

**IN THE MATTER**

of the Resource  
Management Act 1991  
(RMA) and the  
Environment  
Canterbury  
(Temporary  
Commissioners  
and Improved Water  
Management) Act 2010

**AND**

**IN THE MATTER**

of Proposed Plan  
Change 5 to the  
Canterbury Land &  
Water Regional Plan

**TO BE HEARD BY**

Environment  
Canterbury

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**Statement of Rebuttal Evidence of Christopher Adrian Hansen on  
Behalf of Ravensdown Limited**

**5 August 2016**

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## **Introduction**

- 1 My name is Christopher Adrian Hansen. My experience and qualifications are set out in my evidence in chief dated 22 July 2016. Since that time, I have reviewed the statements of evidence filed on behalf of other submitters. I have provided rebuttal to new matters raised, or where I consider additional comment is warranted.
- 2 I have continued to comply with the code of conduct for expert witnesses as contained in the Environment Court's practice note when preparing this rebuttal evidence.
- 3 I make reference to the following expert Evidence in Chief (EIC) in my evidence in reply:
- Mr Scott Pearson and Ms Angela Christensen for North Canterbury and Central South Island Fish & Game Councils;
  - Mr Alister Metherell for Ravensdown Limited.

### **Mr Scott Pearson and Ms Angela Christensen (for North Canterbury and Central South Island Fish & Game Councils) (Fish & Game)**

- 4 There are two matters I wish to raise regarding Mr Pearson and Ms Christensen's evidence:
- i. Reasons for not supporting an alternative consenting pathway;
  - ii. Using the Farm Portal to monitor water quality

#### ***Reasons for not supporting an alternative consenting pathway***

- 5 In paragraphs [39] to [43] of their evidence, Mr Pearson and Ms Christensen identify Policy 4.37 as critical for systematically applying the policy framework. They also express Fish & Game's view that it does not support changing this process to an alternative consenting pathway. The following summarises the reasons for this view:
- i. It would remove the Farm Portal and supporting MGM framework as a means of consistently determining GMP compliance and meeting associated nutrient management policies and rules (paragraph [39];

- ii. Fish & Game has seen a growing number of resource consent applications for irrigated intensification of land, where it is argued there will be only minor changes in nutrient leaching (paragraph [40]);
- iii. Fish & Game has strong concerns regarding the potential for Overseer gaming by farm advisors who have significant flexibility in relation to input variables (paragraph [41]);
- iv. Several submitters in opposition to the portal have argued that it is not adequately validated for nutrient losses – Fish & Game consider this same argument could be applied to the use of Overseer in general on Canterbury soils, given the large variations observed in modelled results shown by Alison Dewes (EIC Rebuttal for Variation 1, paragraph 9, 2014) (paragraph [42]);
- v. Moving the process back to incremental consent applications, will not solve the validation issues and be more likely to increase them, due to the lack of an overarching method, as provided by the portal (paragraph [43]).

6 For the above reasons Fish & Game consider the approach proposed by the Regional Council is the most consistent and equitable approach for all land users in determination of the consenting pathway. Fish & Game agree with the s.42A Officer's comments and reasoning that an alternative approach will not ensure sustainable integrated management of freshwater.

7 There a number of points I wish to make on the above views expressed by Fish & Game. Firstly, in relation to the first reason, I do not consider consistency on its own is a valid reason for not providing an alternative consenting pathway. As I have expressed in my evidence in chief (paragraphs [28] to [37]), and based on the expert evidence provided by Dr. Alister Metherell, there is demonstrable evidence that the Farm Portal may not be accurate or robust due to the fertiliser proxies used in the model to determine GMP loss rate for a farm. Taking the Fish & Game logic, consistency (and equitability) is more important than accuracy and robustness. While I accept consistency is important to strive for, the issues identified with the Farm Portal in Dr. Metherell's evidence points to the need to have an alternative consenting pathway, and this is supported by the reasons included in my evidence in chief.

8 I consider the second and third reasons are related and I will address them together. The advice I have received from Ravensdown, who are involved in the use of OVERSEER for nutrient management purposes throughout New Zealand, is that it is likely that any ‘perceived’ suggestion of ‘gaming’ comes about as a result of the technical inadequacies of the farm advisor in the preparation of robust nutrient budgets for regulatory purposes. In my evidence in chief I have provided an alternative consenting pathway, and detailed how this alternative would work (paragraphs [42] to [54]). In the alternative I have proposed, the farm advisor will need to justify that the Farm Portal GMP Nitrogen loss is not a true reflection of that farm’s nitrogen losses at GMP. To do this the farm advisor needs to be certified under the Certified Nutrient Management Advisors (CNMA) scheme so that the nutrient management advice is as robust and accurate as possible and the risk of ‘gaming’ a nutrient budget is minimised.

9 Mr Pearson and Ms Christensen refer to the ‘significant flexibility in relation to input variables’ (paragraph [41]) which may be directed towards the Overseer Best Practice Data Input Standards. As I understand it, while the farm advisor can choose which inputs to enter, this does not give the farm advisor significant flexibility as information still has to be as accurate as possible, and the CNMA would sign off the nutrient budget as a true and accurate representation of the farming system. In addition, any nutrient budget is checked by the Environment Canterbury consenting team before consent is granted, and following this the nutrient budget is subject to an audit check by a certified auditor. I consider there are numerous checks and balances already in place to minimise the risk of ‘gaming’ as suggested by Mr Pearson and Ms Christensen. Having the nutrient budget prepared by a CNMA, as I recommend in my evidence in chief, would provide all parties a high level of assurance that ‘gaming’ will not occur. I also note that the CNMA scheme has a formal complaints process that would remove the certification of any farm advisors that are not applying the standards correctly.

10 In relation to the fourth reason, I consider there is a suggestion by Mr Pearson and Ms Christensen that they are attributing the failings in validation of the Farm Portal as equivalent to the failings in validation of OVERSEER. I am advised by Dr. Metherell that the difference between the Farm Portal and

OVERSEER is that all of the input assumptions in OVERSEER are made by a trained user with knowledge of the real farm operation to make their best possible modelled representation of the farm system. However, the Farm Portal takes some of those input decisions away from the user and applies a series of proxies which often results in the representation of a farm which is practically infeasible to achieve (especially with respect to the irrigation proxy) or wildly inaccurate in the case of nitrogen fertiliser inputs. Hence the Farm Portal introduces another level of uncertainty and error beyond the normal limitations of the OVERSEER model.

- 11 In relation to the final reason, I consider Mr Pearson and Ms Christensen combine a number of different points into one to try to justify their position. I agree that providing an alternative consenting pathway will not address validation issues (with regards to the Farm Portal). However, the alternative consenting pathway I have put forward in my evidence in chief is not an ‘either/or’ scenarios, but provides a clear and transparent process that allows a farmer to go down a different consenting route if the Farm Portal GMP loss rates are verified by a CNMA as not being representative of the farm system, or if the farm system cannot be modelled in OVERSEER. Consent is still required, and meeting GMP loss rates would be achieved, which is the intent of the nutrient management approach being put forward through PC5. The alternate consenting pathway suggested in my evidence in chief also supports those farmers who have adopted new technologies and mitigation practices which have not been included in OVERSEER, such as mixed pasture species, including plantain and chicory, which has been shown to reduce nitrogen excretion (and therefore nitrogen leaching) in trial work at Lincoln.

***Using the Farm Portal to monitor water quality***

- 12 In paragraphs [58] to [63] of Mr Pearson and Ms Christensen’s evidence, they indicate Policy 4.38 (b) plays an important role in ensuring that effects on water quality are monitored via the portal, which is supported in part by Fish & Game. However, they note that the policy also states that information provided to the portal will be “periodically reviewed” as part of Environment Canterbury’s monitoring programme. Fish & Game do not consider the

periodic review requirement is explicit enough and remains open to wide interpretation.

13 Mr Pearson and Ms Christensen express Fish & Games belief that it is important to formalise in this Policy the requirement to carry out random checks of permitted activity Management Plans and associated actions, in order to identify problems and avoid apathy or potential abuse of this self-management system. They therefore propose the following amendment (underlined) to Policy 4.38 (b):

Effects on water quality...is periodically review by Environment Canterbury as part of its monitoring programme, including random checks for contributions to the portal and minimum Management Plan requirements and achieved actions, for permitted activity land users.

14 I presume Mr Pearson and Ms Christensen are referring to Policy 4.38B and not Policy 4.38 (b) as included in the evidence in chief. Policy 4.38B reads:

Effects on water quality arising from intensification or changes to a farming activity, are monitored through requiring property owners to submit information regarding the type and intensity of their farming activity to the Farm Portal; and the accuracy of any information submitted to the Farm Portal is periodically reviewed by Environment Canterbury as part of its monitoring programme.

15 It seems to me Fish & Game are seeking that Council formalise their Permitted Activity monitoring programme for these activities through amendments to the policy. I have addressed this matter in paragraphs [100] to [103] in my evidence in chief. In particular, I consider it is inappropriate to use the Farm Portal as a monitoring mechanism, whether it be to determine whether permitted activities are compliant or to track change of land use within the farming areas. The reason for this because of the inaccuracies and uncertainty in the outputs of the Farm Portal as discussed by Dr. Metherell in his evidence in chief.

16 I oppose the suggested additional wording proposed by Mr Pearson and Ms Christensen for the above reasons.

Chris Hansen

5 August 2016