

BEFORE THE CANTERBURY REGIONAL COUNCIL

IN THE MATTER OF The Resource Management Act 1991

AND

IN THE MATTER OF Resource consent applications by various applicants collectively known as the Mid River New Applicant Group to take and use water from the Lower Waitaki River Catchment.

STATEMENT OF EVIDENCE BY NICHOLAS (NICK) BRIAN BOYES

Dated: 1 August 2008

INTRODUCTION

1. My full name is **NICHOLAS (NICK) BRIAN BOYES**. I am an Associate and Senior Planner with Resource Management Group Ltd; a Christchurch based consultant resource and environmental management firm. I hold the qualifications of Bachelor of Science (majoring Plant and Microbial Science and Geography) from the University of Canterbury and a Master of Science (Resource Management) (Honours) from Lincoln University.
2. My experience includes practising in resource management planning since 1999, in both a local authority environment and in private practice. A large proportion of my work has involved the processing and preparation of resource consent applications and assessments of environmental effects, as well as acting as a hearings advisor.
3. I have been engaged by the Selwyn District Council since 2006 to manage and report on the Notices of Requirement and resource consents received by the Council in relation to the Central Plains Water irrigation scheme. On that basis I am broadly familiar with the environmental, social, cultural and economic issues surrounding irrigation development.

SCOPE OF EVIDENCE

4. I have been requested by Counsel for the Mid River New Applicant Group (MRNAG) to provide planning evidence in relation to a series of applications for resource consent applying to the Lower Waitaki River and catchments. Specifically, this evidence is focussed on the requirements of the Waitaki Catchment Water Allocation Regional Plan (WRP) regarding minimum flow and annual activity allocation. This evidence does not address each individual application in detail, that being set out in the evidence of others. Furthermore, this evidence does not specifically address the water take and use consents within the Hakataramea Valley catchment, which are included in the evidence of Ms Cathy Begley, except to the extent these takes influence the minimum flow in the Lower Waitaki River and annual allocation to agricultural and horticultural activity above Black Point. A list of the applications to which this evidence relates is set out in **Appendix One**.
5. In preparing this evidence I have relied on the expert evidence provided by the following persons:
 - Ms Keri Johnston
 - Ms Melissa Anthony
 - Mr Ian McIndoe
 - Mr David Stewart
 - Ms Lynn Torgerson
 - Dr Nick Ward
6. I have read many of the submissions received in response to public notification of these applications relating to minimum flows and annual allocation. Whilst not responsible for the engagement and instruction of those preparing technical reports and evidence in relation to these applications, I have read all the evidence prepared for this hearing on behalf of the MRNAG (as listed above).
7. In preparation of this evidence I have also familiarised myself with the provisions set out in the WRP, as well as Annex 1 and the section 32 Report to that Plan. In some cases this has necessitated further reading of submitters' evidence in order to better familiarise myself with the information presented and basis for adopting the WRP provisions by the Waitaki Catchment Water Allocation Board (the Board). The WRP incorporates material contained in the Proposed Natural Resources Regional Plan (PNRRP) by reference, and I confirm I am familiar with the provisions set out therein.
8. I have been advised by Counsel that the Commissioners directed at the pre-hearing meeting held that MRNAG should not repeat evidence already given at earlier hearings, but rather call in aid of that earlier evidence. On that basis I have largely

relied on the evidence prepared on behalf of Meridian Energy Ltd (Meridian) in regard to the lowering of the minimum flow in the Lower Waitaki River below the 150m³/s set out in the WRP¹. I acknowledge that I was not present during the Commissioners questioning of those witnesses, to that extent I confirm that I have relied on the evidence as presented in its original written form as publicly available from the Environment Canterbury (ECan) website.

9. I have read the Code of Conduct for Expert Witnesses and have prepared my evidence in accordance with the Code and agree to comply with it. This evidence is within my area of expertise, except where I state that I am relying on facts or information provided by another person. I have not omitted to consider material facts known to me that alter or detract from the opinions I express in this statement of evidence.
10. My evidence will cover the following matters:
 - Background to the Applications;
 - Activity Status of the applications under the WRP;
 - Evaluation of the proposed abstractions and uses in terms of relevant planning documents, including the WRP, PNRRP as incorporated by reference in the WRP, the Canterbury Regional Policy Statement (RPS), and Iwi Policy Documents and Plans;
 - A discussion and assessment of the proposed minimum flow and annual activity allocation in terms of Part 2 of the Resource Management Act 1991 (the Act).

THE PROPOSALS

11. The description and nature of the applications lodged by the individual applicants are set out in the joint evidence prepared by Ms Keri Johnston (Irricon Resource Solutions Ltd) and Ms Melissa Anthony (GHD Ltd), as well as the evidence of Mr Ian McIndoe (Aqualinc Research Ltd) in relation to the applications by W N Cameron and Station Peak Ltd & Wainui Station Ltd. I do not propose to repeat that information.
12. However, for the aid of assessing the proposals against the rules contained in the WRP it is necessary to group the applications into the various 'waterbodies'² and locations³. This exercise has been undertaken by the Canterbury Regional Council (ECan) and is set out in Appendix 3 to the Introductory Section 42A Officer's Report (prepared by Ms Claire Penman of MWH NZ Ltd). This has been reviewed by the appropriate witnesses on behalf of the various applicants and I understand that they agree with the classifications and details set out therein insofar as they relate to the applications forming part of the MRNAG.

¹ WRP, Rule 2/Table 3, line xvii.(page 49).

² WRP, Rule 2/Table 3 (pages 46-50).

³ WRP, Rule 6/Table 5 (page 52).

13. The tables set out in Appendix 3 to the Officer's Report are further referred to below in terms of assessing the activity status of the various applications in terms of the rules set out in the WRP.

THE SITE AND LOCALITY

14. As referred to above, the individual applicant details and a description of the receiving environment are set out in the evidence of others.
15. In general terms these applications relate to the stretch of the Waitaki River below the Waitaki Dam, but above Black Point, with the notable exception being the application by DD & VJ Chalmers (CRC042124). This take is from a bore hydraulically connected to the Waitaki River located east of Glenavy below Black Point.
16. The location of all other applications above Black Point is relevant to the background discussion regarding the 150Mm³/year allocation to 'agricultural and horticultural' activity set out in Rule 6/Table 5 of the WRP. Ms Johnston has reviewed the basis for the 150Mm³/year allocation included in the WRP in her second Brief of Evidence, as well as an overview of the subsequent recalculations of annual allocation that have occurred since the WRP became operative. Further discussion regarding this allocation limit set out in the WRP is included later in my evidence when assessing the WRP objectives and policies.

BACKGROUND

17. The evidence of Ms Johnston, Ms Anthony and Mr McIndoe set out the dates that the various applications were lodged and subsequently notified.
18. These dates are important for applying the "ready for notification test" to determine priority between the various applications for allocation of water in the Waitaki Catchment. In regard to such matters I have familiarised myself with the Commissioners most recent decision regarding priority, dated 8 April 2008 (the priority decision).
19. My understanding of that decision is that issues of priority are now largely resolved, excepting for perhaps when it comes to having to put restrictions on the consents to take and use in times of low flow.
20. As you are aware, many of these applications have been lodged with ECan for sometime, and during the intervening period there have been changes to the methodology for calculating annual allocation. In response to requests by ECan under section 92 of the Act, I understand that in all cases the Applicants provided annual volume allocations calculated in accordance with Schedule WQN9 Version 2 contained in the PNRRP. The applications were notified with those annual volume allocations. Subsequently ECan proposed a new method and developed WQN9 Version 3. In light of ECan's changed position, Mr McIndoe has further reviewed

annual allocation using a soil water balance modelling approach, as set out in his evidence.

21. The annual allocation set out in Mr McIndoe's evidence is a maximum allocation in order to maintain the level of efficiency sought by the WRP. In some cases individual applicants do not have the infrastructure in place to physically take that volume of water over the irrigation period. I understand this has resulted in situations where the annual allocation now sought is greater than that notified, this potentially raises the issue of scope. I have reviewed the notification details set out in Appendix 4 to the ECan Officer Report No. 1. It is noted that takes are most often expressed as both a rate and annual allocation over a specified area. The question is whether the Commissioners have the ability to grant consents to an annual volume allocation above that which was notified. In this case, given that the flow and the area to be irrigated have not changed and the rather dynamic situation regarding ECan's calculation of annual volume, I consider that the Commissioners could consider granting an annual volume in excess of that notified.
22. I do not consider that these changes in annual volume are sufficient that priority would be lost. Furthermore, I am not aware that there have been any other material changes to the proposals since notification that would cause the priority established by the "ready for notification test" to be 'lost'.

THE PLANNING FRAMEWORK

23. The planning process applying to allocation within the Waitaki River catchment is unique. The process leading to the appointment of the Waitaki Catchment Water Allocation Board and the promulgation of the WRP has been well documented in legal submissions and planning evidence of others presented at previous hearings. Notwithstanding, my understanding of that evidence is there are differing interpretations and opinions as to the extent which the provisions contained in the WRP can be given effect to, namely in the context of the existing consent held by Meridian to operate the Waitaki Power Station⁴. On that basis the evidence set out below firstly assesses the activity status of the various applications before discussing the general approach set out in the WRP regarding the assessment of non-complying activities. My evidence then goes on to assess the proposed applications having regard to the matters set out in section 104(1) of the Act.
24. In this instance, given the effects based policy structure set out in the WRP, I have chosen not to set out a separate assessment of environmental effects. Primarily the assessment of environmental effects of the proposed abstractions, the use of water and any structures required in the bed are dealt with in the technical evidence presented by others as set out above. My evidence relies on their findings and conclusions set out therein to jointly assess the applications in the context of the

⁴ CRC905361.2 'to use water up to a maximum rate of 650 cubic metres per second at or about map reference NZMS 260140:060-101 for the purpose of Power Generation.

policy framework set out in the WRP and PNRRP where applicable. Where a particular application or group of applications is sufficiently differentiated from the 'applicant group' so as to reach a different conclusion, this is stated in my evidence.

Activity Status - WRP

25. The WRP applies to the taking, using, damming or diverting of water from water bodies within the Waitaki catchment, whether the water is used within or outside the catchment (WRP, page 19).
26. The Rules pertaining to such activity are set out in Section 8 of the WRP. In my view the two key rules for establishing the activity status of this particular group of applications are Rule 2/Table 3 and Rule 6/Table 5. These are discussed under the headings below.

Minimum Flows & Water Allocation Limits

27. Rule 2/Table 3 provides the in-stream environmental flow and level regimes for water bodies in the Waitaki catchment (page 46). In general terms this sets out that no person shall take, use, dam or divert surface water or groundwater unless: the flow in the relevant river or stream is above the minimum flow or level, does not exceed the allocation limit, complies with any flow sharing regime, and provides flushing flows as set out in Table 3.

Lower Waitaki River

28. In summary, and except within years of very low catchment inflows (≤ 1 in 20 year low inflows), the WRP provides for:
 - a) A minimum flow of 150 cumecs;
 - b) Flushing flows between the Waitaki Dam and Black Point of at least 450 cumecs, each being for a period of 24 hours not less than 7 times per year, with no fewer than 2 of these flows in the period of 1 February to 31 March in every year; and
 - c) A maximum instantaneous allocation limit of 90 cumecs.
 - d) No flow sharing regime.
29. For the purpose of these Lower Waitaki measurements the WRP sets out that all flows shall be determined are to be based on measurements at the Kurow recorder and based on 1-hour rolling averages. An assessment of the effectiveness of such a measurement regime has been addressed in the evidence of Mr Stewart and will be discussed further in my evidence below.

All Other Rivers and Streams

30. Rule 2/Table 3 (xxii) provides that 'All others rivers and streams (except for the Pukaki River, lower Ohau River and the Tekapo River upstream of Lake George Scott)' shall have:
- a. A minimum flow of the 5-year, 7-day low flow as assessed by the Canterbury Regional Council set at the downstream end of the catchment.
 - b. A flow-sharing threshold at the mean flow assessed by the Canterbury Regional Council.
31. An assessment of these applications, namely RJ & JM Meikle, Sunny Downs Ltd and Westmere Estate Ltd, is set out in the joint evidence of Ms Johnston and Ms Anthony.
32. One application which requiring specific comment is that of RJ & JM Meikle (CRC040446). As set out in the evidence of Ms Johnston and Ms Anthony, this is a groundwater take not considered to be hydraulically connected to the Maerewhenua River. This has been confirmed by a memo from Mrs Philippa Aitchison-Earl (an ECan Hydro-geologist). This is also confirmed in Ms Ensor's Appendix 3, Table 3(xxii) for 'Bushy Creek', which notes the proposed take is for un-connected groundwater. Therefore, the bore does not meet the definition of 'connected groundwater' or 'shallow groundwater' defined in the WRP.

Assessment

33. As noted above, Appendix 3 to Ms Ensor's section 42A report sets out a useful assessment of the various applications received by ECan against the various environmental flow regimes set out in WRP Rule 2/Table 3 (most often expressed as both a minimum flow and an allocation limit).
34. In terms of minimum flow in the Lower Waitaki, the applications making up the applicant group propose a minimum flow less than 150m³/s. Ms Borthwick has set out the detail of the proposed MRNAG flow regime in her legal submissions. On that basis the applications to take water from the Waitaki River are assessed as non-complying activities. My policy analysis of the proposal is set out further below.

Annual Allocation to Activities

35. Rule 6 sets out that no person shall take, use, dam or divert water when the cumulative annual volume exceeds that set out in Table 5 of the WRP.
36. The application by Warnbro Enterprises Ltd (CRC062308) is in relation to a 'Town and Community' supply, being located below the Waitaki Dam but upstream of Black Point. Table 5 sets an annual allocation for such activity of 3Mm³/year. The proposed abstraction, in combination with that existing, is comfortably within this limit.

37. The remaining applications relate to 'Agricultural and Horticultural' irrigation activities. Table 5 sets out that the allocation varies considerably for such activity above and below Black Point, being 150Mm³/year and 1100Mm³/year respectively. Therefore, with the exception of the application made by Mr & Mrs DD & VJ Chalmers, the applications considered in my evidence are subject to the 150Mm³/year allocation limit.
38. As set out in the table included in Appendix 3 of Ms Ensor's Introductory section 42A report, the only applications for agricultural and horticultural purposes to which this evidence relates able to comply with the allocation set out in Table 5(v) are as follows:
- Westmere Estate Ltd (CRC012051)
 - RJ & JM Meikle (CRC040446)
39. This table sets out that the total existing and proposed annual allocation between the Waitaki Dam and Black Point for agricultural and horticultural activities has been assessed by ECan as 185,063,110m³/year.
40. As set out above, one application occurs below Black Point. Mr & Mrs DD & VJ Chalmers have applied for groundwater take CRC042124 for 522,000m³/year. As a result of that application the cumulative allocation is some 866,397,438m³/year, less than the 1100 million cubic metre annual allocation limit applying below Black Point.

Activity Status - Summary

41. The 'Rules Classifying Activities' are set out in Rules 9 to 24 of the WRP. Rule 16 provides that any activity which contravenes Rules 2, 6 or 7 is a non-complying activity. Furthermore, in considering any such application, Rule 16 sets out that the consent authority will have regard, among "other matters", to all the policies of the WRP. It is noted that the WRP does not otherwise provide guidance as to what constitutes "other matters".
42. On the basis of the minimum flow regime put forward by MRNAG being less than 150m³/s, and the consents not otherwise listed above being above the 150Mm³ annual allocation set out in Rule 6/Table 5 for agricultural and horticultural purposes, the water take and use consent applications each have non-complying activity status under the WRP.
43. As non-complying activities, the various applications to either take, use, dam or divert water from the Lower Waitaki Catchment are subject to the statutory threshold test set out in section 104D of the Act. This section states that a consent authority may only grant a resource consent for a non-complying activity if it is satisfied that either, the adverse effects of the activity on the environment will be minor (section 104D(a)(1)), or the application is for an activity that will not be contrary to the objectives and policies of the relevant plan (section 104D(1)(b)).

Non-complying activities and the WRP framework

44. In most cases non-complying activity status means that a proposal is not generally anticipated by the planning provisions set out in the relevant plan. On that basis planning documents do not normally include assessment matters for non-complying activities, as they might for applications having controlled, restricted discretionary and discretionary status.
45. I have reviewed the evidence prepared by Ms Sarah Dawson for Meridian in regard to the applications for the Hunter Downs Irrigation Scheme (HDI), and agree with her comments regarding the WRP being different in its approach than other planning documents by making statements about what should be considered in respect of non-complying activity applications.
46. The notable examples being in the Explanation for policies 3-5 (page 27 of the WRP), and Rule 16, which lists the policies in the WRP which must be considered in relation to an application for a non-complying activity. Furthermore, I note that Annex 1 of the WRP (paragraph 76) essentially restates the requirements set out in the section 104D 'threshold test':

The environmental level and flow regimes, and the allocations to activities, are two key components of the allocation framework established by this Plan. They should be binding except in specific cases where it can be established that the adverse environmental effects of the proposal are minor, and where the activity is not contrary to the objectives and policies of this Plan.

47. I have also noted the comments made in various section 42A reports regarding the potential precedent effect of granting such non-complying activities, with the resultant potential effects on plan integrity and public confidence in the WRP document. This is considered a matter which the consent authority can consider pursuant to section 104(1)(c) of the Act (any other matters relevant and reasonably necessary to determine the applications). Council Officer's have made the point that the WRP is an operative plan, and several submitters have expressed concern with granting applications which contravene its provisions, which were developed after a lengthy consultation process.
48. In the context of the structure set out in the WRP, I do not consider that lodgement and ultimate approval of applications with non-complying status necessarily results in any potential effects on plan integrity. The issues faced by writers of such plans when setting minimum flow standards are the same as that faced by those setting minimum allotments sizes for subdivision and density. A figure is chosen based on the best information available, which becomes something of an arbitrary threshold at which the activity status changes. I agree with Ms Dawson that non-complying activities under the WRP should not be necessarily viewed as inappropriate by virtue of the status under the relevant planning document, particularly given that the WRP itself appears to specifically anticipate such applications being made.

EXISTING MINIMUM FLOW AND ALLOCATION REGIME

49. The Lower Waitaki River flow is generally a result of the amount of water that passes the Waitaki Dam as required by Meridian for electricity generation and/or operational requirements. The Waitaki Dam Permit CRC905361.2 expires on 30 April 2025. Condition 22 generally requires a flow of 120m³/s to be maintained in the Waitaki River immediately below the Waitaki Dam. With regard to the existing flows, Mr David Stewart (Raineffects Ltd) states in his evidence:

Its flow regime is controlled entirely by demand for hydro electricity, it has no naturalness about in any of its flows and the only authority that can predict its future flows is Meridian Energy Limited (MEL).

50. The WRP recognises that the flow in the Lower Waitaki River is artificially controlled by the Waitaki Dam and hence the reliability of downstream users (for irrigation or otherwise) is dependant upon the pattern of flow releases (WRP, Explanation, page 45).

51. I have read the ECan section 42A Report prepared by Mr Jeff Page in relation to the joint Meridian and South Canterbury Irrigation Trust (SCIT) proposal for the Hunter Downs Irrigation Scheme (HDI). This report is attached as Appendix 1 to the ECan Officer Report 2 for these applications. The third section of this report (paragraphs 26 to 35) refers to the 'Existing Lower Waitaki River flow and allocation regime'.

52. Mr Page considers that existing consent holders are 'banded' into six groups. From that analysis Mr Page considers that the low flow on the Lower Waitaki River provided for under the existing Meridian consent is approximately 80m³/s. The remaining 40m³/s being available for existing consented abstractions below the Waitaki Dam at a high degree of reliability (approaching 100%). Mr Page notes that the record of flows in the Lower Waitaki River indicates that the lowest recorded flows are (except for possibly July) greater than the minimum flow provided for in the Waitaki Dam permit. Accordingly, all existing water permit holders experience a higher reliability than that provided for in the current permits. From what I have read I agree with Mr Page's assessment.

PROPOSED ALTERNATIVE FLOW REGIMES FOR THE LOWER WAITAKI RIVER

53. The Commissioners will be familiar with the flow regime proposed by Meridian and SCIT as part of the applications lodged for the HDI scheme. The key attributes of that proposal are as follows:

- (a) That the minimum flow for the Lower Waitaki River downstream of the Dam to the sea is 100 cumecs;
- (b) That the purpose of the HDI ramping conditions is to ensure that a minimum flow of 100³/s from the dam to the sea is maintained;
- (c) The HDI ramping conditions are presented as an alternative management approach to that under Rule 2/Table 3 set out in the WRP; and

(d) That HDI provides a greater reliability of supply than Table 3.

54. The evidence of Mr Stewart considers whether there is an alternative approach to managing allocation to that proposed by HDI. That alternative regime has been set out in detail in the legal submissions of Ms Borthwick and adopts the 100m³/s minimum flow for the Waitaki River between the Dam and the Sea.

MRNAG Alternative Flow Regime

55. As part of these applications, the MRNAG has put forward two alternative minimum flow conditions for the Lower Waitaki River. These are set out as A and B in the document attached as **Appendix Two**. Option A is the preferred alternative and includes a minimum flow of 100m³/s. The less preferred option is a minimum flow of 110-150m³/s. The options have been introduced in the legal submissions of Ms Borthwick and explained in further detail in the evidence of Mr Stewart. My evidence set out below assesses the 100m³/s option on the basis that any increase above that will have lesser environmental effects.
56. The evidence of Mr Stewart discusses the difference between the Lower Waitaki River and other rivers on the east coast of the South Island, namely the Rakaia and Waimakariri, which have a natural recessions curve where flows fall at a steadily reducing rate when no rain occurs and there is no abstraction. This means that restrictions on irrigation takes from these rivers can be predicted several days out, if there is no rain in the intervening period. Mr Stewart notes that environmental flows in each of these rivers are based on the previous average 24 hour flow.
57. In the case of the Waitaki River, irrigators have no means of flow prediction on either an hourly or daily basis. Although flows may change on an hourly basis in response to Meridian's customer demand for electricity, irrigators are unable to practically operate schemes and their equipment on this basis. In Mr Stewart's view it is not possible to operate large irrigation schemes on such unpredictable flows on an hourly basis as is currently being contemplated in the Lower Waitaki River.
58. Mr Stewart notes that up until now the focus has been on where flows should be recorded (either at the Dam or at the Kurow recorder), not whether the 1-hour rolling average is appropriate in the context of the Lower Waitaki River. Mr Stewart refers to the WRP standard, but considers that *"there is no reason why the minimum flow cannot be the 24, 48, or 72-hour mean flow for the whole Waitaki River based on the 1-hour rolling average flow"*. Mr Stewart makes it clear that using mean flows to manage irrigation is for operational purposes; it is not a predictive tool, but provides a *"rationale and feasible method for large scale irrigation downstream of a series of power generation stations to operate without major complication"*. However, Mr Stewart notes that there is a risk (albeit a statistical risk entirely dependant on the operation of the Dam) that flows at the mouth may fall below 100 cumecs in the 16km reach from the proposed HDI scheme intake to the sea. To avoid this

situation, Mr Stewart proposes that irrigators will notify their requirements to Meridian, in turn enabling Meridian more freedom to operate, similar to what they have done previously. Meridian will also make up any shortfall in minimum flow by releasing additional flow. In this manner Mr Stewart considers that it is possible to achieve 100% reliability for the entire 90m³/s allocation using the 24-hour mean flow as an operational tool. I understand that this has been proposed to Meridian who are considering the same.

59. In support of this proposed flow regime, the applicants have commissioned Pattle Delamore Partners Ltd (PDP) to undertake a review of the previous assessments considering the water balance in this part of the Waitaki River catchment. This work indicates that all future irrigation demands (based on spray irrigation) to 2025 can be met given the gains and losses assumed in the North Bank Tunnel Concept (NBTC) Water Balance model along the Waitaki River between the Waitaki Dam and Black Point. The results of this peer review are discussed further in the evidence of Dr Nick Ward from PDP. On the basis of this assessment, it is considered that there is no need for any banding of the water takes proposed by MRNAG as, with the exception of the Chalmers application, they are all located above Black Point.
60. Further evidence to support the proposed takes is provided by Ms Lynn Torgerson, in relation to potential effects and future management of nitrate concentrations in the Lower Waitaki River catchment. Otherwise, as referred to above, MRNAG are not calling further evidence to support a lowering of the minimum flow below the 150m³/s set out in the WRP. Extensive evidence on this particular matter has previously been presented by Meridian and SCIT. I have reviewed that evidence relevant to the environmental qualities of the Lower Waitaki River, and provide a brief summary below.

HDI Evidence Supporting a Minimum Flow Below 150m³/s

61. In reviewing the evidence prepared in relation to the HDI scheme, it was noted that technical experts compared the proposed minimum river flow of 100m³/s with the minimum river flow of 150m³/s provided for in the WRP. This comparison was undertaken for both the proposed HDI take (20.5m³/s) with existing consented takes (56m³/s) and for the full 90m³/s instantaneous allocation limit set out in the WRP. On that basis it is considered that the technical evidence set out by the various experts engaged by Meridian and SCIT is generally applicable to the consideration of the water takes upstream on the Waitaki River proposed by MRNAG. As set out in the evidence of Mr Stewart, under the MRNAG proposed flow regime, the Lower Waitaki River would drop to flows approaching the minimum along the stretch of river below the proposed HDI intake.
62. A summary of the conclusions reached by the appropriate witness in regard to the environmental qualities of the river is set out below:

Mr Jowett

63. Mr Jowett described the changes to the river's flow regime that are relevant to understanding the effect on flow dynamics and variability. With the full potential abstraction of $90\text{m}^3/\text{s}$, Mr Jowett considered that the river flows downstream of the irrigation takes would be identical for more than 90% of the time under either of the minimum flows (100 or $150\text{m}^3/\text{s}$). Mr Jowett noted the seasonal variation and the frequency and magnitude of low and high flows reaching the river downstream of Black Point would be unchanged.
64. Mr Jowett concluded that, although a minimum flow of $150\text{m}^3/\text{s}$ would most likely support higher total numbers of fish than a minimum flow of $100\text{m}^3/\text{s}$, both would continue to support the aquatic community at similar densities. Mr Jowett stated that the ecological effect of any change to the flow regime of the Lower Waitaki River would depend on the duration and magnitude of the low flows. He stated that the small change in average habitat suitability suggests that there is good quality habitat in the river, regardless of the minimum flow adopted (100 or $150\text{m}^3/\text{s}$). However, he did note that there would be 12% less area of suitable physical habitat available at $100\text{m}^3/\text{s}$ compared with $150\text{m}^3/\text{s}$.
65. Mr. Jowett considered that it is unlikely that this small change for a short period would affect fish or benthic invertebrates. This is because benthic invertebrates have short life cycles and any productive areas temporarily lost as flows reduce would soon be re-colonised. The worst effects would occur in extremely dry seasons, but as with natural ecosystems, he considered this would create year to year variability and expected populations would recover within 1 to 3 years.

Dr Jellyman

66. Dr Jellyman considered that flows of $100\text{m}^3/\text{s}$ persisting for several weeks might result in some small reduction in numbers of native fish, however, he stated that this was unlikely to result in significant mortality, and numbers of fish would return to normal the following year.

Mr Graynoth

67. Mr Graynoth's evidence noted that floods from tributaries would continue to provide flow variability in the river, and the substantial variations in river flow between years would also continue. Mr Graynoth assessed that in extreme dry years minimum flows will still be subject to intermittent freshes of between 100 to $200\text{m}^3/\text{s}$ under the proposed $100\text{m}^3/\text{s}$ minimum flow. He considered that flow variability would be greater during dry years under the $100\text{m}^3/\text{s}$ minimum flow.
68. Overall, Mr Graynoth noted that a minimum flow of $100\text{m}^3/\text{s}$ would have little (if any) adverse impact on salmon or trout in most years. However, he considered that a reduced minimum flow of $100\text{m}^3/\text{s}$ could have adverse effects on survival of salmon

fry when low flows occur after a large salmon run in spring (October and November). However, he noted that this would be a rare event, and would be likely to have an insignificant effect (if any) on the numbers of adult salmon returning to the river due to other sources of mortality.

Dr Hayes

69. Dr Hayes anticipated that the 100m³/s minimum flow proposed, along with the combined abstractions of 90m³/s, would reduce the quantity and quality of salmon angling habitat in the Waitaki River downstream to the river mouth (where the majority of salmon angling effort occurs), compared with a minimum flow of 150m³/s. However, he notes that this effect will be for a limited time as minimum flows generally occur before the peak of the salmon angling season. Such effects would be most noticeable in dry years, when the minimum flow of 100m³/s could prevail for the first two months of the salmon season (January and February). Dr Hayes acknowledged that such effects need to be considered in the context of the flow conditions that occur most of the time, with the median flow representing the flow condition salmon anglers would experience most of the time. Dr Hayes was of the view that this would only be subject to minor changes under the 100 m³/s minimum flow regime.

Dr Hicks

70. In relation to braiding, riverbed vegetation, flood management, bed-load transport, fine sediment accumulation, and channel substrate, Dr Hicks concluded that relative to the existing situation there would be no significant effects on braid number and width or braiding dynamics relative of the reduced minimum flow. Dr Hicks also concluded that there would be no significant difference to the ability of floods to naturally control riparian vegetation.

Mr Norton

71. Mr Norton assessed that during low flow periods, the cumulative effects of the total potential abstractions of 90m³/s, a 100m³/s minimum flow, and summer light and temperature conditions, could increase periphyton growth (including didymo). During very dry years (about 1 in 15); he considered that such increased nuisance growths could be noticeable to regular river visitors such as anglers and jet-boaters.
72. Mr Norton considered that didymo could also grow faster during low flow periods, be more visible, be more susceptible to snagging anglers' lures and entering jet-boat engine intakes in smaller braids and at the margin of main braids during low flow periods (of 100m³/s flow as opposed to 150m³/s). However his evidence noted that these periods will occur for less than 7% of the time. In addition, periods of low flow would assist to expose and dry out didymo along channel margins and in small braids, resulting in die-off and removal once increased flow returns.

73. Mr Norton also considered the effects of water abstractions at the minimum flows on the contaminant loads in the Lower Waitaki River. He assessed that new water abstractions will result in slightly increased *E.coli* concentrations at SH1, but considers the 'Suitability for Recreation Grade' will not change as a result. Mr Norton noted that water quality currently meets MfE nutrient guidelines for periphyton growths at Stonewall but exceeds the guidelines at SH1 – and noted that further abstractions would inevitably reduce dilution and thus increase the risk of nuisance growths at SH1.
74. In summary, Mr Norton considered that during dry summers, the effect of the 100m³/s minimum flow (compared to 150m³/s) would slightly increase the downstream concentration of contaminants, such as nutrients and micro-organisms for more extended periods, particularly in very dry seasons. Mr Norton noted that the most effective mitigation would be the catchment-wide implementation of best-practice land management practices.

Dr Stark

75. Dr Stark concluded that in very dry years with full 90m³/s abstraction, overall invertebrate productivity is only likely to be reduced if flows remain at their minimum for 2 months or more (whether at 100 or 150m³/s). In any case, Dr Stark considered that invertebrate communities should recover within weeks or months once flows are restored and that there would be no significant long-term effects. Overall Dr Stark concluded that a minimum flow of 100m³/s would not have any discernible negative effect on the character, densities or productivity of invertebrate communities in the river compared with a 150m³/s minimum.

Ms Robertson

76. Ms Robertson noted that there is a potential for a slight increase in vegetation encroachment into the river fairway with increased abstractions of water from the river, irrespective of the minimum flow adopted. She suggested that an increase in the existing riverbed vegetation control effort may be required with increased abstractions under either minimum flow. Ms Robertson noted that this is important for maintaining breeding habitat for braided river birds.
77. Furthermore, Mr Robertson raised the issue that a 100m³/s minimum flow would potentially increase the predation risk in dry years compared with a 150m³/s minimum flow. In terms of mitigation for any such effects, Ms Robertson recommended habitat enhancement on the more-protected islands likely to be used by birds, thereby improving their potential breeding productivity in all years.

Mr Fraser

78. Mr Fraser noted that reducing the minimum flow in the Waitaki River has the potential to lower the water level in the shallow groundwater alongside the river, and in springs and wetlands adjacent to the river. Mr Fraser assessed that the river

would have a difference in river level (stage height) of approximately 9cm between flows of 150m³/s and 100m³/s. He did not expect this difference to result in any significant effect on the groundwater resources of the Lower Waitaki, or its associated features such as springs, spring fed stream, terrace wetlands.

Mr Rackham

79. Mr Rackham assessed that proposed water takes would lead to some changes in the flow regime, braided river character, riparian vegetation, wildlife, water quality and the way that the river will be experienced, at either a 150m³/s or 100m³/s minimum flow. However, he considered the river would remain large and attractive even at flows between 100m³/s and 150m³/s, and the changes to landscape and natural character would still be subtle and difficult to discern for most.

Mr Greenaway

80. Mr Greenaway considered that during low rainfall seasons (1 in 15 years), the combined effects of the water abstractions and a minimum river flow of 100m³/s would be more clearly recognised, with both jet boaters and anglers potentially not experiencing a 'big river' setting during such periods.
81. Mr Greenaway concluded that no existing recreational jet-boating activity of the Waitaki River would be precluded at either the WRP 150 m³/s or HDI 100m³/s minimum flow. He did acknowledge that the greatest effects of the 100m³/s minimum flow regime would generally occur over the summer period (November to February) when recreational use of the river is highest. However, he noted that these periods are infrequent when considered over the long-term. Overall Mr Greenaway considered the adverse effects of the 100m³/s minimum flow to be minor.

WRP OBJECTIVES AND POLICIES

82. In this section of my evidence I assess the proposed water takes, resulting Lower Waitaki River minimum flow and increased annual allocation against the objectives and policies set out in the WRP. As stated above, this evidence does not consider the applications for water take and use, as well as associated land use consents in the Hakataramea Valley Catchment. That assessment is set out in the planning evidence of Ms Cathy Begley. This evidence relates only to an assessment of the applications associated with the main stem of the Lower Waitaki River and all other tributaries. Notwithstanding, individual assessment of these applications is set out in the joint evidence of Ms Johnston and Ms Anthony, as well as that of Mr McIndoe. An assessment of surface and ground water quality as a result of the taking and using of this water is set out in the evidence of Ms Torgerson. This evidence includes a series of volunteered conditions so as to avoid, remedy and mitigate any potential effects. Rather than focus a policy assessment on each individual application, my evidence takes a broader approach when considering the planning

matters relevant to the Lower Waitaki main stem. Again, so as not to largely repeat evidence provided at previous hearings, I will focus my evidence on what I consider to be the two key matters:

- a. Whether the proposed 100m³/s minimum flow is sufficient to not be considered contrary to the policy framework set out in the WRP; and secondly
- b. Whether the proposed increase in annual allocation above Black Point for agricultural and horticultural activity meets the WRP objectives and policies.

83. I am aware from reading previous evidence that the Ministry for the Environment has developed national guidelines for assessing in-stream values⁵. As set out in the guidelines, the process of determining whether a particular flow regime is appropriate depends on an assessment of the environmental, commercial and social objectives sought for the particular waterbody. In my view this is little different to the framework set out in the WRP, which in turn reflects the purpose and principles set out in the Act. The WRP provides that the assessment of a proposed flow regime requires the balancing of environmental, social, cultural and economic values of the water resource (considering both in-stream values and abstractive uses). In the case of the Lower Waitaki River, the significance of each of these considerations when undertaking an overall judgement is guided by the policy statements set out in the WRP, these are assessed in turn below.

Objectives

84. The WRP sets out 5 objectives. In my view Objective 1 sets the over-arching aim of the WRP *“to sustain the qualities of the environment of the Waitaki River and associated beds, banks, margins, tributaries, islands, lakes, wetlands and aquifers...”*. Matters set out in a. through g. guide this over-riding assessment and set the environmental bottom lines.
85. Objective 2 is the enabling provision, setting out that water can be used for a variety of activities *“to the extent consistent with Objective 1”*. Objective 2 is directly applicable to the annual activity allocation set out elsewhere in the WRP. In relation to these applications, which largely exceed the annual allocation for agricultural and horticultural activities set out in Rule 6/Table 5, this objective and associated policies are key considerations in order to grant consents. The specific policies to give effect to this objective are discussed in greater detail below.
86. Objective 3 recognises that there are beneficial as well as adverse effects on the environment in allocating the water resource, and that these occur at both a national and local scale. Objective 3 makes it clear that all such costs and benefits must be recognised.

⁵ Ministry for the Environment, 1998. Flow Guidelines for In-stream Values.

87. Objective 4 aims to achieve a high level of technical efficiency in the use of water. This is to ensure that the water is not used wastefully or inefficiently, thereby recognising that water is a scarce resource for which there are various competing demands for its use (both in-stream and abstractive). This matter is primarily dealt with in the evidence of Mr McIndoe. This sets maximum annual allocation for each irrigation water take to ensure that this objective is met. It is noted that in some cases the modelling is higher than that previously modelled and notified by ECan using WQN9 Version 2. This matter has been discussed above. In any case it is considered that the MRNAG has provided evidence setting out the justification for the volume of water sought so as to maintain the efficiency objective set out in the WRP.
88. Objective 5 refers to the practical and fair sharing of allocated water during time of low water availability. This is addressed in the alternative flow regime described in Mr Stewart's evidence. In my view what is proposed provides a high degree of reliability and certainty to all water abstractors. It does however require some degree of co-operation between irrigators and Meridian to ensure that all needs are met, with the bottom line that the in-stream values of the river are maintained at 100m³/s to the sea. Proposals and agreements between the parties as to how this might be achieved are set out in the legal submissions of Ms Borthwick.
89. The matters raised in these objectives are assessed more specifically below in regard to the various policies set out in the WRP.

Policies

90. The ECan section 42A Officer Reports follow the sub-headings used in the WRP. The assessment below uses these same headings. I note that the approach taken in the section 42A reports is to discuss only those policies where there is a potential conflict. In order to reduce the extent of assessment, my evidence only addresses those policies where a concern has been raised by Officer's, which I note largely correlates with the concerns expressed by submitters.

Environmental Flow and Level Regime (Policies 2 – 8 and 45)

91. In assessing these policies I am particularly focussing on the proposed reduction of the minimum flow in the Lower Waitaki River. It is acknowledged that the frequency and duration of such low flows are also influenced by the proposed abstractions in tributaries forming part of the wider catchment. The assessment of these applications with the minimum flows set out Rule2/Table 3 of the WRP is set out in the evidence of others. Furthermore, a policy assessment of the proposed applications in the Hakataramea Valley is set out in the evidence of Ms Begley.
92. In terms of policy 2 it is simply noted that these applications do not affect any of the high natural character water bodies set out therein.

93. Policy 45 is a specific policy for the Lower Waitaki River, this along with policy 4, set out the matters to be considered when setting an environmental flow and level regime. I have noted that the general approach set out in the section 42A reports is that as the proposed minimum flow is not consistent with that set out Rule 2(1)(a), the Officers' are unable to conclude that the effects will be no more than minor. Therefore, until the matter of minimum flow is resolved, Officers' have referred to the potential for these applications to be inconsistent with most clauses of policy 4. In my view this approach does not necessarily reflect the framework of the WRP in dealing with non-complying activities.
94. Policy 4 restates the matters that the Board would have considered when deciding on the 150m³/s minimum flow. As noted above, the Explanation to policies 3-5 states that these should also be addressed "*when considering any application for a resource consent that is a non-complying activity in respect of the environmental flow regime established in this Plan*". Therefore it is not a case of simply reaching the conclusion that the proposed takes are contrary because they do not comply with the corresponding rule. Furthermore, I note that in relation to effects of the proposed flow regime, Officers' would have had available to them all the evidence presented by Meridian and SCIT in relation to the HDI scheme summarised above. It appears that Officers' are simply awaiting the Commissioners decision on HDI before drawing their own conclusions regarding effects.
95. Policy 45(1)(ii) enables access to water for the activities identified in Objective 2, to the extent consistent with the overarching Objective 1. In particular, policy 45(1)(i) recognises the physical and ecological characteristics of the river, its connectedness with riparian margins and wetlands, the habitat for aquatic plants, invertebrates, birds and its cultural, natural and recreational values.
96. The Commissioners have already heard significant evidence relating to the effects of the proposed reduction in minimum flow. Whilst the extent of the decrease in minimum flow appears on first glance to be significant, it must be considered in the context of the frequency and duration that such minimum flows would occur. As set out in the evidence of Mr Stewart, referring to evidence of Mr Roddy Henderson's hydrology report for the NBTC, currently flows less than 150m³/s downstream of the proposed HDI intake occur for about 3% of the time. Following HDI being implemented this is likely to increase to about 4% of the time.
97. In addition to the evidence presented by other applicants previously. Ms Lynn Torgerson has set out water quality evidence in relation to the proposed takes by the MRNAG. The reports on individual applications prepared by Ms Johnston, Ms Anthony and Mr McIndoe also refer to the matters set out in policy 4 as applicable to each application.

98. In Annex 1 to the WRP, paragraph 160 states that *“the Board found that habitat requirements are generally well provided for if the flows are between 80 and 250 cubic metres per second, and that connectedness to riparian margins, wetlands and backwaters requires flows of at least 150 cubic metres per second”*. The latter point is also addressed in policies 5 and 6, which considers the setting of appropriate groundwater flow and level regimes, recognising the interconnectedness of surface and groundwater within the catchment. These effects were considered by Mr Fraser in relation to the HDI scheme and the Commissioners have heard his evidence on this matter. From this evidence it is my understanding that the Lower Waitaki River will remain highly connected, with changes from the current situation only occurring in extended periods of low flows during dry years coinciding with peak irrigation demand (full 90m³/s).
99. Policy 45(1)(ii) considers enabling the appropriate access to water for all activities set out in Objective 2, to the extent consistent with the sustaining and life supporting Objective set out in 1. This matter relates to water allocation to the various activities set out in Rule 6/Table 5 of the WRP, which is considered in the next section of my evidence.

Allocation to Activities (Policies 10 - 14)

100. Policies 10 to 14 deal with the allocation to activities. Policies 10 and 14 are not applicable to these applications. Policy 11 provides the context when considering policies 12 to 14. It follows that policies 12 and 13 are most relevant to the assessment of the subject applications.
101. The Explanation to policy 12 notes that it was a requirement that the WRP provide allocation of water to activities, as set out in Rule 6/Table 5. The explanation goes on to state that any activity that falls outside the annual allocations set under this policy in Rule 6 will be non-complying and must demonstrate the effect granting the consent on the entitlements to other activities over the timeframe of the consent.
102. As noted above, Rule 6 sets out an annual activity allocation for agricultural and horticultural activity split between below the Dam but upstream of Black Point (150Mm³/year) and downstream of Black Point (1100Mm³/year). Obviously there is a large difference between these numbers; on that basis I have reviewed Annex 1 to the WRP in order to ascertain reasons for the difference. Paragraphs 207 and 208 of Annex 1 of the WRP set out that there were many submissions to the Board describing existing and possible further expansions of irrigation based on takes from the lower catchment (below the Dam). It then concludes, based on the information available at the time, that *“the total annual provision in the Plan for agricultural and horticultural activities in the lower catchment area is therefore 1,250 million cubic metres”*. I note that paragraph 208 of Annex 1 refers to spray irrigation when assessing the amount of water required for future irrigation requirements. On that

basis a high level of technical efficiency is assumed when arriving at this figure. I have not found any explanation in the WRP and associated documents as to why only 150Mm³/year of this annual allocation is assigned to above Black Point, but it is presumably based on the information set out in the submissions made to the Board.

103. Notwithstanding, it appears that the differentiation above and below Black Point is somewhat arbitrary. It is noted that the appropriate table included in Appendix 3 to the ECan Officers' Report indicates that surplus allocation exists below Black Point, albeit not sufficient to offset the proposed increase above Black Point.
104. The second brief evidence of Ms Johnston sets out a review of the effectiveness of Rule/Table 5 applying above Black Point. In her view the annual allocation of only 150Mm³/year was based on "erroneous information". Ms Johnston concludes that the Board's stated intention of providing for existing consents, applicants at that time and future irrigation development has been "undermined". In order to assess whether I consider this is the case, I have reviewed the section 32 report accompanying the WRP. Section 5.2 (pages 27 and 28) deals with 'Allocation of water to activities'. Table 16 set out therein makes the following points:

To achieve the allocation of water to activities identified in the Plan may take some time. Existing consents will dictate the distribution of the allocation of water until the consents expire. The effectiveness will be different throughout the catchment depending on the nature and extent of existing consents, including when they expire.

The application of the efficiency provisions of the Plan to resource consents in locations where the allocation of water exceeds that set will promote a degree of technical efficiency. However, unless already provided for in the conditions of existing resource consents, it may not be possible to review existing resource consents to require a high level of technical efficiency prior to their replacement.

105. On that basis, whether the use of 150Mm³/year in the WRP is in fact erroneous depends on what the Board were trying to achieve. From the information set out in Ms Johnston's evidence it appears the Board were relying on incorrect information if it was their intention to account for all existing consents (on the terms and standards set out therein) and known future irrigation potential in the catchment. However, the other justification for such a figure is that it assumes a high level of technical efficiency across all takes, whether current or proposed. In my view the statements from the section 32 report set out above add weight to this view, as does Policy 18 of the WRP:

By encouraging and, where appropriate, requiring the water allocation specified on existing resource consents to reflect the actual quantity needed to undertake the activity.

106. I note that the appropriate table in Appendix 3 to the Officer Report sets out that above Black Point existing consents account for 146,270,557m³/year. This would illustrate the influence that existing consents have on the ability of current and future

applications to meet the 150Mm³/year annual allocation along this reach of the Lower Waitaki River.

107. Regardless of whether the 150Mm³/year annual allocation set out in the WRP is considered 'erroneous', and/or an objective in its own right to be achieved as existing consents are renewed, in my view it is not a "hard and fast" standard that should be strenuously upheld. To do so would, in the circumstances set out above, unnecessarily prevent current applicants, many of whom had applied for consent prior to the promulgation of the WRP, providing for their social and economic well-being. In my view such an outcome would be contrary to Objective 2 of the WRP.
108. Policy 13 refers to consideration of the extent to which exercise of any consent granted could result in the water quality objectives set out in the (Proposed) NRRP not being achieved. The matter of water quality is principally addressed in the evidence of Ms Torgerson. I have included brief comment on the PNRRP objectives and policies relating to Water Quality (Chapter 4) below.

Efficient and Effective Use (Policies 15 – 20)

109. Policies 15, 16 and 18 are relevant to these applications. Policy 16 b. specifies an irrigation application efficiency of at least 80%. The efficiency of the proposed water takes and use applications is set out in the evidence of Mr McIndoe. This sets out maximum annual allocations for each of the proposed takes assessed using soil water balance modelling. It is noted that Policy 16 c. of the WRP does not require assessment of annual volumes based only on U05/15 relating to a review of the seasonal irrigation demand standards set out in Schedule WQN9, Chapter 5 of the PNRRP. In fact the WRP contemplates other methods, such as soil water balancing, as used by Mr McIndoe.
110. Based on the evidence of Mr McIndoe, I consider that the proposed instantaneous rates of abstraction and maximum annual volumes are consistent with the objective and policies set out in the WRP.

Water Metering (Policy 21)

111. Policy 21 reflects current ECan practice is requiring flow metering equipment by installed as part of both pumped water takes and diverts so as to provide information to be forwarded to ECan.
112. The proposed conditions put forward by Ms Johnston, Ms Anthony and Mr McIndoe for the proposed water takes and diverts includes standard conditions relating to such matters. On that basis the proposals are consistent with policy 21 of the WRP.

Restrictions During Times of Low Water Availability (Policies 23 – 27)

113. Policy 23 seeks that environmental flow and level regimes are complied with by requiring that all consent holders to restrict their rate of take during times of low flow. The applicants are not proposing to implement the minimum flows set out in the

WRP. Furthermore, in accordance with the review of the water balance modelling undertaken by PDP on behalf of the MRNAG, restrictions on takes from the main stem of the Waitaki River above Black Point during low flows are not being proposed as inflows into this reach of the river equal the proposed abstractions. On that basis I acknowledge that the flow regime proposed by the MRNAG is not in accord with that set out in policy 23.

Replacement of Existing Consents (Policy 28)

114. Policy 28 directs the consent authority to consider certain matters when deciding replacement applications. Some of the applications forming part of the MRNAG are considered to be replacement consents; these are outlined in the joint evidence of Ms Johnston and Ms Anthony and that of Mr McIndoe. Policy 28 sets out that when considering such applications, the consent authority will:

- a. *Consider whether all reasonable attempts to meet efficiency expectations of this Plan have been undertaken;*
- b. *Recognise the value of the investment of the existing consent holder; and*
- c. *Maintain the inclusion of the consent, if granted, in any allocation limits and priority bands on the water body concerned.*

115. As referred to above, matters relating to efficiency have been covered in the evidence of Mr McIndoe. The proposals therefore meet the direction set out in policy 28.

Tributaries of the Lower Waitaki River (Policy 44)

116. The evidence presented by Ms Johnston and Ms Anthony deals specifically with the applications to take water on the tributaries of the Lower Waitaki River considered under this particular policy.

117. I understand that the proposed takes will comply with the environmental flow regimes set out for each of the particular tributaries set out in Rule 2/Table 3 of the WRP. Their evidence sets out the justification for the proposed takes in accordance with policy 44(ii) being that such takes will be consistent with Objective 1 of the WRP. It is noted that in the case of the applications by RJ & JM Meikle and Westmere Estate Ltd, the ECan Officer reports recommend that the consents be granted.

Lower Waitaki River (Policies 45 and 46)

118. Policy 45(1) has already been discussed above in terms of the environmental flow regime. It is noted that the proposed takes fall within the 90m³/s cumulative peak rate of abstraction and to that extent can be considered in accordance with policy 45(2).

119. Policy 46 refers to maintaining a flow of water into the Lower Waitaki River downstream of the Waitaki Dam that is sufficient to maintain the minimum flow and

flushing flows, the aggregate of actual requirements for necessary takes and existing agricultural and horticultural takes, and 95% reliability of new consents. These requirements are subject to a maximum flow of 80m³/s. This reflects the requirements set out in Rule 7/Table 6.

120. In that way Policy 46(ii) and Rule 7 address the competing water needs of Meridian to operate the Waitaki Power Scheme and downstream users. The WRP manages this competition by directly setting out minimum amount of water that must be released past the Waitaki Dam.
121. As set out in the evidence of Mr Stewart and the Explanation to these policies, as the flow regime in the river is artificially controlled, the reliability for downstream users is dependent on the pattern of flow releases from the Dam. Therefore, the ability to provide sufficient reliability and the flushing flows as set out in the WRP is controlled by Meridian.
122. I am aware of the debate regarding the extent to which Rule 7 can be given effect to in the context of the existing consent held to operate the Dam. Annex 1 to the WRP (paragraph 59) acknowledges that *“some elements of the Plan, that are not subject to sections 68(7) and 128 to 132 of the RMA, may not be fully implemented until existing consents expire”*. Paragraph 60 goes on to state *“However, as some resource consents have many years to run, the Board considered that to allow the rules no effect for so long a period would be inconsistent with Parliament’s intention that the Plan be developed and approved within 12 months”*. Finally at paragraph 62 the Board state *“to enable the regional council to perform its review function, the Plan states those times when the rules are to affect the exercise of existing resource consents for activities which contravene the rules”*. This is set out in Rule 25 of the WRP, which states that Rule 2 of the WRP shall affect the exercise of an existing water permit to which this rule applies 7 years from the date on which the WRP becomes operative in the Maerewhenua catchment and elsewhere 5 years. I note that Rule 25 does not refer specifically to Rule 7. However, the flow regime set out in the existing Meridian consent (CRC905361.2) would otherwise be subject to the five year expiry set out in Rule 25. This would require Meridian to obtain a new consent as presumably, given evidence presented at other hearings, it would not wish to adopt the environmental flow regime set out in Rule 2 of the WRP. This process would enable ECan the opportunity to consider imposing the additional flows set out in Rule 7/Table 6 that could not otherwise be required until the expiry of the consent or until ECan set out to review the conditions.
123. Notwithstanding the above, it is clear that the WRP anticipates that new irrigation consents will have a high level of reliability of supply (at least 95% of their peak rate of take), but that the mechanism identified in the WRP for achieving this reliability cannot currently be implemented. On that basis the alternative flow regime proposal put forward in the evidence of Mr Stewart, and further explained in the legal

submissions of Ms Borthwick, would appear to be a solution that, whilst not being in accordance with that set out in the WRP, does not compromise the primary objective set out therein.

Summary

124. Based on my assessment of the evidence previously presented by Meridian, it is acknowledged that the proposed 100m³/s minimum flow will result in effects during dry years with extended periods of low flows when compared to the WRP minimum flow (150m³/s). The evidence provided by Meridian and that of Mr Stewart is that such occurrences will occur relatively infrequently. I note that the evidence prepared for Meridian took account of the entire 90m³/s WRP allocation, and on that basis would have included the upstream water takes proposed by this group of applicants.
125. Based on that evidence, and acknowledging the monitoring and mitigation that was set out therein as proposed conditions, I consider that any increase in potential adverse effects is sufficiently minor so as not to be significant in terms of consistency with the WRP objectives and policies. In summary, I consider that the proposed water takes, whilst not in accord with policy 23 relating to environmental flow regime, are, having exercised a broad judgement, not contrary to the overarching objective of the WRP. I interpret objective to be sustaining the environmental qualities of the Lower Waitaki River.

PNRRP Objectives and Policies

126. The provisions of the NRRP are incorporated by reference in Policy 13 of the WRP. The NRRP is still a 'Proposed' document, which is currently being heard. In my view this reduces the weight that should be afforded to this document in making an overall consideration of the applications.
127. As set out in the section 42A Officer's Report, the relevant objectives of the PNRRP are:
- a. Objective WQL1.1 - provision for the maintenance and improvement of water quality in rivers.
 - b. Objective WQL1.2 - provision for the maintenance and improvement of water quality in natural and artificial lakes.
 - c. Objective WQL2 – setting out water quality outcomes for groundwater and contaminated land.
 - d. Objective WQL3 – setting water quality outcomes for community drinking water sources.
128. Whilst policy 13 makes reference to only the objectives contained in the NRRP, associated policies WQL4, WQL5 and WQL9 would also be considered relevant as they relate to the management of non-point source discharges in order to achieve the outcomes sought by the above objectives. In general terms, the matters raised for assessment under these provisions are the same, if not very similar to, those set out in the WRP. On that basis I do not intend to assess them in detail.

129. Water quality evidence on behalf of MRNAG has been presented by Ms Torgerson, based on the recommendations set out in her evidence and the assessment above, it is considered that the proposals are not contrary to the objectives and policies set out in the PNRRP.

Canterbury Regional Policy Statement

130. Under section 104(1)(b)(iii) of the Act, the consent authority shall have regard to any relevant Regional Policy Statement (RPS). The RPS for the Canterbury Region has been operative since 26 June 1998. Of significance to these applications is Chapter 9, which relates to the management of the Regions water resources. I consider that the WRP and PNRRP give effect to the objectives and policies set out in the RPS, and address the matters set out therein in greater detail. On that basis no further consideration of the RPS is considered necessary in the context of this evidence given the assessment set out above.

Iwi Policy Documents/Statements/Plans

131. It is considered that the following documents are relevant to the assessment of these proposals in accordance with section 104(1)(b) of the Act. Particularly in recognition that the Waitaki River is a Statutory Acknowledgement Area under the Ngai Tahu Claims Settlement Act 1998 (schedule 72). The most relevant Iwi Policy documents and plan are considered to include:

- Kai Tahu ki Otago Natural Resources Management Plan
- Te Whakatau Kaupapa: The Ngai Tahu Resource Management Strategy for Canterbury
- Te Runanga o Ngai Tahu Freshwater Policy

132. Whilst not specifically referred to above, I also acknowledge that potential effects on cultural values are also given frequent policy recognition in the WRP, the relevant provisions being:

- Objective 1 - recognising the importance of maintaining the integrity of the mauri in meeting the specific spiritual and cultural needs of Tangata Whenua, and by recognising the interconnected natural of the river.
- Policy 4 a. and b. - considering the mauri and healthy ecosystems of indigenous species, including mahinga kai species and wahi tapu sites or areas, and wahi taonga when setting environmental flow and level regimes.
- Policy 9 - discouraging further taking, use or diverting of water so that it mixes with water of another catchment or sub-catchment (clause 1), and mitigating the adverse effects of any mixing of water so no significant effect on the ability of people and communities to provide for their cultural wellbeing arises.
- Policy 11 a. - considering effects on Tangata Whenua values held by Ngai Tahu when allocating water to activities.
- Policy 45 (1)(e) - setting a flow regime in the Lower Waitaki River that maintains support for cultural relationships, including those of Ngai Tahu, with the river.

133. “*Mauri*” is defined in the WRP as “*Essential life force or principle: a metaphysical quality inherent in all things, both animate and inanimate*”.
134. As set out above, the MRNAG have not called specific evidence to address these matters. However, the technical evidence prepared on behalf of Meridian referred to above does address the overall environmental quality of the Lower Waitaki River. In my view that evidence is sufficient to draw the conclusion that the hydrological and biological aspects of the river that sustain its overall environmental quality and contribute to its cultural value to Ngai Tahu will be maintained. However, whether this is sufficient to meet the specific spiritual and cultural needs of Ngai Tahu remains unclear.

National Water Conservation (Ahuriri River) Order 1990

135. The only Water Conservation Order in the Waitaki Catchment is the Ahuriri River Conservation Order. It covers the Ahuriri River from its source to Lake Benmore, the Omarama Stream downstream of the bridge near Clifton Downs Station, and the rivers, streams and lakes within 400 metres of the Ahuriri River.
136. As these waters are upstream of the proposed water takes subject to this suite of applications, I have not considered the National Conservation Order for the Ahuriri in any further detail.

PROPOSED CONDITIONS

137. Proposed conditions for the consent applications are set out in the evidence of Ms Johnston, Ms Antony and Mr McIndoe. These conditions incorporate advice received from Ms Torgerson and I understand reflect discussions held with ECan staff. The conditions are proposed in order to avoid, remedy and mitigate potential adverse environmental effects.

PART 2 – PURPOSE AND PRINCIPLES

138. In considering an application for resource consent, pre-eminence must be given to Part 2, which sets out the purpose and principles of the Act.

Purpose – Section 5

139. The purpose of the Act is to promote the sustainable management of natural and physical resources. Section 5 imposes a duty to enable people and communities to provide for their social, economic, and cultural wellbeing and for their health and safety while avoiding, remedying or mitigating adverse effects of activities on the environment.

Matters of National Importance – Section 6

140. Section 6 sets out that in achieving the purpose of the Act all persons exercising functions and powers under it shall recognise and provide for matters of national importance set out therein. Of relevance to this proposal are:

- (a) *The preservation of the natural character of the coastal environment (including the coastal marine area), wetlands, and lakes and rivers and their margins, and the protection of them from inappropriate subdivision, use, and development:*
 - (b) *The protection of outstanding natural features and landscapes from inappropriate subdivision, use, and development:*
 - (d) *The maintenance and enhancement of public access to and along the coastal marine area, lakes, and rivers:*
 - (e) *The relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga.*
 - (g) *The protection of recognised customary activities.*
141. In terms of natural character, I have had the benefit of reviewing the evidence of Mr Rackham prepared in relation to the HDI proposal. Based on the findings set out therein, it is my view that the proposed flow regime reducing minimum flow to 100m³/s for short periods during dry years will not compromise the natural character of the Lower Waitaki River. The proposed takes are all within the proposed cumulative abstraction limit of 90m³/s.
142. In terms of 6(b), I understand there is some debate regarding whether the Waitaki River and Valley are 'outstanding' for the purpose of assessment under section 6. Notwithstanding, it is clear that the landscape character of the Waitaki Valley is highly valued and of significance. However, in this context it must be recognised that the WRP anticipates further abstraction from the Lower Waitaki River, subject to the requirements set out therein. Whilst not complying with all aspects of the WRP, from the evidence I have seen I do not consider the proposed Lower Waitaki River flow regime to be inappropriate.
143. Public access is only likely to be potentially affected in the case of intake structures being located within the riverbed. From the evidence of Ms Johnston, Ms Anthony and Mr McIndoe it is considered such structures are relatively small and would not compromise access. Reduced flows may potentially impact of the enjoyment of the recreational experience, but it is considered that this is a matter more appropriately considered under section 7 as set out below.
144. The matters of national importance set out in section 6 (e) and (g) have already been discussed above. Based on that assessment I acknowledge that further water abstraction for irrigation from the Lower Waitaki and the lowering of the minimum flow may be viewed by Ngai Tahu as further impacting on their connection with the Lower Waitaki River.

Other Matters – Section 7

145. Section 7 lists various matters to which particular regard shall be had in achieving the purpose of the Act. In my view the matters of relevance to this proposal are:
- (a) *Kaitiakitanga:*
 - (aa) *The ethic of stewardship*
 - (b) *The efficient use and development of natural and physical resources:*
 - (c) *The maintenance and enhancement of amenity values:*

- (d) *Intrinsic values of ecosystems*
- (f) *Maintenance and enhancement of the quality of the environment:*
- (h) *the protection of the habitat of trout and salmon.*

146. It is considered that these matters have already been considered under the assessment of the objectives and policies set out in the WRP. However, one aspect that I would like to provide further comment on is the efficient use of resources. As with many resource management decisions this involves a balancing between competing objectives. In this case abstraction for commercial purposes or leaving the water resource in the Waitaki River in order to maintain ecological and amenity values. The evidence of Mr McIndoe has set out that the applicants are only taking the volume of water required for technically efficient irrigation of their properties based on soil type, climate etc. Furthermore, in order to provide the degree of reliability required by irrigators and promoted by the WRP, there is a request to lower the minimum flow for short periods during infrequent, very dry years.
147. Having reviewed the evidence available, I consider that provision for this infrequent lowering of the minimum flow is justified in the context of the social and economic benefits which can be attributed to irrigation (when undertaken efficiently).

Treaty of Waitangi – Section 8

148. Section 8 of the Act sets out that in achieving the purpose of the Act, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, shall take into account the principles of the Treaty of Waitangi (Te Tiriti o Waitangi).
149. It is considered that the WRP has been promulgated having regard to those principles and specifically includes objectives and policies to recognise the importance of maintaining the integrity of the Waitaki River and meeting the specific spiritual and cultural needs of Ngai Tahu. These matters have been discussed above.

CONCLUSIONS

150. The proposed takes are in themselves small when compared to other schemes currently being proposed for the Lower Waitaki River (below the Waitaki Dam). The proposed takes fall within the cumulative abstraction rate of 90m³/s but do not comply with the 150m³/s minimum flow or 150Mm³/year allocation for agricultural and horticultural activity above Black Point set out in the WRP. On that basis the applications are non-complying activities.
151. The effects of the proposed reduction in minimum flow have been extensively addressed in evidence presented at previous hearings by Meridian. This evidence can be summarised as an increased risk of nuisance periphyton growths, reduced dilution water for contaminants, slightly increased riverbed vegetation

encroachment, and a potential increase in predation for braided river birds during very dry years.

152. The contribution of the use of water proposed by these takes for irrigation to increases in nutrient levels in ground and surface waters has been assessed by Ms Torgerson. Ms Torgerson has recommended a series of conditions to incorporate best-practice farming practices to avoid, remedy and mitigate any potential adverse effects.
153. Based on the available evidence I consider that the proposal, while not being consistent with all policies set out in the WRP, is not considered contrary to the policy framework set out therein having exercised a broad overall judgement. Whilst considered small in the greater context of current and proposed future takes on the Lower Waitaki River, the proposed takes for irrigation purposes will still contribute to the long-term needs of the individual applicants for a reliable water supply, as well as provide the associated economic and social benefits to them and local communities supported by farming in the area.
154. Based on the above assessment I consider that the granting of consents, including the proposed reduction in minimum flow and increase in annual activity allocation, is appropriate, having had regard to the objectives and policies set out in the WRP subject to the purpose of the Act set out in Part 2.

Nicholas (Nick) Brian Boyes
1 August 2008

APPENDIX ONE – Consent Summary

Group 1 – Downstream Waitaki Dam but Upstream Black Point – Agriculture and Horticulture

Group 1B (Waitaki River)

Consent application number	Applicant Name	Type of Application	Activity Status	ECan section 42A Recommendation	Comment:
CRC041002	WN Cameron	Application to take and use groundwater .	Non-complying	Decline – pending decisions on unresolved generic matters such as appropriate low flow and allocation regime for the Lower Waitaki River.	Alternative flow regime proposed. Allocation in WRP does not provide for existing and current takes at present. Allocation will be resolved as existing irrigators are made more efficient.
CRC041003	WN Cameron	Application to divert, take, dam and use surface water .	Non-complying	Decline – pending decisions on unresolved generic matters such as appropriate low flow and allocation regime for the Lower Waitaki River.	Alternative flow regime proposed. Allocation in WRP does not provide for existing and current takes at present. Allocation will be resolved as existing irrigators are made more efficient.
CRC061919	Clarkefield Holdings (1996) Ltd	Application to take and use groundwater .	Non-complying	Decline – lack of assessment of effects, concern regarding water quality, effects on ecosystems with regard to minimum flows and effects on other users.	Water quality assessment undertaken. Alternative flow regime proposed. Allocation in WRP does not provide for existing and current takes at present. Allocation will be resolved as existing irrigators are made more efficient.
CRC061931	Clarkefield Holdings (1996) Ltd	Application to divert, take, dam and use surface water .	Non-complying	Decline – lack of assessment of effects, concern regarding water quality, effects on people and communities and effects on other users.	Water quality assessment undertaken. Alternative flow regime proposed. Allocation in WRP does not provide for existing and current takes at present. Allocation will be resolved as existing irrigators are made more efficient.

CRC032177	Hakataramea Valley Irrigation Inc.:	Application to divert, take, dam and use surface water .	Non-complying	Decline – lack of assessment of effects, effects on water quality from the use of water in Hakataramea River Valley and effects on other users from not having demonstrated a need for the water.	This report only considers take – use of water in Hakataramea Valley Catchment is assessed by Ms Begley.
CRC032178	Hakataramea Valley Irrigation Inc.:	Application (land use) to undertake works in the bed or banks of a river .	Discretionary (TRP & PNRRP)	Approve – subject to appropriate mitigation (as set out in Appendix 6 to Introductory section 42A Report).	Can be approved subject to appropriate conditions.
CRC041004	Maerewhenua District Water Resource Company Ltd:	Application to take and use groundwater .	Non-complying	Decline – lack of assessment of effects, effects on water quality and ecosystems from the take and use of water and effects on other users.	Water quality assessment undertaken. Alternative flow regime proposed. Allocation in WRP does not provide for existing and current takes at present. Allocation will be resolved as existing irrigators are made more efficient.
CRC063815	ER Rutherford	Application to take and use groundwater .	Non-complying	Decline – lack of assessment of effects, effects on water quality from the use of water and effects on other users.	Water quality assessment undertaken. Alternative flow regime proposed. Allocation in WRP does not provide for existing and current takes at present. Allocation will be resolved as existing irrigators are made more efficient.
CRC051795	Station Peak Ltd & Wainui Farm Ltd	Application to divert, take, dam and use surface water .	Non-complying	Approve – actual and potential effects are minor – pending resolution of the annual volume and environmental flow regime.	Can be approved subject to appropriate conditions.

CRC073237	Torach Farm Ltd	Application to divert, take, dam and use surface water .	Non-complying	Decline – lack of assessment of effects, effects on water quality, effects on allocation to other activities and effects on other users through reduced reliability of supply and lack of appropriate minimum flow.	Water quality assessment undertaken. Alternative flow regime proposed. Allocation in WRP does not provide for existing and current takes at present. Allocation will be resolved as existing irrigators are made more efficient.
CRC061399	Waitaki Orchards Ltd	Application to divert, take, dam and use surface water .	Non-complying	Decline – lack of assessment of effects, effects on ecosystems as no minimum flow for frost protection, effects on allocation to other activities and effects on other users through reduced reliability of supply and sharing between users.	Alternative flow regime proposed. Allocation in WRP does not provide for existing and current takes at present. Allocation will be resolved as existing irrigators are made more efficient.

Group 1C (All other Rivers and Streams)

Maerewhenua River:

Consent application number	Applicant Name	Type of Application	Activity Status	ECan section 42A Recommendation	Comment:
CRC040446	R Meikle	Application to take and use groundwater .	Discretionary (come under 150Mm ³ /year according to table in Appendix 3 to section 42A report)	Approve – actual and potential effects will be acceptable.	Can be approved subject to appropriate conditions.

Otekaieke River:

Consent application number	Applicant Name	Type of Application	Activity Status	ECan section 42A Recommendation	Comment:
CRC073249	Sunny Downs Ltd	Application to divert, take, dam and use surface water .	Non-complying	Decline – lack of assessment of effects, effects on allocation to other activities as over allocation for agricultural and horticultural activities.	Allocation in WRP does not provide for existing and current takes at present. Allocation will be resolved as existing irrigators are made more efficient.

Kurow River:

Consent application number	Applicant Name	Type of Application	Activity Status	ECan section 42A Recommendation	Comment:
CRC012051	Westmere Estate Ltd	Application to divert, take, dam and use surface water .	Discretionary (come under 150Mm ³ /year according to table in Appendix 3 to section 42A report)	Approve – actual and potential effects will be acceptable.	Can be approved subject to appropriate conditions.

Group 2 – Downstream Black Point - Agriculture and Horticulture

Waitaki River

Consent application number	Applicant Name	Type of Application	Activity Status	ECan section 42A Recommendation	Comment:
CRC042124	DD & VJ Chalmers	Application to divert, take, dam and use surface water .	Non-complying (due to proposed min. flow regime)	Decline – lack of assessment of effects in terms of effects on other water users through reduced reliability of supply and sharing of water.	Alternative flow regime proposed.

Group 4 – Downstream Waitaki Dam but Upstream Black Point – Town and Community

Various Waterbodies

Consent application number	Applicant Name	Type of Application	Activity Status	ECan section 42A Recommendation	Comment:
CRC062308	Warnbro Enterprises	Application to take and use groundwater .	Discretionary	Approve – actual and potential effects will be acceptable.	Can be approved subject to appropriate conditions.

APPENDIX TWO – MRNAG Alternative Flow Conditions

Minimum flow conditions for the Lower Waitaki River

A. The minimum flow from Dam to Sea is 100 cumecs

This condition would only apply if agreement with holder of the Waitaki Dam consent is reached to the effect that the Dam consent holder will ensure that the following condition not activated.

Minimum Flow Condition

If the holder of the Waitaki Dam consents provides notice to the Canterbury Regional Council that the mean flow in the Waitaki River as measured at the Kurow Recorder in the next 24 hour period is estimated to be less than 170 cumecs or actual demand (and taking of water has not commenced under the HDI consents) or 190 cumecs or actual demand (and taking of water has commenced under the HDI consent) the taking of water under this permit shall cease at the start of that period.

For the purpose of this condition:

- i. Actual demand means the peak rate of taking required and notified to the consent holder of the Waitaki Dam at least 14 days in advance.*
- ii. Flows shall be estimated at the Kurow Recorder (Kurow Recorder flow map ref: 140:079-088) by the Canterbury Regional Council and expressed in cubic metres per second.*
- iii. Each 24 hour period shall start 12.00am and finish 11.59pm.*
- iv. The flow in the Waitaki River at the Kurow Recorder shall include any flow taken from the Waitaki catchment upstream of the Kurow Gauge and returned downstream of the Kurow Recorder but upstream of the Hunter Downs Irrigation Scheme point of take.*

This condition incorporates by reference an agreement between the holder of the Waitaki Dam consents [CRC references], the signatories to the 1990 Access Agreement and MRNAG dated (date).

The minimum flow condition shall not apply upon commissioning of the North Bank Tunnel Concept [CRC references] and the diversion of flows through the tunnel.

B. The minimum flow in the River is the NBTC variable minimum flow between the Dam and Black Point

Minimum Flow Condition

Whenever the mean flow in the Waitaki River in the preceding 72 hour period falls below the minimum flow rates in Table 1 the taking of water from the Waitaki River shall cease.

Table 1

Month of Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec
Minimum River Flow m³/s	140	150	145	125	120	110	110	110	120	125	130	140

This condition shall not apply if the consent holder of the Waitaki Dam consents provides notice to the Canterbury Regional Council that the mean flow in the Waitaki River in the next 24 hour period is estimated to be equal to or exceed the flows in Table 1.

For the purpose of this condition:

- i. Flows shall be estimated at the Kurow Recorder (Kurow Recorder flow map ref: 140:079-088) by the Canterbury Regional Council and expressed in cubic metres per second.*
- ii. Each 24 hour period shall start 12.00am and finish 11.59pm.*
- iii. The flow in the Waitaki River at the Kurow Recorder shall include any flow taken from the Waitaki catchment upstream of the Kurow recorder and returned downstream of the Kurow Recorder but upstream of the Hunter Downs Irrigation Scheme point of take.*

The minimum flow condition shall not apply upon commissioning of the North Bank Tunnel Concept [CRC references] and the diversion of flows through the tunnel.