BEFORE THE INDEPENDENT COMMISSIONERS

IN THE MATTER	of the Resource Management Act 1991
AND	
IN THE MATTER	of the Proposed Canterbury Land and Water Regional Plan

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EVIDENCE IN CHIEF OF PHILLIP PERCY ON BEHALF OF NELSON/MARLBOROUGH, NORTH CANTERBURY AND CENTRAL SOUTH ISLAND FISH AND GAME COUNCILS
10 APRIL 2013

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QUALIFICATIONS AND EXPERIENCE

1. My name is Phillip Harry Percy. My qualifications and evidence were set out in my Evidence in Chief, dated 4 February 2013.

2. In preparing this evidence I have reviewed the s32 report and the s42a officers report from Environment Canterbury, and the reports and statements of evidence of other experts giving evidence relevant to my area of expertise including:

    i. Associate Professor Russell Death

    ii. Dr Jim Cooke

    iii. Dr Dan Marsh

    iv. Dr Alison Dewes

3. This brief of evidence has been prepared after the circulation of Evidence of other parties. For the purposes of providing rebuttal I have also reviewed the evidence of the following experts. Where I rebut their evidence I make express reference to that evidence.

    i. Gerard Willis

    ii. Antony Roberts

    iii. Douglas Edmeades

    iv. Benedict Curry

    v. Matthew Cullen

    vi. James Ryan

4. I have again prepared this evidence in compliance with the Code of Conduct for Expert Witnesses contained in the Environment Court Practice Note 2011.

SCOPE OF EVIDENCE

5. This brief of evidence has been prepared to specifically focus on the matters in the pLWRP that relate to farming. The matters that I address in evidence include:

a. An outline of the policy and rules approach that I propose for managing farming activities

b. Planning justification for regulating farming activities

c. Commentary on the changes to provisions recommended, with comments on s42A report where needed.

d. Comparison of Ecan approach and F&G approach in terms of effectiveness and efficiency (table format)

e. Commentary on s42A officers' response to Fish and Game Hearing Group 1 questions

f. Hearing Group 2 rebuttal

EXECUTIVE SUMMARY

6. For the policies and rules relating to farming to be effective, they need to cause an improvement in water quality in water bodies that are currently over-allocated. They also need to ensure that catchments that are close to exceeding water quality limits do not degrade to the point where the limits are exceeded. In my view, the provisions proposed by the Council do not achieve this.

7. In considering the evidence of Fish and Game, it is my view that there is a robust planning argument to support a plan regime that manages farming activities in a more specific way in order to address existing over-allocation and prevent further over-allocation. That approach is based around setting nutrient discharge standards for farming activities to provide certainty to resource users and to retain a strong linkage between the regulatory approach and the objectives of the Plan, including achieving the limits.

REGIONALLY SIGIFICANT RESOURCE MANAGEMENT ISSUES

8. Water quality degradation caused by non point source pollution from farming within the region has been identified as a regionally significant

natural resource management issue[1], with many of the lowland waterbodies showing degraded ecosystem health and compromised life supporting capacity[2]. The principal driving factors for these adverse effects include increased nutrient levels, loss of riparian habitats, altered and reduced flows, and increased suspended and deposited sediment along with faecal contamination[3]. All externalities of concern are required to be managed in order to protect the life supporting capacity of the region's freshwater resources.

9. The contaminants of concern from farming land uses along with approaches to managing those contaminants are discussed in the evidence of Dr Dewes[4] and Associate Professor Death. Considerable technical evidence was also provided as part of Horizons One Plan process on the contaminants of concern from agriculture and management approaches to reduce these impacts[5,6,7,8]. These can be summarised as:

    a. Sources of sediment are primarily lost directly to surface water bodies and can be appropriately managed by preventing soil erosion through excluding stock from the beds and banks of waterbodies, and by reducing overland flow path ways eg preventing run off from farm tracks, bridges, and culverts;

    b. Sources of faecal and pathogen contamination to surface waterbodies are as a result of direct run off primarily. These contaminant discharges can be managed through excluding stock from the beds and banks of waterbodies and by preventing overland flow pathways eg from stock holding facilities or feed pads, from farm tracks, from effluent irrigation or effluent ponds, and from bridges or culverts;

    c. Losses of phosphorus are primarily through direct discharges, and can be appropriately managed through adoption of best

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[1] As set out in the s32 Report, the NRRP background material, and the evidence of Associate Professor Death and Dr Roger Young for Hearing group 1
[2] Associate Professor Death Evidence in Chief HG1 dated 4 February 2013 paragraphs 29, 30, 36 88, and 95
[3] ibid paragraphs 10 and 32
[4] Dr Dewes Evidence in Chief dated 2 April 2013) paragraphs 45, 111, table 4, table 7
[5] Clothier, B., MacKay, A., Carran, A., Gray, R., Parfit, R., Francis, G., Manning, M., Duerer, M., & Green, S. (2007) Farm Strategies for Contaminant Management – A report by SLUI, the Sustainable Land Use Research Initiative for Horizons Regional Council, Table 10 and Table 11.
[6] Dr Monaghan s42a officers report for Horizons One Plan (2009) table 1 page 14
[7] Dr Houlbrooke s42a officers report for Horizons One Plan (2009)
[8] Dr MacKay s42a officers report for Horizons One Plan (2009) supplementary evidence

management fertiliser and effluent practices, stock exclusion from beds and banks of waterbodies, and through preventing overland flow pathways associated with effluent and sediment discharges

d. Nitrogen is lost to surface water both directly, and indirectly through leaching to groundwater and then surface water recharge. Appropriate management approaches include adoption of best management practice for effluent and fertiliser practices, excluding stock from beds and banks of waterbodies, and preventing overland flow pathways, along with more comprehensive nutrient and stock management measures reduce leaching to groundwater.

OUTLINE OF APPROACH UNDERPINNING FARMING PROVISIONS

10. My Hearing Group 1 evidence and that of the other Fish and Game witnesses sets out the overall water management framework within which the farming provisions have been evaluated and developed. I will not repeat that evidence here other than to briefly summarise that approach.

    a. The values and freshwater objectives are defined

    b. Limits are set that provide for those objectives to be met. Limits are set at a level that ensures that the life-supporting capacity and the availability of resource for future generations are protected as a bottom line.

    c. Standards and rules are developed which, when implemented work together to ensure that all resource use affecting the achievement of the limits is managed so that where the limits are currently met the limits are not breached, and where the limits are currently breached there is a progressive improvement over time to a point where the limits are no longer exceeded.

11. The framework for the farming provisions I have proposed builds on the broader framework set out above. The farming provisions I have recommended can be summarised in the following way:

a. Based on the modelling and evidence of Dr Jim Cooke and the evidence of Dr Alison Dewes and Dr Dan Marsh, a per hectare nitrogen discharge value (20kg per hectare per year) has been defined. This value has a relationship with the water quality limits for the catchment as shown in Dr Cooke's evidence[9].

b. The per hectare nitrogen discharge value provides a reference point for the management of farming activities. Activities that are leaching more nitrogen per hectare than the specified value are required to begin reducing their leaching over time. Activities that are leaching the 20 kg/ha/year or less are not required to reduce their nitrogen leaching but are, in broad terms required to minimise the discharges of contaminants in order to prevent the catchment water quality limits being exceeded.

c. The allocation (water quality) status of each catchment determines the 'firmness' of meeting the 20kg/ha/year value. In over-allocated (red) catchments, there is a strong regulatory incentive to reduce leaching over time and not allow increased leaching. In at-risk catchments (orange) there is a strong regulatory push to reduce leaching over time but because there is some limited resource capacity in those catchments there is potential for some additional resource allocation. In under-allocated catchments, there continues to be resource available for allocation and therefore there is no requirement to reduce leaching over time, but there is a strong directive to undertake resource use efficiently.

d. The approach is centred around a nitrogen leaching value, however the approach also focuses on other contaminants, including phosphorus, sediment and faecal discharges. Those other contaminants are not managed around a specific discharge value, but are managed using best practice measures and precautionary measures such as setbacks from water bodies and facility design standards.

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[9] Dr Cooke's summary paragraphs 70 to 77 discuss the relationship between the modeled scenarios and the achievement of limits for the study catchments.

12. I set out below a more detailed discussion of the matters underpinning the above approach. I have also **attached** a diagram which demonstrates the relationships between the farming rules I have proposed as **Appendix 1.** The detailed objectives, policies and rules are attached as **Appendix 2.** The relevant definitions are attached as **Appendix 3.** The version of Schedule 7 as it relates to Farm Environment Plans and associated rules is **Appendix 4.**

Freshwater limits translated into Nitrogen leaching rate for farming

13. In his evidence, Dr Cooke explains that his modelling demonstrates that capping N loss at 20kg/ha/yr would result in a 20% reduction in TN concentrations for the Ashburton catchment and a 25% reduction for the Selwyn catchment. Dr Cooke observes that these reductions will result in an improvement in water quality over time[10].

14. The Council's current position, assuming it chooses to continue with the Zone Committee-driven sub-regional plan development approach, is that the region-wide measures put in place now only need to maintain the status quo rather than effect water quality improvement[11]. That approach however does not give effect to the NPSFW because it does not result in water quality improvement in over-allocated catchments. That approach also ignores the need for the Regional Council to effectively manage the natural resources of the region through its regional plans now.

15. As shown in Table 6 of Dr Cooke's evidence, the target DIN concentration for the Ashburton is 0.47 mg/L and that the current winter and summer concentration is 1.2 mg/L and 1.8 mg/L respectively. A 20% reduction in N concentration in the Ashburton River will not achieve the 0.47 mg/L target. Therefore, while 20% reduction in N concentration is significant, it is only a move in the right direction. To achieve the target concentration in the river, there will need to be significant further reductions in N contributions over time.

[10] Dr Jim Cooke, Evidence in Chief, 2 April 2013, Paragraph 66

[11] I discuss later in my evidence my concern that the Council's proposed approach will actually result in water quality decline, including in currently over-allocated catchments.

16. Dr Cooke's evidence demonstrates that reductions in N concentrations would still occur if N losses from land was capped at a level higher than 20 kg/ha/yr. For example in the Ashburton catchment a cap of 30kg/ha/yr would correspond to approximately 10% reduction in annual TN in the river (see Figure 4 of Dr Cooke's evidence). Setting the cap at a higher level would require less change for land users. However requiring only a small improvement in N loss would have negative implications. Primarily it would significantly delay the necessary improvements in water quality that are needed to enable the objectives of the plan and the corresponding environmental outcomes to be achieved. Secondly, in catchments that are Orange, or at risk, it would reduce the ability for additional headroom to be created for further development.

17. Dr Marsh's evidence describes the economic costs (regional and national) of poor water quality and poor freshwater environments. Based on that evidence, there is a significant economic cost incurred while water bodies are below standards that provide for the values attributed to them. Putting in place a planning regime that only requires small improvements in water quality will prolong that cost.

18. The evidence of Dr Dewes is that there are a range of mitigations and changes to farming practices that can have a significant effect on achieving water use efficiency and significantly reducing contaminant losses to water[12]. Her evidence is that when these mitigations are integrated into a whole farm system they can have significant benefits on productivity and profitability.[13] Based on the evidence of Dr Dewes, Dr Cooke and Dr Marsh, the 20kg/ha/yr N loss cap is an appropriate target and the benefits of improved water quality outweigh the costs of implementing changes in order to aim for that target. The evidence of Dr Cooke is that, based on the modelling that he has undertaken, the 20 kg/ha standard will over time result in a water quality improvement in catchments that are over allocated.

[12] Dr Alison Dewes, Evidence in Chief dated 2 April 2013, paragraphs 22 – 25 and 127.
[13] Dewes, paragraph 24.

Using a regulatory reference point

19. I used the term 'reference point' when summarising how the 20 kg/ha value is used in the regulatory framework proposed. That is because it is a measurable trigger point at which the regulatory approach changes. Having a quantitative reference point in a set of rules provides regulatory certainty. It is a clearly defined measure that applies to all of those resource users who are regulated so people know where they stand in relation to other resource users. In my view that is an important aspect of resource management because such management often encompasses allocating a share of a resource to people. Where there is uncertainty about how much of a resource will be allocated and how it will be allocated among those who wish to use it, inequities (perceived and actual) can arise. In the approach proposed by Fish and Game, people who use over a specified amount of the fresh water resource can clearly see that they will be required to reduce their nutrient losses over time while those who are using less of the resource have confidence that others are not benefiting from more than their 'fair share'[14] of the resource.

20. I will discuss the Council's proposed approach to managing water quality resources later in my evidence, but I note here that the regulatory approach in the pLWRP does not include a clear reference point for resource users. It relies on the promotion of 'good practice' without supporting evidence that such an approach will be equitable in terms of allocating the fresh water resource, or that it will be an effective regulatory approach. The approach as notified, which remains largely unmodified in the s42A report, does not define a resource cap – a total amount of resource that is available for allocation among users. As a result, resource users are not clear on where they stand in terms of actual resource use and allocation. As a result, it is unlikely to encourage change in those who are using resources inefficiently, and the regulatory approach put forward by the Council won't, in my view, compel people to make those changes either.

[14] I am using this term colloquially. Allocating nitrogen leaching rights to land owners on a simple per hectare basis may not necessarily be giving each landowner their true fair share of the resource. However allocating on this basis does place every resource user on a transparent and even allocation playing field.

Measurement of compliance with N leaching rate requires the use of Overseer and therefore resource consent

21. Dr Alison Dewes states in her evidence that Overseer is the best modelling tool currently available for use by regulators and the pastoral industry to manage land use[15]. The document *Overseer, Commonly asked questions* describes what Overseer does as:

> *Overseer models nutrient flows around farm systems including off-farm losses of nutrients, and greenhouse gases emissions. It models pastoral, horticultural, arable and vegetable farm systems. It calculates an annual nutrient budget that represents the long-term annual average. It calculates losses to the edge of the farm.*[16]

22. On the basis that the Plan uses a regulatory approach that requires resource users to demonstrate compliance with a nitrogen leaching rate from farms, it is my view that the use of Overseer is necessary and appropriate. Having recently been involved in the One Plan Environment Court appeals, I am aware that there are some concerns about the use of Overseer in a regulatory setting. In my view, those concerns appear to relate largely to errors arising from inputs and also 'errors' in the difference between modelled and actual leaching rates.

23. The premise of the regulatory setting is that farmers demonstrate that the modelled N outputs from Overseer for their farms are at or below a specified amount. The regulatory framework is focussed on the *modelled* outputs rather than the *actual* N losses.

24. While a good relationship between the model's predictions and actual leaching is important, I do not consider that it is necessary for the model to be a 100% accurate depiction of reality for it to be effective in a regulatory setting. The key requirement in my view is that the model is consistent in its predictions across different farming types and different properties.

> "*Very important. Overseer is an Expert User System, and the outputs are dependent on many inputs that rely on expert judgement. As stated earlier, an understanding of nutrient cycling and farm systems is essential for the correct use of Overseer. Even then, there will be some inputs that are 'open to interpretation' which could have significant impacts on the final results.*

[15] Dewes, paragraph 27
[16] Answers to Commonly Asked Questions, Ministry of Primary Industries, February 2013, pg 2

This highlights the critical importance of developing appropriate protocols for critical input choices. Protocols are about identifying the main input variables of interest and specifying methods for undertaking some analysis e.g., whether runoff blocks are included, methods for estimating precipitation, pasture status estimates, etc. They can also include methods when data is missing, or a farm management system is not included in Overseer. Protocol development would be essential for the implementation of Overseer in a regional rule or in a resource consent, otherwise users could produce a wide range of whole farm nutrient loss estimates by using different approaches."[17] (my emphasis)

25. Based on the evidence of Dr Dewes, it is my view that input errors affecting Overseer outputs, relevant to the implementation of the pCLWRP, can be addressed in three ways:

    a. Requiring that Overseer modelling is undertaken by qualified and appropriately experienced users. Such users should be experienced in whole farm business management.

    b. Requiring robust auditing of Overseer modelling by the Council (which has the legislated power to apply discretion to inputs into the model).

    c. Putting in place a consistent input protocol for Overseer users so that inputs relate to the use of the model's outputs and to minimise the need for comprehensive adjustment or re-entry of inputs.[18]

26. In relation to item (c) above, I do not consider that a protocol needs to be included in the Plan, as it is likely to be subject to refinement over time. Furthermore, to update a protocol that sits within the Plan would require a plan change process. It would be more appropriate for the Council to adopt a protocol and advise Overseer users that there is an expectation that the protocol will be used. The proposed matters for control/discretion included in the proposed rules **attached as appendix 2** give scope for the Council to require a particular input protocol be implemented.

[17] Answers to Commonly Asked Questions, Ministry of Primary Industries, February 2013, pg 23
[18] Dewes, paragraphs 128 - 140

Management of other nutrients besides Nitrogen

27. The Overseer model operates on the assumption that good management practices are in place on the farm. "*In general it is not feasible or appropriate to try and model 'bad practice' - there is a wide range of such possible practices that are not readily amenable to modelling. In addition, many practices covered by good management guidelines are also compliance issues.*"[19]

28. The evidence of Dr Dewes[20] sets out the assumptions of the Overseer model. Those assumptions not only address nitrogen discharges but also other nutrients and contaminants. For example, the assumption that stock are excluded from water bodies means that there will not be direct discharges of phosphorus and faecal material directly to water and that sediment from bank and bed disturbance will not be discharged to water. Therefore, ensuring that the assumptions are in place on farms that are being modelled assists in minimising discharges of other key contaminants as well as nitrogen.

29. To ensure that the assumptions of Overseer are in place, I have recommended a set of standard conditions for the first order farming rules (controlled activity rules) that relate to the Overseer. The intention is that where those conditions are met, the assumptions of the model are met and a reasonable degree of certainty can be attributed to the nitrogen loss results. Those conditions also ensure that other contaminant discharges to water are minimised.

30. Mitigation measures available to farmers are many and various and can have varying levels of effectiveness depending on how and where they are implemented.

> "*… it is important to understand that unless such mitigation measures are implemented appropriately, the actual nutrient loss reductions could be effectively zero. The size of a given mitigation varies depending on farm, location, management systems, and other mitigation options already employed i.e., it is farm specific*"[21].

31. Providing a permissive planning regime that assumes that the implementation of a set of possible mitigation measures without scrutiny on a farm by farm basis as to the appropriateness of the

[19] Answers to Commonly Asked Questions, Ministry of Primary Industries, February 2013, pg 5
[20] Dewes, paragraphs 129 - 130
[21] Answers to Commonly Asked Questions, Ministry of Primary Industries, February 2013, pg 18

mitigation measure and its effectiveness in N loss reduction is unlikely to be effective in achieving the objectives of the Plan. For this reason, I am of the opinion that farms that need to employ mitigation measures to reduce (or maintain) nutrient losses should be required to obtain resource consent to enable the necessary review and, if necessary, prescription of mitigation measure selection and design.

COMMENTS ON HG2 S42A REPORT

Regulated farming to exclude small properties and large properties without high nutrient risk activities.

32. The s42A report recommends excluding from the rules properties that are smaller than 5 ha and properties that are larger than 50 ha and which do not involve a 'high nutrient risk farming activity'. I agree with the recommendation to exclude properties smaller than 5 ha as these are unlikely to be commercially productive properties and, while activities undertaken on those properties may cause discharges of contaminants, those specific discharges are adequately covered by the activity-specific rules in the Plan. However larger properties should be included in the rule framework that is proposed by Fish and Game because by excluding them, their contribution to achieving water quality limits is less certain, particularly in orange and red catchments. Also by excluding them from the regulatory regime they are not able to participate in nutrient trading (because they are not allocated a discharge allowance), which may have cost implications for other farmers in meeting their N leaching limits. Enabling trading within catchments is likely to result in the most efficient regulatory approach.[22]

Definition of 'changed farming'.

33. The recommended amendment to the definition of changed farming as proposed in the s42A report is not necessarily related to the nutrient outputs of a farm. Stocking rate does not provide an indication of nutrient management practices or of leaching. Leaching could

[22] Dr Dan Marsh, Evidence in Chief dated 2 April, paragraph 94

increase significantly if there are changes to the management of a farm to introduce high nutrient inputs (and therefore outputs) in an attempt to lift production of existing stock numbers. The purpose of the definition is to trigger a management response when the risk of environment effects increases. For that reason, I am of the view that the notified definition is appropriate for use in the context of the rules that I have proposed, not the 42A report definition.

34. Should the commissioners decide to recommend a planning approach similar to that proposed by the Council, I would not support the definition of changed as notified or as proposed in the s42A report, as both of those definitions would allow for a 10% or greater increase in nitrogen leaching in over-allocated catchments as a permitted activity.

Comments on s42A recommended changes to farming policies

35. The s42A report recommends some significant structural changes to the farming policies.

36. Policy 4.31 introduces a slightly more directive policy in relation to managing changed or new farming activities in orange catchments, and I generally agree with the intent of the first part of the policy that there should be no net increase in nutrient discharges from the property. However the policy also provides for an increase in nutrient loss provided the property 'operates within the top quartile of nutrient discharge minimisation practices when measured against practices in the relevant farming industry'. It is unclear how such a standard would be determined or measured and I note Mr Willis's comments in his Hearing Group 2 evidence in chief in this regard. However the approach sets a performance level against existing farm performance. That, in my view, is problematic when the farming sector is currently operating in a manner that is causing water quality decline. I acknowledge that there is a significant number of farmers who will be operating according to best practice and who will be minimising nutrient leaching. However there is no evidence to suggest that the top 10% of performers within the Canterbury region are causing leaching levels to occur at sustainable levels. While the policy includes a cross-reference to meeting the water quality outcomes (which I assume to mean the numbers in Table 1), it will be difficult, without those

outcomes being translated into nutrient leaching standards, for applicants and decision-makers to be able to determine where a particular farming activity, in addition to all other farming activities, will be contributing to the achievement of those outcomes.

37. The comments above that relate to Policy 4.31 apply also to Policy 4.32, which relates to red catchments. However Policy 4.32 does not require or cause an improvement in water quality in over-allocated catchments, which is the intention of the NPSFW. The Policy allows further increases in nutrient losses in those catchments. That approach will not cause the water quality outcomes to be met over time, nor will it result in a progression towards that objective.

38. There is no policy directing existing farming activities in over-allocated catchments to reduce leaching. When coupled with s42A report's proposed definition of 'change', existing farming activities can increase their leaching as a permitted activity and without stumbling into any policy hurdles. In my view, that establishes a policy and rule regime that will not be effective in achieving the objectives of the Plan, which does not give effect to the NPSFW, and which conflicts with s5 of the RMA, which requires adverse effects to be remedied or mitigated.

39. My concern with Policy 4.34, which relates to activities which hold existing water permits, is that there has been no evidence presented to demonstrate that those existing water permits include conditions that will be effective in achieving the objectives of *this* Plan. Those existing consents were granted under previous legislation, possibly the NRRP, and therefore were considered against a different set of planning objectives. As is evidenced by the state of fresh water in the Region, the objectives and planning approaches of the past have not been effective in achieving sustainable management. I am therefore uncomfortable about creating a gateway for activities that were consented under a different regime (and for a different activity – water take and use rather than discharges) into the new planning regime. I acknowledge that landowners will have made investment decision based on the regulatory situation in the past, however in my view, the Act provides sufficient existing gateways for those activities to transition to a new regulatory setting (via existing use rights, the term of resource consents, etc) without the need for a further gateway being opened. I am also of the view that applying for any necessary

resource consents under the regime I have proposed would not need to be onerous for those currently consented activities that already have sound nutrient management measures in place or where the current nutrient discharge conditions are appropriate. For the reasons set out above, I recommend that Policy 4.34 is deleted.

40. I generally support the recommended changes to Policies 4.36 and 4.37, with some minor additions to relate them to policy framework I have recommended.

41. I generally support the recommended Policy 4.38 insofar as it identifies the benefits and uses of Farm Environment Plans, in particular the relationship between water use and nutrient management.

FARMING AS PERMITTED OR CONSENTED ACTIVITIES?

42. The regulatory framework I have proposed differs from that proposed in the notified Plan (and in the s42A report) in that I have proposed that most farming (new/changed and existing) requires a resource consent, with the exception of existing farming in green and blue catchments. The Plan as notified and as recommended by the s42a officers report proposes that, in most cases, farming is a permitted activity. In regards to these rules I believe that they are not formulated with sufficient certainty to meet the planning requirements of a Permitted Activity rule. They are not workable and they will not address the regionally significant freshwater resource issues. I am not aware of any evidence before the commissioners that the statutory requirements in s 70 of the RMA for a permitted activity for the discharges of contaminants would be met. I set out briefly below some of the reasoning for why I have proposed the move to requiring resource consents for farming activities.

    a. A permitted activity rule should be comprehensible to a reasonably informed, but not necessarily expert, person;

    b. A permitted activity rule should not reserve to the Council or a third party the discretion to decide by subjective formulation whether existing farming is a permitted activity or not;

c. A permitted activity rule should be sufficiently certain to be capable of objective ascertainment;

d. A permitted activity rule for a discharge must meet the requirements of s70 RMA; and

e. Under a permitted activity rule the cost of compliance and monitoring of the rule would be borne by the Regional Council.

43. The Farming rules as notified and as proposed to be amended by the s42A officers' report cannot be said to attain certainty or comprehensibility or reduce the need for expert judgment. The rules when tallied up consist of at least four pages when the rules, schedule and definition are combined. The 42A version of the rules require detailed information on the farming activity being undertaken and in certain cases preparation of Farm Environment Plans (FEP) and auditing of the same by a third party.[23] Additionally the Rules are meant to apply to the entire region but the application to each property will require discretion to recognise site specific variations. It is my opinion that these Rules require expert analysis and are therefore too complex to be a permitted activity.

44. In general the rules require nutrient leaching amount from the farm to be calculated using Overseer, and depending on the allocation status of the zone, a FEP as set out under Schedule 7 (**appendix 4)** to be prepared and implemented. Furthermore third party auditing along with compliance grading of the FEP is required.

45. In many existing situations, it is likely that the assumptions required by the Overseer model will not be in place on farms and therefore there will need to be an expert assessment of actual leaching, or adjustments made to Overseer parameters to reflect what is likely to be occurring on the ground. This leaves a high degree of discretion to the Overseer user that needs to be properly verified. The resource consent process is in place in the Act to deal with these sorts of situations – where the complexity of compliance is such that it is more efficient to use a resource consent assessment process.

[23] Section 42A Report, rules 5.39 – 5.47 and new Schedule 7

46. Assuming that the Plan is amended so that farming must be undertaken in a way that meets a nutrient discharge standard, and that Overseer must be used to determine compliance with that standard, specifying the detailed requirements for ensuring Overseer is operated consistently and appropriately as a permitted activity would require a very complex rule and set of conditions. Dr Dewes' evidence in relation to the need for a protocol to define how inputs are undertaken is an example of the complexity that would be involved.[24] As Dr Dewes states in her evidence, she has some reservations about the adequacy of the Dairy NZ Overseer input protocol being used in the context of the pLWRP and therefore there would need to be refinement of that. I have read the protocol and I consider that it does not provide a sufficiently certain level of direction to users for it to provide sufficient certainty in a permitted activity rule context[25].

47. Third party auditing has significant risks, particularly where auditors are also undertaking preparation of Farm Environment Plans themselves. Proper auditing accreditation must be done in a way that gives the community and Ecan certainty that auditing is robust and transparent – effectively transferring legislated compliance monitoring powers to a third party.

48. I note that some of the issues in relation to permitted activities identified above have been used by the Council in justifying a consenting approach for animal effluent discharges. Animal effluent discharges (associated with dairy shed and piggery effluent spreading) require a restricted discretionary activity consent. The following excerpt from the s32 report for the pLWRP summarises why a consenting pathway was determined to be the most appropriate approach.

> *Another key difference between the pLWRP rules and the NRRP rules relate to the grouping of the activities under a single rule, for which it is assumed that resource consent will be required. NRRP rules were separated and provided permitted activity thresholds which were difficult to meet, and led to some perverse outcomes, as applicants tried to meet permitted activity standards, and potentially compromising the adequacy of the design. Furthermore, the permitted activity standards required considerable interpretation and assessment*

[24] Dr Alison Dewes, Rebuttal evidence dated 10 April 2013, paragraph 5
[25] I do not intend this statement to be a criticism of the protocol. It was design for a purpose other than being an integral part of a permitted activity rule.

> *of performance standards, particularly with respect to capacity and leaching rates. By incorporating all of the activities under a single restricted discretionary activity rule, more site specific design will be required, and solutions based on the needs of the particular operation and site can be arrived at. Furthermore, it is anticipated that many activities that have stockholding, waste collection and waste disposal facilities will also require farm management plans under the nutrient management provisions, and assessment under all of these criteria will be required.*[26]

49. I also note that the s32 report makes this statement in relation to the efficiency evaluation of the animal effluent discharge provisions.

> *Because of the adverse effects on water quality that can occur from individual animal effluent discharges, and the cumulative effects of many discharges of effluent, it is not appropriate to have permitted or controlled activity rules.*[27]

50. That latter statement would seem to apply equally to the consideration of other discharges from farming activities when they are considered as a collective whole (which I understand is the intent of the Plan). Animal effluent from the total number of animals on a particular property, whether discharged as a collected volume or discharged by individual animals onto pasture will presumably total approximately the same (setting aside the addition of washdown water that is added to collected effluent). In most circumstances it is my understanding that animal effluent is discharged to land within the property boundaries. It therefore leads logically to a question of whether the potential cumulative adverse effects of animal effluent being discharged to land are likely to be significantly different between mechanically applied animal effluent or 'animal applied' animal effluent. If the answer to that question is that the potential cumulative effects of both discharge methods will be approximately the same, then the statement in the s32 report which justifies animal effluent discharges not being permitted or controlled activity would seem to apply equally to the other animal effluent discharge method.

51. The cumulative effects of farming discharges on fresh water bodies, particularly in at-risk and over-allocated catchments, is likely to cause some of the s70 RMA requirements for a permitted discharge to be breached unless all farming activities operate at or below sustainable

[26] Pg 58 of the s32 report for the pLWRP
[27] Pg 59 of the s32 report for the pLWRP

leaching level. Associate Professor Death explains in his evidence that water quality below the limits he supports for Table 1(a) of the Plan are likely to cause 'significant adverse effects on aquatic life'[28] (s70(1)(g) RMA). Where catchments are over-allocated or at risk of being over-allocated, permitting discharges will either maintain the current level of effect on aquatic life or cause a greater effect (if additional nutrients can be discharged as a permitted activity). Therefore, the evidence suggests that the Council is not in a position to be able to be satisfied that a permitted activity approach to farming and its associated discharges meets the requirements of s70 RMA.

52. Establishing nutrient limits in all catchments defines individual resource allocation. That provides certainty to farmers in terms of investment decisions and potential regulatory impact.

53. It is also my opinion that because of the need for monitoring, cost recovery, complexity, certainty in application and expert analysis the rules would fit more comfortably in a controlled activity setting. This would be more consistent with the whole structure of classes of activities.

54. For the reasons set out above, I am of the view that providing for discharges of nutrients from farming activities as a permitted activity is not appropriate and will have implications on the effectiveness of the Plan.

55. In terms of scope, to require all farming activities to be consented (the Plan as notified makes most farming activities a permitted activity), there is explicit scope within the Fish & Game submission to require consents for existing and new farming within orange and red catchments, and for new farming in green and blue catchments, but there is only implicit scope within that submission to move farming in blue and green catchments into a consenting regime. However the submission from Forest and Bird expressly seeks to include all discharges from farming activities in a comprehensive resource consent[29]. That submission would appear to give the commissioners scope to adopt the approach I have recommended above on a region wide basis. However due to the scope of the Fish and Game

[28] Associate Professor Death, Evidence in Chief (Hearing Group 2) dated 2 April 2013, paragraph 15
[29] See pages 17 and 18 of the Royal Forest and Bird Protection Society of New Zealand Inc submission.

submission the proposed rules I have appended do not address existing farming in green and blue catchments.

Third party auditing of Farm Environment Plans

56. The Plan and s42A report both promote third party auditing of Farm Environment Plans (FEPs) in the context of permitted activities. The s42A report recommends some significant additions to the requirements for contents of FEPs. In effect, the FEP requirements are commensurate with what would be required for a resource consent application. The auditing process is essentially an assessment of the adequacy of the FEP in terms of whether it has addressed environmental effects and has been done to an acceptable standard.

57. The FEP third party auditing process is essentially transferring the resource consent assessment and decision-making process of Ecan to third parties. That creates a degree of uncertainty for resource users and resource management in the region because of the high potential for inconsistent decision-making and a lack of accountability of auditors – there is nothing in the Plan or in legislation that appears to require any particular standard of resource management to be achieved and that creates a high risk that that approach will not be effective in achieving the objectives of the Plan. It is also unlikely to be efficient because it is likely to cost individual farmers more in terms of compliance.

CHANGED LAND USE

58. There appears to be some confusion around the definition of 'change' in terms of farming activities. The definition of 'changed' in section 2 of the plan as notified is:

Changed (in terms of Rules 5.42 to 5.45)means a change in land use, calculated on a per property basis that arises from either:
1. a resource consent to use, or increase the volume of, water for irrigation on a property; or
2. an increase of more than 10% in the loss of nitrogen from land used for a farming activity above the average nitrogen loss from the same land for the period between 1 July 2011 and 30 June 2013. The amount of nitrogen loss shall be calculated using

the OverseerTM nutrient model for the 12 months preceding 1 July in any year and expressed as kilograms per hectare per year.

59. The Ecan website under the section providing information to farmers[30] provides this explanation of the definition of changed as interpreted by Ecan itself:

Two situations trigger a "changed" land use:

- *If you require a resource consent to use or increase the volume of water used for irrigation on the property, and as a result of this additional irrigation water there is any increase in the amount of nitrogen leached from the property, this is a changed land use. A resource consent to take, use or increase the amount of water taken would not in itself be enough to trigger a change in land use; there would also need to be an increase in the amount of nitrogen leached from the property. If this situation occurs, the activity is considered a change under clause 1.*
- *If any activity carried out on the farm results in the amount of nitrogen lost increasing by more than 10%, this is also a changed land use.*

60. That interpretation appears to be at odds with what the actual definition says – it states that a change occurs when *either* there is consent for new or increased water use *or* an increase of more than 10% in N loss.

61. There is also another potential interpretation issue with the definition of 'changed' in the Plan. The first part of the definition says *'means a change in land use… that arises from….*'. On first reading I interpreted the whole of the definition to be that an increase in N loss or increase in water for irrigation constituted a change, but looking at it again it could be read to mean that if one of those two factors (N loss or water use) drives a change in land use (i.e. from dry stock to dairy) then that is a 'change' but if N loss and water use increase occur but there is no change in land use (i.e. stays as dry stock) then there has been no change. It comes down to whether 'a change in land use' means a change in land use type or a change in the intensity or scale of an existing land use.

62. However, for the purpose of the rules proposed by Fish and Game, the definition of "changed" as notified works in combination with the

30 http://ecan.govt.nz/our-responsibilities/regional-plans/regional-plans-under-development/lwrp/Pages/faqs-farmers.aspx

Fish and Game rules, and helps achieve the desired effect of halting further degradation of water quality.

SECTION 32 – RISK OF ACTING OR NOT ACTING IF INSUFFICIENT INFORMATION

63. The s32 report includes the following statement in relation to the proposed approach for managing farming activities.

> *Section 32(4)(b) of the RMA requires the Council to take into account the risk of acting or not acting if there is uncertain or insufficient information. While the causal relationship has been established, it is accepted that there is debate and uncertainty regarding the timing and linearity between the activity and the consequent water quality effects. It is also clear, and has been clarified in the collaborative CWMS process, that failure to manage nutrient discharges and consequent water quality effects is unacceptable to the community – essentially the risk of not acting is too high. Given the research and policy analysis undertaken, in the Council's opinion there is sufficient information to act.*[31]

64. The conclusion of the above paragraph in my view misrepresents the approach to managing nutrient contaminants from farming activities because the interim regulatory regime proposed does not actually require any action from farmers in most cases and actually permits an increase in the discharge of contaminants from those activities. The planning approach proposed by the Council allows in all zones a 10% increase in leaching from a baseline leaching rate. As discussed above, that baseline leaching rate provides for further increases in leaching without the need for resource consent. Nowhere in the Plan is it clear that farming activities, existing or new, are required to meet limits that relate to water quality outcomes, and therefore there is little certainty as to the outcomes of the pre-2017 regulatory regime.

65. The s32 report states at the beginning of the farming section[32] that farming activities are significant and increasing contributors to degraded water quality in rivers, lakes and aquifers, and yet the Council does not appear to have the data or information available to quantify the scale or nature of the causes of those effects. The requirement to consider the risk of acting or not acting if there is

[31] s32 Report for the pLWRP 'pg 60
[32] s32 Report for the pCLWRP pg 64

insufficient information is not satisfied by a statement that there is sufficient information to act – in my view it is a signal to plan makers to consider whether, if there is insufficient information present, a precautionary approach should be taken.

66. The 'risk' of not acting or acting in a particular way where information is uncertain includes the risk that the planning approach selected might be wrong. The consideration of risk involves considering the consequences of the planning action being wrong. In the case of Canterbury and the farming provisions, the consequences of a planning approach that does not prevent further increases in nutrient discharges from farming activities and which does not begin a trajectory of improvement in catchments where there is already a significant water quality problem are high.[33]

67. In my view, the risks associated with taking the 'little action' approach that Ecan have proposed until 2017 is high. I agree with the statement in the s32 report that there is sufficient information to act, but that action should be a precautionary approach that prevents further environmental degradation until such time as there is sufficient information to develop a more refined planning approach to managing the issues. In my view, the planning approach proposed by F&G achieves that level of precaution without unduly restraining the social and economic well-being that is being derived from the region's freshwater resources.

OTHER PLAN PROVISIONS RELATING TO FARMING

FLOW SENSITIVE CATCHMENTS

68. Fish and Game's submission sought one change to Policy 4.64 in relation to controlling forestry activities in flow sensitive catchments. The relief sought is to add to the policy a statement that any additional flow in the catchment that arises from reducing the effects of forestry on rainfall interception should not be available for abstraction for consumptive uses.

[33] Dr Marsh, Evidence in Chief dated 2 April 2013, paragraphs 40 – 46, 58 - 69

STOCK ACCESS TO WATER BODIES

69. **Policy 4.26** has been amended to provide more specificity around the types of water bodies and the parts of those water bodies from which stock are to be excluded. The policy has also been refined in line with the F&G submission to provide for some stock access in areas where stock exclusion is impractical (such as where there are steep slopes or extensive grazing). Lighter stock such as sheep, which do not tend to wallow or spend time in the beds of water bodies, can be beneficial for the management of some pest plant species along river margins and are less likely to cause damage to the soil structure of banks or result in significant amounts of sediment run-off. The policy is intended to enable access for those stock types.

70. I have recommended a number of amendments to the rules to reflect the policy approach changes. I have included reference to 'active bed' in the stock access rules. This is to address some of the concerns raised by submitters in relation to the physical nature of some of the larger rivers in Canterbury that prevent practicable bridging for stock crossings and where the RMA definition of bed includes an extensive area of flood plain. The definition of 'active bed' that I propose is based on the evidence of Russell Death and reflects that the key areas in which stock should be excluded are those areas that are part of the active channel or that are regularly covered by river flows. I have considered the definition of active bed proposed by Mr Willis in his HG 2 evidence[34]. While I understand the reasons for his recommended changes, I am of the view that the approach could be simplified.

WATER PERMITS ALLOWING DISCHARGES

71. Rule 5.42 of the Plan provides for changed land uses (and associated discharges) as permitted activities provided an existing water permit includes conditions controlling discharges.

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[34] See paragraph 6.9 onwards of Mr Willis's evidence in chief for Hearing Group 2

72. It is not clear that these water permits actually expressly allow discharges as is required by s15. If discharges are not expressly allowed, then the discharge conditions have no effect in terms of s15 and therefore cannot be relied upon in the Plan.

73. It is not clear that the existing water permits and their conditions are appropriate for achieving the objectives of the proposed Plan, because they were established under another planning regime. If those conditions don't limit discharges to levels that will achieve the objectives of this plan then they should not be cross-referenced in rules in this Plan.

TRANSFER OF WATER PERMITS

74. Fish and Game's submission sought that Rule 5.107 be amended to include matters of discretion that allowed for water use to be managed as part of addressing nutrient leaching from farms.

75. S136 of the RMA provides for the transfer of water permits. Water permit transfers to a new site (s136(2)(ii)) must be considered as if they are resource consent applications (s136(4)) with the normal resource consent assessment process followed unless it is 'expressly allowed in a regional plan'. As the proposed Rule 5.107 does not 'expressly allow' the transfer of a water permit (it is not a permitted activity so a resource consent is first required before the transfer is allowed), the requirements of s136(4)(b) apply.

76. Section 104(2B) requires the Council, when considering an application for a resource consent, to have regard to

'When considering a resource consent application for an activity in an area within the scope of a planning document, a consent authority must have regard to any resource management matters set out in that planning document.'

77. In my view, the integrated management of fresh water is a matter set out in the Plan and, more specifically, the management of water quality through the control of activities associated with land uses. It is therefore appropriate for the matters of discretion listed in Rule 5.107 to specifically include scope to address water quality effects that may arise out of the use of water. This includes two aspects. Firstly, the

management of irrigation has a significant impact on Nitrogen leaching from farming activities[35] and therefore the ability to manage the timing, rate and location of irrigation should be a consideration in managing farming activities in an integrated way. Secondly, water quantity and quality in water bodies are related such that reduced water quantity can result in increased concentrations of contaminants in the water body[36]. Moving an abstraction point to another location within a catchment may have an effect on water quality in that area, but the cumulative effect of transferring several water takes to a single location may also have an effect on the overall water quality in lower reaches of the catchment. This may occur where multiple smaller takes are transferred to a single consent holder (for example an irrigation company).

78. To provide scope within the rule to address these potential effects, I have recommended the inclusion of addition matters of discretion. I have also recommend a minor modification to matter of discretion (2) to enable the Council to impose additional conditions (rather than being limited to considering the appropriateness of existing conditions). I have also recommended four further matters of discretion to provide the Council with necessary scope for administrative conditions to be attached (monitoring, provision of information and condition review) as well as giving the Council explicit control on the amount of water to be surrendered. While the conditions of the rule require specific percentages of the water take to be surrendered in certain circumstances, it may be appropriate to require the surrender of a larger amount of the water take in order to address over-allocation issues in the catchment.

WATER FROM CANALS AND WATER STORAGE FACILITIES

79. Rules 5.94 and 5.95 as notified specify the taking and use of water from irrigation and hydroelectric canals and from water storage facilities as a permitted activity. Fish and Game and others made submissions seeking control of the use of this water as its use, particularly for irrigation, could have a significant effect on being able

[35] Dewes, Evidence in Chief, paragraphs 77 - 110

[36] Dr Roger Young, Evidence in Chief 4 February 2013, paragraph 51.

to achieve the water quality limits in the Plan. The s42A officers agree with this concern and have recommended changing Rule 5.94 so that it only permits the *taking* of water. The s42A report intends that the use of water is captured as a discretionary activity in Rule 5.95, however the drafting of the rule has a wider effect than I think was intended. I am of the view that the matters that the Council needs to consider when assessing the use of water is little different whether the water is sourced from a natural water body or an artificial water body – the effects being considered are associated with the *use* and those effects will be little different regardless of the source of the water. I therefore consider it would be appropriate for the rule status to be restricted discretionary to be consistent with the rule stream established elsewhere in the Plan. I have suggested an addition to Rule 5.96 to provide for the use of water from irrigation and hydroelectric canals and water storage facilities[37].

LAND DRAINAGE WATER

80. Rules 5.55 and 5.57 permit the discharge of water and contaminants from sub-surface and surface drains into artificial water course, constructed wetlands and to land (Rule 5.56), and to other surface water bodies (Rule 5.57). Fish and Game sought that either the activity status of these activities be changed or additional standards be included in the rules in order to satisfy the requirements of s70 RMA.

81. There are a number of aspects to these activities that require consideration.

Definitions

82. The Plan does not include definitions of sub-surface or surface drains. The s42A report states that the terms 'are quite clear in their meaning, being drains that lie either at ground level or below ground level'[38]. In my view, the lack of definitions for these terms mean that they could include both urban and rural networks and could conceivably include stormwater networks (gutters and roadside swales would meet the

[37] Note, this is in addition to changes I recommended in by Hearing Group 1 evidence.
[38] S42A Report – Volume 1, pg 175

definition offered by the s42A report). The term ‘surface drain’ could also include drains and water tables that collect run-off from stock races and stand-off areas on farms. The term ‘sub-surface drain’ would also seem to include tile drains on farms, but also from reserves, sports grounds and golf courses.

83. For these rules to be sufficiently certain as permitted activities, the terms used should be defined. I have not offered a definition here in my evidence because it is not clear from the Plan or from the s42A report what land drainage is intended to be provided for by the rule. Until that is known, I am of the view that the rules should either be deleted, with the discharges either being addressed by other rules in the Plan (e.g. the stormwater rules) or via a resource consent required by s15 RMA directly, or the activity status of the rules should be amended to full discretionary to allow the full range of potential activities to be considered adequately.

Potential effects and the unknown extent of drainage networks

84. The extent of the drainage networks that are the subject of these rules is not clear from the s42A report or from the Plan itself. Based on my knowledge of land drainage networks in the Wairarapa, they often extend over several properties and the extent and definition of sub-surface drains is often not known. Therefore there is significant uncertainty about what contaminants might be entering these networks and whether the extent of the networks has been extended over time by further drainage networks ‘tapping into’ existing networks.

85. In circumstances where drainage networks cross multiple properties, there may be difficulty in determining where the constituent parts of the discharge originate from. The responsibility for the discharge of the drainage network at the point it enters a natural water body will need to be attributed to a person or entity (such as a local authority). Determining who is responsible for compliance where such discharges are permitted would be problematic without significant investigation on the part of the Council. In my view, the discovery of the extent of existing drainage networks should be a cost that is borne largely by the landowners who are benefiting from the network. To address this efficiency issue, I am of the view that the resource consent process

provides the Council with the ability to either recover the reasonable costs of assisting landowners in defining the extent of these networks, or those costs are borne directly by the applicant(s).

86. In any event, I am of the view that the uncertainty surrounding the nature and extent of land drainage systems is such that a permitted activity status is not appropriate and that the Council is unlikely to be in a position to satisfy itself that the requirements of s70 RMA will be satisfied.

87. Overall, it is my view that the activity status of Rule 5.57 should be discretionary. The status of Rule 5.55 could remain as permitted on the basis that any discharge from artificial water courses or constructed wetlands would be captured by Rule 5.57.

FERTILISER

88. The discharge of fertiliser is provided for as a permitted activity (Rule 5.52). There are two conditions required to be met; fertiliser is not to be applied when there is water ponding on the surface of the land, and setback distances from water bodies and significant habitats are applied. There are no conditions limiting the amount or rate of application of fertiliser. A note under Rule 5.52 states *Note: The discharge of fertiliser may also be restricted by Rules 5.39 to 5.51*.

89. Fish and Game's submission raised concerns about how the fertiliser rules in the Plan integrate with other rules, particularly the farming rules. It is not clear in the notified plan whether fertiliser discharges, and their associated nutrient contributions to land and water, are intended to be managed by the specific fertiliser rules (Rules 5.52 to 5.54), the farming rules, other discharge rules in the Plan, or a combination of all of those rules.

90. The rules I have proposed for farming activities integrate associated discharges, including fertiliser application, so that all farming activities and the associated activities that contribute to the 'nutrient balance' on farms are addressed in a comprehensive manner under a single rule. In my view, this provides benefits to plan users because it provides a 'one stop shop' for farmers consulting the Plan. It also assists

decision-makers by combining the relevant considerations into a single rule and set of policies.

91. To streamline the Plan, I have recommended that the use of fertiliser is managed either under the fertiliser rules or the farming rules, but not both. To achieve this, I have included a cross-reference to the farming rules in the permitted activity fertiliser rules so that the only time the fertiliser rules come into effect is if fertiliser use is not associated with a regulated farming activity. This will be the case for activities' such as golf courses, parks and reserves, and other land uses that apply fertiliser. I note however that I have also included cross-references to the conditions of the fertiliser rules in the farming rules; one of the standard conditions for farming activities is that fertiliser application meets the conditions of the permitted fertiliser rules. This cross-reference is to minimise the length of the farming rules.

92. To ensure that fertiliser outside of regulated farming activities is used in a manner that minimises adverse effects on water bodies, I have recommended the addition of conditions requiring the preparation and adherence to a nutrient management plan and compliance with Fertiliser Research's Code of Practice for Nutrient Management 2007.

93. The importance of including the requirement to comply with the Code of Practice for Nutrient Management in the rules (both farming rules and the fertiliser rules) is that the Overseer nutrient model assumes that best practice for fertiliser use is occurring. The Overseer technical documents state that this assumption is considered to be met if the Code is being complied with.

94. I have also recommended deleting the reference to permitting discharges into rivers from Rule 5.53. That wording conflicted with the condition that required that there are no discharges to permanently flowing rivers. In my view, there are also potential effects that may arise from discharging fertiliser into or onto the beds of intermittently flowing water bodies as these water bodies can either be flowing sub-surface or will entrain fertiliser sitting on the bed when they next flow[39].

[39] Associate Professor Russell Death, Rebuttal Evidence (Hearing Group 2) dated 10 April 2013, paragraphs 6 – 10 where he explains the risks associated with discharges into intermittently flowing rivers.

ANIMAL AND VEGETATIVE WASTE

95. Rules 5.33 provides for the discharge of ‘solid animal waste, vegetative material containing animal excrement or vegetative material’ as a permitted activity. Not meeting the conditions of that rules triggers a resource consent for a discretionary activity under Rule 5.34. Fish and Game’s submission raised issue with the definition (or lack of) of the terms used in this rule and in Rule 5.35, which controls the discharge of ‘animal effluent’. The submission also sought that additional conditions should be imposed to require a 50m setback from significant water bodies and to either include further conditions that would ensure the rule satisfied the requirements of s70 RMA or change the activity status of the rule so that resource consent is required for the activity.

96. In considering these related rules, I am concerned that the terms ‘solid animal waste’ and ‘vegetative material’ could include a large number of substances and contaminants. Rule 5.33 permits discharges of these activities derived from farming activities, but also from industrial and trade processes. That suggests that there could be a wide range of materials that have been processed to varying degrees, and with unknown nutrient and other contaminant compositions. The terms would seem to permit the discharge of animal blood products, processed meat and offal products, rotten or fermenting food or other products, and composting or fermenting primary production waste such as grape marc. It would also appear to permit the discharge of animal effluent that is in solid form, such as piggery or poultry litter. Permitting such a broad range of potential contaminants does not sit comfortably with s70 RMA in my view.

97. As proposed, the rule does not impose any standards on the discharges which might be necessary to ensure that the water quality objectives of the Plan are met. It is conceivable that sizeable areas of land could be used to discharge such materials, and the materials may contribute significant amounts of nitrogen and phosphorus to the environment. Allowing such uncontrolled discharges, particularly in catchments where water quality limits are exceeded or are at risk of being exceeded, risks the objectives of the plan not being met.

98. Given the broad nature of contaminants potentially covered by this rule, it is my view that it would be more effective and efficient to change the activity status of the rule to discretionary to enable full scope for potential effects of unforeseen contaminants to be addressed. To achieve this I have recommended deleting Rule 5.33 and amending Rule 5.34 accordingly. As an alternative to this approach, it would be appropriate in my view to specify particular substances that could be permitted. These might include composted material where the nutrient content is known or sawdust or other processed wood waste, however I am not aware of the types of waste products that are regularly applied (or are readily available) in the Canterbury region to provide a set of suggest permitted activity rules at this stage.

99. I have recommended that these materials could be discharged under the all encompassing farming rules I have proposed. This is because those rules require nutrient loss limits to be achieved as a condition of the rule and therefore the nutrient content of the materials will need to be known to benefit from those rules. Those rules also require a comprehensive calculation of all nutrient inputs into a farm and therefore ensure the contribution that these materials make to the total farm nutrient balance, and therefore the achievement of the Plan's freshwater objectives, is within defined parameters. Provided farming activities are managed through resource consents so that appropriate conditions can be applied, it is my view that this would be an effective means of regulating these activities.

100. To provide clarity to the terms used, I have recommended a new definition for 'solid vegetative waste' and have amended the definition of 'solid animal waste' to ensure that it does not include human-derived waste. I have also recommended a definition for 'animal effluent' as that is currently undefined in the Plan and the normal use of the word could encompass a range of materials that are perhaps not intended by the specific rules. In any event, adding a definition assists in clarifying the difference between animal effluent and other animal wastes.

STOCK HOLDING AREAS AND ANIMAL EFFLUENT

101. Fish and Game's submission sought, among other relief on this point, that discharges of animal effluent directly to water be specified as a prohibited activity. In my view, that approach is consistent with the policy approach in the NRRP. Policy WQL 3 includes the following:

> *Avoid significant adverse effects on water quality, aquatic ecosystems and instream values of surface water, by:*
>
> *(1) prohibiting the point source discharge of:*
>
> > *(a) untreated human sewage, except for unavoidable overflows or spills from an existing sewerage network, animal effluent from an effluent collection system, or solid or hazardous waste into surface water, or onto or into land where contaminants may enter surface water; or*
> >
> > *(b) treated human sewage into a river or lake from a vessel; or*
> >
> > *(c) treated human sewage into a river upstream of a community drinking water supply intake.* (my emphasis)

102. That policy direction is carried through to the pLWRP to some degree, although softened, in the form of Policy 4.9 which states:

> *There are no direct discharges to surface water bodies or groundwater of:*
>
> *(a) untreated sewage, wastewater or biosolids;*
>
> *(b) solid or hazardous waste or solid animal waste;*
>
> *(c) animal effluent from an effluent storage facility or stock handling area;*
>
> *(d) organic waste or leachate from storage of organic material*
>
> *(e) untreated industrial or trade waste.* (my emphasis)

103. The pLWRP policy is softened on two key areas. Firstly the clear statement that discharges to water of those contaminants are to be *prohibited* has been reduced to saying that there are *no direct discharges*. While, to all intents and purposes, the outcome could be seen to be the same, the NRRP policy wording is, in my view, stronger and more directive. The second key issue is that the reference to discharges *onto or into land where contaminants may enter water* has been removed and instead the pLWRP policy refers only to *direct discharges to surface water bodies or groundwater*. Policy 4.11 of the pLWRP addresses discharges of contaminants to land in

circumstances where they may enter water but it does not include a strong statement that the contaminants listed above should be prevented from enter water indirectly via land.

104. I am not aware of evidence relied upon by the Council which supports the move away from the strong policy approach set out in the NRRP on these matters. In my view, the factors that created the risk of contamination of water bodies by the direct or indirect discharge of the listed contaminants is unlikely to have changed between the NRRP being made operative and the pLWRP being notified. Discharges of the listed contaminants onto or into land near water bodies or where application rates and methods are not appropriate creates significant risk of direct contamination of water bodies and it is appropriate that the Plan includes strong policy and regulatory provisions to avoid those situations.

105. I am therefore of the view that prohibited activity rules should be included in the plan that prohibit the discharge of animal effluent, solid animal waste, solid vegetative waste, and organic waste or leachate from storage of organic material (which would include leachate from silage pits) directly to surface water or ground water.

106. The s42A officer has recommended significant changes to the animal effluent rules. The basis of those recommended changes is to return the rule structure to the approach in the NRRP where the different land use and discharge components of the activities associated with animal effluent treatment and discharge are regulated separately. I consider that this approach works well, particularly given that it carries through the existing regulatory framework and should minimise unintended consequences of a new approach.

107. Within the new rules proposed in the s42A report, I have recommended several relatively minor changes and additions. I have recommended that the matters of discretion for discharges also include proximity of the discharge to inanga and salmonid spawning sites in Schedule 17 as well as proximity to water bodies with significant values identified in Fish and Game's proposed Schedule XX. I have removed the reference in condition 1(a) of Rule 5.36 which refers to discharges directly to water. This is for two reasons. Firstly, I have recommended a prohibited activity rule for such discharges.

Secondly, the rule itself does not expressly authorise discharges directly to water therefore the condition is controlling a matter that is not within the scope of the rule. I have included an exclusion from the rules for cases where the activities' covered by the rules are addressed in my proposed farming rules. This change is to prevent the rules being separately applied to the same activities.

SILAGE PITS AND COMPOST

108. Fish and Game's submission sought the inclusion of additional conditions requiring the setback of silage pits and compost piles from significant water bodies. The s42A report includes significant restructuring of the rules to separate small compost stockpiles from larger compost stockpiles and silage pits. I generally consider that the relief sought by Fish and Game is provided for, in that restructuring in that the rule for large compost stockpiles and silage pits requires a 50 metre setback from all surface water bodies.

109. I have recommended some amendments to the s42A officer's recommended rules to ensure they accurately capture the intended activities. This includes ensuring that Condition 1 of Rule 5.37 does not refer to 'silage pit'. I have also recommended deleting 'or' from the end of that same condition as the effect of that word is that stockpiles larger than 20 cubic metres would be provided for as long as they complied with the two other conditions of the rule. The effect of that would be that large compost stockpiles could be located close to water bodies as a permitted activity.

110. While I consider that Rules 5.37A and 5.38 give effect to Fish and Game's submission points, I have recommend, as with other rules in the Plan, an exclusion where the silage pit or compost stockpile is undertaken as part of a farming activity under the comprehensive farming rules I have proposed.

SCHEDULE 7

111. I largely agree with the changes recommended to Schedule 7 in the s42A report. They make the Farm Environment Plan requirements comprehensive so that they are more likely to be effective at achieving

management of effects of the subject farming activity. I have recommended some further changes (shown in **Appendix 4)** which I summarise briefly below:

a. I have recommended that the use of Overseer remains as a pre-requisite.[40]

b. In the rule stream that I have recommended third party auditing of Farm Plans is not included so Part C of Schedule 7 has been deleted.

c. Additional cross-reference to Part B included in Part A so that all FEPs must include an Overseer nutrient budget and that the parameter files of the Overseer model are included so that they can be properly audited by the Council.

d. I have recommended minor addition to information to be provided in D (in s42A version) so that information on feed includes both quantity and type.[41]

e. I have recommended removing the reference to when the information has to be provided as this information is included in proposed rules.

COMMENTS ON ECAN OFFICER'S RESPONSE TO F&G HG1 QUESTIONS

112. Fish and Game put forward some questions of clarification for the Council officers in relation to Hearing Group 1 issues. Council officers provided a response to those questions in a memo (undated) provided on 3 April 2013. The answer to Question 4 in respect of Schedule 5 relates to my evidence and I address it here.

113. The answer to Question 4 suggests that the standards can be used to 'assess cumulative situations down a river', by which I take to mean that the standards can be used to measure the cumulative effect of

[40] Dewes, Evidence in Chief, paragraphs 128 – 140.

[41] Pers com with Alison Dewes that the type of feed has a significant influence on its nutrient composition.

multiple activities on a water body. Many of the Schedule 5 parameters are 'change' measurements and therefore won't pick up cumulative effects downstream of the measurement zone unless the upstream and downstream measuring points encompass the entire catchment in question. The cumulative effects of discharges should account not only for discharges that occur upstream of a discharge location but also those discharges below the discharge location that are contributing to the overall water quality of the water body. There is nothing that I have seen in the rules or the way Schedule 5 might work that will account for existing discharges downstream of a discharge location.

114. To measure the compliance of a whole catchment against the Schedule 5 standards does not appear to be their intended use when considering the policy framework of the proposed Plan, However that approach is akin to setting water quality limits. If Schedule 5 is intended to be used in this way, then it is my view that there should be far clearer articulation of this in the policies of the Plan, including greater transparency if Schedule 5 standards are going to be used to identify the allocation status of catchments. If Schedule 5 is to be used in this way, it leads to the genesis of Question 4 as posed – Table 1 would seem to be the logical place in the plan to set the catchment-level limits with Schedule 5 specifying standards for point source discharges.

115. In response to the answer provided to Question 5, I cannot see how the answer matches the way in which the Plan has been written. The rules relating to discharges of contaminants, particularly those relating to farming activities, are generally permissive and do not require the standards in Schedule 5 to be met (the answer to question 5 states that there are only three instances of reference to Schedule 5 in the Plan). The rules relating to farming, in the short term at least, do not impose controls on the amount of nutrients that can be discharged to water bodies via non-point sources and there is no reference to meeting Schedule 5 standards in those rules. Therefore there appears to be very little in the Plan that links Schedule 5 and the rules controlling activities to the outcomes in Table 1(a-c) and I suggest that it is therefore unlikely that the plan's provisions will be effective in achieving those outcomes.

CONCLUSION

116. Based on the evaluation I have undertaken above, I am of the view that the resource management approach proposed by the Council, and as modified by the s42A report, will not be effective in terms of achieving the objectives of the Plan. Nor will it be efficient. I have proposed an approach to managing farming activities that I consider, based on the evidence, will be effective in achieving the objectives and will be efficient. The following table briefly summarises the effectiveness and efficiency of the two approaches.

Planning approach	Summary of approach	Effectiveness	Efficiency
Ecan approach	• Existing farming permitted activity in all catchments • Nutrient loss management to be through audited Farm Environment Plans • Effects of new or changed farming on catchment limits discretionary consideration when assessing consent applications.	• Increased N loss permitted in over allocated and at-risk catchments. • No direct relationship with water quality outcomes in Table 1 other than discretionary consideration of level of achievement • No allocation of nutrients to land users so no knowledge by resource users as to fair share of available resource. • Relies on voluntary reduction in nutrient loss – no compulsion to reduce leaching. • Discharges of nutrients and other contaminants are permitted activity, which is unlikely to meet requirements of s70 RMA • Does not give effect	Because the approach is unlikely to be effective, the efficiency evaluation is not relevant. In a broader sense, continued degradation of water quality and no clear improvement of degraded water quality is likely to incur costs on environment and community over time (see evidence of Dan Marsh). Lack of clear resource allocation creates uncertainty for farm investment over time.

		to the NPSFW. Overall, planning approach is unlikely to be effective in achieving the objectives and has significant risk of causing water quality decline.	Does not drive efficient use and allocation of resource so less likely to create headroom for increased economic development Uncertainty in effectiveness of approach creates uncertainty for farm investment over time due to significant risk of changing regulatory environment in short term to address plan's shortcomings.
Fish and Game approach	• Nitrogen discharge standard set for farming activities • No changed or new farming in red catchments • Increase in N loss in at risk catchments only allowed it is off-set by N loss reduction elsewhere in catchment • All existing farming in at-risk and over-allocated catchments that exceed N standard must reduce N loss over time.	• Nitrogen leaching standards relate directly to achievement of objectives (and water quality limits) • Regulated obligation to reduce N loss over time in at risk and over-allocated catchments. • Increased N loss in over-allocated catchments is not allowed • Discharges of contaminants associated with farming are not permitted activities and therefore no conflict with s70 RMA . • Gives effect to the NPSFW.	Existing farming operations that are leaching below standards are not required to make changes to activity Farms leaching over the standard are required to reduce leaching but at a manageable rate over time so affordable (See evidence of Alison Dewes) Costs to community and environment will reduce over time as water quality improves over time.

	Drives efficient use of available resource to create headroom for economic expansion. Farmers know what their N loss limit is and that all other farmers are treated in the same way – likely to be seen as more equitable

REFERENCES

Answers to Commonly Asked Questions, Ministry of Primary Industries, February 2013

APPENDICES

1. Flow Diagram of key rules

2.Objectives, Policies and Rules

3. Definitions

4. Schedule7 (Farm Environment Plans)