussion with the Grantee and the New Zealand Canoeing Association Incorporated.

Issued at Christchurch on 1 June 2011

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RESOURCE CONSENT CRC905302.3
Pursuant to Section 136 of the Resource Management Act 1991
The Canterbury Regional Council (known as Environment Canterbury)

TRANSFERS TO:	Genesis Power Limited
A WATER PERMIT	To take up to 130 cubic metres of water per second from LAKE TEKAPO, at or about map reference NZMS 260 137:080-866 for the purpose of POWER GENERATION (Tekapo A Power Station).
DATE TRANSFERRED:	23 May 2011
EXPIRY DATE:	30 April 2025
LOCATION:	Lake Tekapo, TEKAPO

SUBJECT TO THE FOLLOWING CONDITIONS:

- 0) This right is subject to the Conditions 1,3,14 as per attached schedule.
- 1) The Grantee shall exercise this right in conjunction with all other rights which the Grantee holds in connection with the generation of electricity within the Waitaki River system, in such a manner as to minimise, as far as practicable, any adverse effects of the exercise of the rights on the Waitaki River system.
- 3) The Grantee shall measure and record the rate at which water is taken/discharged/diverted, at a frequency not less than every 30 minutes, to the satisfaction of the Water Resources Manager, Canterbury Regional Council, and the records supplied to the Council annually.
- 14)
 - (a) From 1 October to the following 31 March the minimum operating level for Lake Tekapo shall not decrease below 704.1m a.m.s.l except during any period during which the Electricity Commission (or any statutory body exercising like powers and functions to the Electricity Commission) determines:
 - (i) that reserve generation capacity (such as Whirinaki Power Station) is required to generate electricity; or
 - (ii) the National or South Island minzones (or their future equivalents) have been breached.
 - (b) The Grantee shall restore the level of Lake Tekapo to above 704.1 m as soon as practicable and shall advise the Water Resources Manager, Canterbury Regional Council, weekly to strategies adopted until the lake level is restored to above 704.1 m.
 - (c) The Grantee shall provide evidence that the circumstances set out in (i) exist to the Canterbury Regional Council's RMA Compliance and Enforcement Manager."

ISSUED AT CHRISTCHURCH ON 25 MAY 2011

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RESOURCE CONSENT CRC905304.3
Pursuant to Section 104 of the Resource Management Act 1991
The Canterbury Regional Council (known as Environment Canterbury)

GRANTS TO:	Genesis Power Limited
A DISCHARGE PERMIT:	to discharge water up to a maximum rate of 850 cubic metres per second into TEKAPO RIVER via Lake Tekapo Control Structure at or about map reference I37.080-860.
DATE DECISION:	31 May 2011
EXPIRY DATE:	30 April 2025
LOCATION:	Lake Tekapo, TEKAPO

SUBJECT TO THE FOLLOWING CONDITIONS:

- 0) This right is subject to the Conditions 1,3,4,7,8 as per attached schedule.
- 1) The Grantee shall exercise this right in conjunction with all other rights which the Grantee holds in connection with the generation of electricity within the Waitaki River system, in such a manner as to minimise, as far as practicable, any adverse effects of the exercise of the rights on the Waitaki River system.
- 3) The Grantee shall measure and record the rate at which water is taken/discharged/diverted, at a frequency not less than every 30 minutes, to the satisfaction of the Water Resources Manager, Canterbury Regional Council, and the records supplied to the Council annually.
- 4) The Grantee shall erect and maintain signs warning of the danger of the fluctuations in the river/lake level at points of public access to the river/lake between Lake Tekapo Control Structure and Lake George Scott, to the satisfaction of the Water Resources Manager, Canterbury Regional Council.
- 7) The Grantee shall:
 - a) take such precautionary measures which the Water Resources Manager, Canterbury Regional Council, may require to prevent damage from erosion which is likely to occur as a result of the exercise of this right; and
 - b) make such remedial repairs which the Water Resources Manager, Canterbury Regional Council, may require to remedy damage from erosion which occurs as a result of the exercise of this right.
- 8) The Grantee shall manage and operate spill flows in accordance with the provisions contained in "Tekapo Power Scheme, Appendix A, Extracts of Waitaki Operating Rules (9 November 1990) as modified by an order pursuant to section 122 of the Electricity Industry Act 2010" (attached).

Issued at Christchurch on 1 June 2011

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RESOURCE CONSENT CRC905305.2
Pursuant to Section 136 of the Resource Management Act 1991
The Canterbury Regional Council (known as Environment Canterbury)

TRANSFERS TO: Genesis Power Limited

A WATER PERMIT to use water up to a maximum rate of 130 cubic metres per second for POWER GENERATION at or about map reference I37:064-850.

DATE TRANSFERRED: 23 May 2011

EXPIRY DATE: 30 April 2025

LOCATION: Lake Tekapo, TEKAPO

SUBJECT TO THE FOLLOWING CONDITIONS:

- 0) This right is subject to the Condition 1 as per attached schedule.
- 1) The Grantee shall exercise this right in conjunction with all other rights which the Grantee holds in connection with the generation of electricity within the Waitaki River system, in such a manner as to minimise, as far as practicable, any adverse effects of the exercise of the rights on the Waitaki River system.

ISSUED AT CHRISTCHURCH ON 26 MAY 2011

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RESOURCE CONSENT CRC905306.3

Pursuant to Section 136 of the Resource Management Act 1991

The Canterbury Regional Council (known as Environment Canterbury)

TRANSFERS TO:	Genesis Power Limited
A WATER PERMIT	to DAM TEKAPO RIVER to a level of 684.05 metres(msl) at or about map reference NZMS 260 137:065-849 (Lake George Scott Control Weir).
DATE TRANSFERRED:	23 May 2011
EXPIRY DATE:	30 April 2025
LOCATION:	Tekapo River, TEKAPO

SUBJECT TO THE FOLLOWING CONDITIONS:

- 0) This right is subject to the Conditions 1,2,5 as per attached schedule.
- 1) The Grantee shall exercise this right in conjunction with all other rights which the Grantee holds in connection with the generation of electricity within the Waitaki River system, in such a manner as to minimise, as far as practicable, any adverse effects of the exercise of the rights on the Waitaki River system.
- 2) The Grantee shall measure and record the lake water levels, related to mean sea level (Lyttelton datum), at a frequency not less than every 60 minutes, to the satisfaction of the Water Resources Manager, Canterbury Regional Council, and the records supplied to the Council annually.
- 5)
 - a) The consent holder shall ensure that the following dam safety reviews of the Lake George Scott Control Structure are undertaken, and shall be carried out as a minimum in accordance with the New Zealand Society of Large Dam's Dam Safety Guidelines, dated November 2000, or subsequent editions.
 - i. A Comprehensive Safety Review, to be carried out 5 yearly, by independent, appropriately qualified personnel.
 - ii. A Civil Review, to be carried out annually.
 - b) Reports detailing the findings of each review shall be provided to Canterbury Regional Council as detailed below. The reports shall include comment on any specific issues pertaining to the hydraulic safety of the structure.
 - i. A report detailing the findings of each Comprehensive Safety Review shall be provided to Canterbury Regional Council within two months of the completion of each review.
 - ii. A report detailing the findings of each Civil Review shall be provided to Canterbury Regional Council by 30 September each year for the review ended 30 June in the same year.

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RESOURCE CONSENT CRC905307.2
Pursuant to Section 136 of the Resource Management Act 1991
The Canterbury Regional Council (known as Environment Canterbury)

TRANSFERS TO: Genesis Power Limited

A WATER PERMIT to divert water up to a maximum rate of 130 cubic metres per second from TEKAPO RIVER at or about map reference I37:065-849 into TEKAPO-PUKAKI CANAL through Gate 17.

DATE TRANSFERRED: 23 May 2011

EXPIRY DATE: 30 April 2025

LOCATION: Tekapo River, TEKAPO

SUBJECT TO THE FOLLOWING CONDITIONS:

- 0) This right is subject to the Conditions 1,3,4 as per attached schedule.
- 1) The Grantee shall exercise this right in conjunction with all other rights which the Grantee holds in connection with the generation of electricity within the Waitaki River system, in such a manner as to minimise, as far as practicable, any adverse effects of the exercise of the rights on the Waitaki River system.
- 3) The Grantee shall measure and record the rate at which water is taken/discharged/diverted, at a frequency not less than every 30 minutes, to the satisfaction of the Water Resources Manager, Canterbury Regional Council, and the records supplied to the Council annually.
- 4) The Grantee shall erect and maintain signs warning of the danger of the fluctuations in the river/lake level at points of public access to the river/lake between Gate 17 and the immediate area downstream of the structure, to the satisfaction of the Water Resources Manager, Canterbury Regional Council.

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RESOURCE CONSENT CRC905308.2
Pursuant to Section 136 of the Resource Management Act 1991
The Canterbury Regional Council (known as Environment Canterbury)

TRANSFERS TO: Genesis Power Limited

A WATER PERMIT to take water up to a maximum rate of 130 cubic metres per second from TEKAPO RIVER, at or about map reference I37:065-849 into the TEKAPO-PUKAKI CANAL.

DATE TRANSFERRED: 23 May 2011

EXPIRY DATE: 30 April 2025

LOCATION: Lake Pukaki

SUBJECT TO THE FOLLOWING CONDITIONS:

- 0) This right is subject to the Conditions 1,3 as per attached schedule.
- 1) The Grantee shall exercise this right in conjunction with all other rights which the Grantee holds in connection with the generation of electricity within the Waitaki River system, in such a manner as to minimise, as far as practicable, any adverse effects of the exercise of the rights on the Waitaki River system.
- 3) The Grantee shall measure and record the rate at which water is taken/discharged/diverted, at a frequency not less than every 30 minutes, to the satisfaction of the Water Resources Manager, Canterbury Regional Council, and the records supplied to the Council annually.

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RESOURCE CONSENT CRC905309.4
Pursuant to Section 104 of the Resource Management Act 1991
The Canterbury Regional Council (known as Environment Canterbury)

GRANTS TO:	Genesis Power Limited
A DISCHARGE PERMIT:	to discharge water up to a maximum rate of 600 cubic metres per second into TEKAPO-RIVER, at or about map reference I37:065-850 via Lake George Scott Control Weir to CONTROL LAKE STORAGE LEVELS.
DATE DECISION:	30 May 2011
EXPIRY DATE:	30 April 2025
LOCATION:	LAKE GEORGE SCOTT

SUBJECT TO THE FOLLOWING CONDITIONS:

- 0) This right is subject to the Conditions 1,3,4,7,8,10 as per attached schedule.
- 1) The Grantee shall exercise this right in conjunction with all other rights which the Grantee holds in connection with the generation of electricity within the Waitaki River system, in such a manner as to minimise, as far as practicable, any adverse effects of the exercise of the rights on the Waitaki River system.
- 3) The Grantee shall measure and record the rate at which water is taken/discharged/diverted, at a frequency not less than every 30 minutes, to the satisfaction of the Water Resources Manager, Canterbury Regional Council, and the records supplied to the Council annually.
- 4) The Grantee shall erect and maintain signs warning of the danger of the fluctuations in the river/lake level at points of public access to the river/lake between Lake George Scott Weir and Lake Benmore, to the satisfaction of the Water Resources Manager, Canterbury Regional Council.
- 7) The Grantee shall:
 - a) take such precautionary measures which the Water Resources Manager, Canterbury Regional Council, may require to prevent damage from erosion which is likely to occur as a result of the exercise of this right; and
 - b) make such remedial repairs which the Water Resources Manager, Canterbury Regional Council, may require remedy damage from erosion which occurs as a result of the exercise of this right.
- 8) The Grantee shall manage and operate spill flows in accordance with the provisions contained in "Tekapo Power Scheme, Appendix A, Extracts of Waitaki Operating Rules (9 November 1990) as modified by an order pursuant to section 122 of the Electricity Industry Act 2010" (attached).
- 10) The Grantee shall give at least 24 hours prior notice to the Water Resources Manager, Canterbury Regional Council, and to the Field Centre Manager - Twizel, Department of Conservation, of the intention to exercise this right.

Issued at Christchurch on 1 June 2011

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RESOURCE CONSENT CRC905319.2
Pursuant to Section 136 of the Resource Management Act 1991
The Canterbury Regional Council (known as Environment Canterbury)

TRANSFERS TO:	Genesis Power Limited
A WATER PERMIT	To use water up to a maximum rate of 130 cubic metres per second at or about map reference H38:869-724 (Tekapo B Power Station).
DATE TRANSFERRED:	23 May 2011
EXPIRY DATE:	30 April 2025
LOCATION:	TEKAPO B POWER STATION

SUBJECT TO THE FOLLOWING CONDITIONS:

- 0) This right is subject to the Condition 1 as per attached schedule.
- 1) The Grantee shall exercise this right in conjunction with all other rights which the Grantee holds in connection with the generation of electricity within the Waitaki River system, in such a manner as to minimise, as far as practicable, any adverse effects of the exercise of the rights on the Waitaki River system.

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RESOURCE CONSENT CRC905320.2

Pursuant to Section 137 of the Resource Management Act 1991

The Canterbury Regional Council (known as Environment Canterbury)

TRANSFERS TO:	Genesis Power Limited
A DISCHARGE PERMIT	To discharge water up to a maximum rate of 130 cubic metres per second into LAKE PUKAKI at or about map reference H38:869-724 via Tekapo B Power Station Tailrace.
DATE TRANSFERRED:	23 May 2011
EXPIRY DATE:	30 April 2025
LOCATION:	Lake Pukaki

SUBJECT TO THE FOLLOWING CONDITIONS:

- 0) This right is subject to the Conditions 1,3 as per attached schedule.
- 1) The Grantee shall exercise this right in conjunction with all other rights which the Grantee holds in connection with the generation of electricity within the Waitaki River system, in such a manner as to minimise, as far as practicable, any adverse effects of the exercise of the rights on the Waitaki River system.
- 3) The Grantee shall measure and record the rate at which water is taken/discharged/diverted, at a frequency not less than every 30 minutes, to the satisfaction of the Water Resources Manager, Canterbury Regional Council, and the records supplied to the Council annually.

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Annexure A

Tekapo Power Scheme

Appendix A

Extracts of Waitaki Operating Rules

(9 November 1990)

**As modified by an order pursuant to section 122 of the
Electricity Industry Act 2010**

MED1140750

Appendix A

Extracts from Scheme Operating Instructions

Explanation:

1. This appendix contains extracts from operating instructions for hydraulic structures that form parts of hydro-electricity generating stations in the Waitaki Catchment. These extracts have been prepared to list the external hydraulic conditions associated with these structures. Omitted portions refer to the implementation of those conditions and descriptive material, or structures under the management of another generator.
2. Levels unless otherwise stated are in terms of Mean Sea Level Lyttleton.
3. Flows are in m^3/s . One m^3/s is equal to one cumec.

Contents

Explanation

Map

1. Lake Tekapo and associated works

MED1140750

1. Lake Tekapo and Associated Works

The following is an extract from "Tekapo 'A' station (and Lake Tekapo) Spillway Operating Instructions, August 1990".

1.1. Levels

Design Flood Level	713.05 m
Maximum Control Level (MCL)	See table
Minimum Control Level	702.10 m
Extreme Minimum Control Level	701.80 m

The Maximum Control Level (MCL) of Lake Tekapo shall not exceed the values given in the following table:

	MCL
February	709.70 m
March	710.00 m
April	710.30 m
May	710.60 m
June	710.90 m
July	710.90 m
August	710.30 m
September	709.70 m
October – January	709.70 m

- 1.2. The design flood inflow commencing with the lake at MCL would raise the lake to 712.9 m. The design flood level is 713.05 m.
- 1.3. The initial Lake Tekapo spillway discharge shall not exceed 20 m³/s when the Tekapo canal inlet gate (between Lake Scott and Tekapo A tailrace) is closed. If the canal inlet gate is open, the initial discharge into the Tekapo River from Lake Scott (ie over the Lake Scott spillweir) shall not exceed 20 m³/s.
- 1.4. The initial discharge into the Tekapo River over the Lake Scott spillweir shall not be increased for at least six hours. The second discharge step shall not exceed 45m³/s and shall not be increased for at least 3 hours.
- 1.5. Unless lake levels are 0.4 m or more above MCL further increases in discharges below the spillweir (Lake Scott) shall ensure that:
 - (a) the maximum increase in flow at each gate change shall be 20 m³/s and
 - (b) there shall be at least one hour between gate changes.

- 1.6. The spill discharge down the Tekapo River can be affected by both Lake Tekapo Spillway Gate (Gate 16) and Tekapo Canal Inlet Gate (Gate 17). Operations of both gates shall endeavour to minimise the rate of change of flow down the river and hence minimise flow fluctuations.

If the canal inlet gate discharge is altered while there is spillway discharge down the Tekapo River, gate operations shall be managed to minimise abrupt changes in discharge down the Tekapo River. The provisions in para 1.5 shall apply.

- 1.7. Should it be required to use the spillway when the lake is below MCL the spillway should be operated within the general provisions above.

- 1.8. For lake levels above MCL the total discharge from Lake Tekapo (machine discharge plus spillway) shall not be less than the value given in the table below:

Height above MCL (m)	Total Discharge (m ³ /s)
0.2	85
0.4	100
0.6	115
0.8	130
1.0	150
1.2	170
1.4	190
1.6	210
1.8	235
2.0	260
2.2	285
2.4	315
2.6	345
2.8	380
3.0	420
3.2	460

- 1.8A The following applies to the high flood risk period from September to February (inclusive).

If after being above MCL for 10 days, the lake is still 0.3m or more above MCL then the total discharge from Lake Tekapo (powerhouse plus spillway) should not be less than the value given in the table below.

Height Above MCL (m)	Total Discharge (m ³ /s)
0.2	95
0.4	150
0.6	190
0.8	220
1.0	260

1.2	260
1.4	260
1.6	285
1.8	285
2.0	285
2.2	285
2.4 and above	As for the table in Clause 1.8

This table shall be used until the lake returns to MCL (or see Clause 1.10).
Because of initial restrictions on gate opening rates it may be necessary to anticipate using this table by beginning spillway use a day before if the lake is rising rapidly.

- 1.9 If the lake level rises above 713.0 m the stops on the gate lifting cables shall be removed and the total discharge shall be increased in steps of 40 m³/s for each rise of 0.1 m until the lake level begins to fall.
- 1.10 On a falling lake the scheduled discharge shall be progressively lowered only if the estimated inflow is lower than the next scheduled discharge. The gates shall be closed down to discharge system requirements only when the MCL, appropriate to the time of year, is reached.
- 1.11 If the Lake Tekapo spillway is in use when Lake Tekapo is below MCL, the discharge below the spillweir (Lake Scott) shall be reduced at a maximum of 20 m³/s per hour.
- 1.12 When the Lake Tekapo spillway gates are being progressively closed, and discharge is occurring over Lake Scott spillweir, the following rate of closure shall apply at and below 20 m³/s to simulate natural recession of the Tekapo River.

Step 1 maintain 20 m³/s for 1 day

Step 2 maintain 12 m³/s for 1 day

Step 3 maintain 5 m³/s for 1 day

Step 4 maintain 2 m³/s for 2 days

Step 5 cease flow over Lake Scott spillweir

If the Tekapo Canal Inlet gate is open during this phase then operation of both gates in tandem should ensure that these table discharges pass over the Lake George Scott spillweir so that the recession specified in the table results.

Clause 1.6 is particularly important during this phase of the operation.