Hearing: at Palmerston North: 30 April – 4 May, 21 – 25 May, and at Wellington 7 June 2012

DECISION: PART 5 - SURFACE WATER QUALITY – NON-POINT SOURCE DISCHARGES

Counsel and parties participating in this topic:

A E Day
P R Gardner for Federated Farmers of New Zealand Inc
J J M Hassan, L Hinchey and K E Viskovic for Fonterra Co-operative Group Ltd
H A Atkins for Horticulture New Zealand
E M Jamieson and A Camaivuna for the Minister of Conservation
M G Conway for the Palmerston North City Council
M R G Christensen for Ravensdown Fertiliser Co-operative Ltd
J A Burns and C Malone for the Wellington Fish and Game Council
J W Maassen and N Jessen for the Manawatu-Wanganui Regional Council

PART 5 - Surface Water Quality – Non-Point Source Discharge **Page**

Introduction

[5-1] This topic was the most contested of those requiring decisions from the Court. The central issue was the amounts and types of run-off and leachates arising from farming activities which find their way into waterbodies – primarily the rivers and lakes of the region. The run-offs and leachates of concern are primarily nitrogen (N) and phosphorus (P), and both contribute significantly to the growth of periphyton in the water.

[5-2] Most of the evidence on this topic focussed on nitrogen (N), and so shall we in this part of the decision. While both have similar effects on aquatic environments, their sources are different. The most concise explanation of the difference we saw is in the report of the Parliamentary Commissioner for the Environment: *Water quality in New Zealand: Understanding the Science* (2010), and we quote a passage from Chapter 9 of the report:

> The two nutrients get into water by largely different routes. Nitrogen occurs in forms that are highly soluble in water and so can travel via groundwater as well as across surfaces. This makes it particularly elusive – preventing it getting into water is a major challenge. Most phosphorus, on the other hand, gets into water with soil and if the soil can be stopped from getting into water, so will the phosphorus. Once in the water, however, much of the phosphorus is locked up in sediment and can be there for a very long time.
>
> Excess nutrients can have dramatic effects on water bodies. Nitrogen and phosphorus stimulate plant growth, leading to algal blooms (sometimes toxic), oxygen depletion, and ecological damage. Ammonia can kill fish, and elevated nitrate levels can make aquifers undrinkable.

That will explain why the evidence, and the decision, for this Part focuses on nitrogen. The phosphorus issue finds its place in Part 4 of the decision – Sustainable Land Use and Accelerated Erosion.

[5-3] Periphyton is a term covering communities of algae, fungi, bacteria, diatoms and cyanobacteria. It is the primary productive base of many aquatic ecosystems and is a natural part of freshwater biodiversity. But where there are elevated nutrient levels in the water, particularly in unshaded and low flood frequency waters, it flourishes and becomes a nuisance, accumulating into thick, slimy mats. That in turn affects the water's ability to sustain biodiversity and healthy aquatic ecosystems; it produces

toxins and irritants making the water unsuitable for drinking by humans and animals, and for contact recreation. It can also physically clog water intakes for irrigation, water supply and industry.

[5-4] Broadly, the leachates and run-off come from faeces and urine deposited by farm animals, and from fertiliser applied to the land for pasture and crop purposes. Either or both of leaching and run-off will occur in almost any conditions where the raw material is present, but it follows that where rainfall is plentiful the rates will generally be higher, and with porous soils the rate of leaching will likely increase. This diffuse type of discharge of contaminants to water (or to land and thence to water) is known as *non-point source discharge* to distinguish it from discharges from a clearly identifiable *point source* such as an outfall from a sewage treatment plant.

[5-5] We note here that the POP recognises throughout the importance of farming and its contribution to the cultural social and economic wellbeing of the people and communities across the region. We are mindful of this strong theme in deliberating on the options presented by the parties.

What is being addressed

[5-6] The DV POP, at Chapter 6, summarises the issue concisely:

> The quality of many rivers and lakes in the region has declined to the point that ecological values are compromised and contact recreation such as swimming is considered unsafe. The principal causes of this degradation are:
>
> (a) nutrient enrichment caused by run-off and leaching from agricultural land, discharges of treated wastewater, and septic tanks
>
> (b) high turbidity and sediment loads caused by land erosion, river channel erosion, run-off from agricultural land and discharges of stormwater
>
> (c) pathogens from agricultural run-off, urban run-off, discharges of sewage, direct stock access to water bodies and their beds and discharges of agricultural and industrial waste.

[5-7] We should say, at this early point, that it does not answer that fundamental issue to say, as some did in addressing these appeals, that there is no present need to enhance water quality because the quality of some of the rivers and waterbodies in the region is no worse than average figures for similar water elsewhere in the country.

That is an unappealing argument, the logical extension of which would be to say that so long as the natural quality of all of the country's rivers and lakes deteriorates at more or less the same rate, then we need do nothing to improve any of them. In response to such a view, we simply point to Part 2 of the RMA, and its use of phrases such as ... *sustaining the potential of natural ... resources; safeguarding the life-supporting capacity of ... water; ... the preservation of the natural character of ... wetlands, and lakes and rivers;* and ... *intrinsic values of ecosystems.*

[5-8] We should immediately say also that we have little sympathy for the line of argument that we should defer taking decisive action in the field of improving water quality (or, at the very least halting its further decline) because ... *the science is not sufficiently understood* ... or that ... *further analysis could give a more comprehensive process* ... or similarly phrased excuses for maintaining more or less the status quo. We will never know all there is to know. But what we undoubtedly do know is that in many parts of the region the quality of the natural water is degraded to the point of being not potable for humans or stock, unsafe for contact recreation, and its aquatic ecosystems range between sub-optimal and imperilled. We also know what is causing that decline, and we know how to stop it, and reverse it. To fail to take available and appropriate steps within the terms of the legislation just cited would be inexcusable.

[5-9] Related to that point, some parties put a great deal of emphasis on setting in place *voluntary or educative* approaches to tackling the acknowledged problems – meaning that time should be taken to educate and persuade all of those with a stake in the region's water quality towards a joint, and preferably voluntary, programme. *The Dairying and Clean Streams Accord* (of which more later) might be held up as an example of that style of approach. We have no difficulty with approaches of that kind – they are laudable, as far as they go. But history suggests plainly enough that alone they do not suffice to effectively deal with the problem. We agree with Dr Alison Dewes' (called by Fish and Game) comments that:

> Voluntary approaches have merit as innovators and early adapters tend to engage in this process. However, this approach alone is unlikely to achieve the desired environmental outcomes as it will not capture the worst polluters, nor will it account for rapid changes in land use that can occur in short time frames as a result of unpredictable changes in market forces.

> ... there cannot be a reliance on voluntary approaches alone. I agree with Neels Botha where, in his evidence, he illustrates that voluntary approaches alone are unlikely to be as effective as a mix of policy instruments.

Even if those programmes exist, they need the reinforcement of a regulatory regime to set measurable standards and to enforce compliance with them by those who will not do so simply because ... *it is the right thing to do*.

[5-10] A variant of the theme was the proposition advanced by Dr Antony Roberts, the Chief Scientific Officer for Ravensdown, among others, that a *collaborative approach* involving the community setting acceptable N loss targets for individual catchments was required. He did not consider the One Plan process met this requirement, notwithstanding the ability of the community to participate in the formulating of policy and rules, and suggested that controls should only apply in the interim while such agreed targets are set. However, we recognise that the region has urgent water quality issues that require immediate action and are the focus of the POP. In addition there is the opportunity for the community to revisit objectives, policies and rules at any time in the future under the One Plan, such as on a catchment-specific basis.

[5-11] At para [5-209] we begin a discussion of the use of the term *numerics* in the POP. In the course of working through the positions and propositions of the various parties leading up to that point, we shall use terms such as *limits*, *maximums (*or *maxima) standards* and *targets*. In so doing we should not be taken to be approving or endorsing the terms as used in those contexts. That terminology needs to be carefully refined, and is dependent on the context – for instance whether it is being used in a policy or a rule.

Notified version of POP (NV POP)

[5-12] The notified version of POP (NV POP) brought within a regulatory regime the four intensive land uses of dairying, intensive (ie involving the use of irrigation) sheep and beef farming, cropping, and commercial vegetable growing, both existing and new. The regulatory regime was based around Land Use Capability (LUC) classification with limits on nitrogen leaching varying according to the LUC class of the land in question. Further, the N leaching limits became more stringent from year 1

and thereafter at years 5, 10 and 20. It covered existing uses (except extensive sheep and beef farming) in 34 targeted water management sub-zones (WMSZ) within 11 catchments as well as new uses throughout the Region. The philosophy of this version was, and is, strongly supported by the Minister of Conservation and Fish and Game.

Decisions version of POP (DV POP)

[5-13] For the reasons it gave, the Hearing Panel established by the Council, comprised both of elected Councillors and independent appointees, made significant changes to the NV POP. Principally, intensive sheep and beef farming, cropping, and commercial vegetable growing were dropped from the regime regulating N leaching, leaving only new (and existing, within *targeted water management sub-zones*) dairy farming within it. The LUC basis of control (with one exception – new dairy operations at year 1 throughout the region) was set aside in favour of a regime of *reasonably practicable farming practices*. Further, a number of the targeted WMSZs were removed from the DV POP regime altogether, with a reduction to 24 WMSZs within seven catchments. There are varying degrees of support for that version among the parties.

The Council's position – the MWRC-V-POP

[5-14] There have been extensive discussions and negotiation between the parties since the DV POP was issued, the appeals lodged and (in some respects) since Court-assisted mediation. While they have not resulted in overall agreement, they have produced a further version of the debated portions of the POP which the Council, and some parties, to a greater or less extent, find acceptable. It was presented as the MWRC-V-POP.

[5-15] This version would base the figures for N leaching on the LUC classification for the land in question. It would allow a three year period of grace for existing dairy uses to achieve compliance (unless a resource consent in a more stringent activity class was obtained), but it would not have a staged reduction of the leaching limit over a period of years. It would require a review of the situation in 2017, with the possibility of bringing all rural land use activities including horticulture (commercial vegetable growing) into the regime after that review. That review would also consider amending the cumulative nitrogen leaching maximums. As additional land use

activities are regulated the policy framework may include nitrogen trading mechanisms.

Mr Day's position

[5-16] Mr Day is generally, if not necessarily in every detail, aligned with the Minister's and Fish and Game's positions, with the significant difference that he advocates for the immediate introduction of an N leaching rights trading scheme. He does support an LUC based method, the regulation of other land uses such as all sheep and beef farming, and opposes the *grandparenting* of existing levels of N loss.

Federated Farmers' position

[5-17] Federated Farmers argued that quite apart from the merits of the issue, there is no scope to bring extensive sheep and beef farming within the nitrogen management regime, but agrees that it would be appropriate to include intensive (ie irrigated) sheep and beef farming within a rule regime. It does not agree that cropping (for fodder) should be an included activity and, apart from agreeing with the view that the casual basis on which land is used for cash cropping makes management of a resource consent regime too hard, it has no view about vegetable production. It submits that low risk dairying should be a *permitted* activity. The Federation generally supports the DV POP, and opposes the use of the LUC classification system as the basis for such a regime. It believes that there is uncertainty about what *reasonably practicable* steps might be. It does however support a so-called single figure N leaching regime where existing dairy farms should be required to do what is ... *reasonably practicable ... to reduce N leaching beyond a certain level to be given permitted activity status.* The Federation's proposed regime for new (beyond a *permitted* activity leaching level) and existing dairy farms involved progressively more stringent activity status at increasing leaching levels, with the Council having power to require reasonably practicable N leaching mitigation.

Fonterra's position

[5-18] Fonterra considers that all N-leaching land uses should be captured by the regime, otherwise dairying will be left to carry an unfair burden, but that to bring in extensive sheep and beef farming at present would be premature, and that it should be left to a future plan change. Such a change in the future could also, it suggests, be a

vehicle for developments such as giving effect to the National Policy Statement Freshwater Management (NPSFM), a trading regime, and bringing other catchments and other forms of intensive farming into the rule regime. It is concerned that existing dairying should be treated conservatively, and that existing dairy farmers should not be ... *put* ... *out of business*. Fonterra proposes what its planning witness, Mr Gerard Willis, describes as a hybrid planning approach containing an element of capping some farmers at their current leaching rate (*grandparenting*), requiring and defining the adoption of reasonably practicable measures (the *best practicable option*) and beyond that the consideration of the *natural capital* approach.

Horticulture NZ position

[5-19] Horticulture NZ supports the DV POP, and accepts that it would be appropriate to review the regime in 2017. It opposes the positions taken by the Minister and Fish and Game; in particular it regards an LUC based regime as inappropriate for vegetable growing because it regards LUC as a pasture based classification system. Its view is that if vegetable growing is brought within a rules framework, it should be as a *permitted* activity. Its proposed addition of Domestic Food Supply as a value to Schedule AB of POP has been agreed with the Council in the course of mediation, and the Minister and Fish and Game have since accepted that also.

Minister of Conservation and Fish and Game positions

[5-20] These two parties were much of one mind on the issues and it is convenient to deal with them together. They take the view that intensive sheep and beef farming, horticulture and cropping should be reinstated in the Rule regime now, as should Lake Horowhenua, Coastal Rangitikei and the coastal lakes. They submit that for both of those issues, waiting until a regime review in 2017 to deal with them is simply to allow the situation to get worse, and would not comply with the requirement to give effect to provisions such as the NZ Coastal Policy Statement 2010 (NZCPS), the NPSFM, and the Act generally. As a broad proposition, both prefer the NV POP to the version arrived at by the Hearings Panel. Fish and Game also oppose the three year period of grace proposed for compliance by the Council, but accepts the possibility of a step-down being required in consent conditions.

Palmerston North City's position

[5-21] Palmerston North City was largely content with the DV POP and raised only one substantive issue at the hearing – that of whether the term *numerics* in describing various leaching quantities in Schedule D would be more appropriate than standards, limits or targets. The City's submission is that it would be more appropriate, and we discuss that issue later, under the heading *The term 'numerics'*.

Ravensdown's position

[5-22] Ravensdown expressly accepts that water quality in parts of specified catchments in the region requires improvement. It disputes however that a thorough regulatory regime can be put in place because there is a ... *lack of a sufficiently detailed understanding of the relationship between actual land uses and actual effects on water quality.* That is particularly so, it says, in the case of the effects of dairy farming, while acknowledging that dairying has, and continues to, contribute to the current state of the water quality in specified catchments through N losses. It proposes a regime requiring ... *improvement towards* ... target loads over a five year period; non regulatory methods such as good practice and education; investigation of links between intensive farming and actual effects, aiming towards an agreed criteria or standard for each WMSZ to be introduced by way of a Plan Change. In the meantime it proposes that both new and existing dairy farms leaching under a single figure be *permitted* activities; and others require consent and the adoption of ... Tier 1 *reasonably practicable farm management practices.*

An overview of the relevant portions of POP – first, the Regional Policy Statement

[5-23] There are two relevant objectives on water quality:

> Objective 6-1 Water management Values
>
> Surface water bodies and their beds are managed in a manner which <u>safeguards their life supporting capacity</u> and advances the achievement of the Values in Schedule AB.[1]
>
> Objective 6-2 Water quality
>
> (a) Surface water quality is managed to ensure that:

[1] Fish and Game and the Minister wanted the underlined words added and the Regional Council and all other parties except Fonterra was prepared to accept that. Instead Fonterra wanted *with particular regard to safeguarding life supporting capacity* added to the end of the Objective.

(i) water quality is maintained in those rivers and lakes where the existing water quality is at a level sufficient to support the Values in Schedule AB,

(ii) water quality is enhanced in those rivers and lakes where the existing water quality is not at a level sufficient to support the Values in Schedule AB,

(iii) accelerated eutrophication and sedimentation of lakes in the Region in prevented or minimised,

(iv) the special values of rivers protected by water conservation orders are maintained. ...

[5-24] Fish and Game, preferred that Objective 6.1, Policy 6.1 and Policy 6.7 require that water bodies be managed in a manner that safeguards their life-supporting capacity and ... *recognises and provides for* the values in Schedule AB, rather than *advances the achievement* of those values.

[5-25] Fish and Game said that it had agreed at mediation that it might accept ... *safeguard the life supporting capacity and advance the achievement* if all other matters (and in particular the rule stream) were resolved. However, as the hearing had progressed and other parties argued any advance (no matter how small or slow) towards achieving the values would be meeting the objectives, Fish and Game's discomfort with the term increased.

[5-26] Fish and Game submitted that *recognise and provide for* is a term used in the Act, with a readily understood meaning which has been the subject of judicial interpretation, and should be used. Also the Objectives and Policies of the plan should be to recognise and provide for the values the Plan has identified as important and should say so. We agree.

[5-27] The individual Values and their associated management objectives are set out in the Schedule AB Surface Water Management Values Key and repeated in Table 6.2. The Schedule AB Surface Water Management Values were at issue in only one area, with Hort NZ seeking the inclusion of Food Production. The Schedule AB Values are:

- Zone-wide values (except for LSC)

- Life-supporting Capacity (LSC) Value
- Natural State (NS) Value
- Sites of Significance – Aquatic (SOS-A) Value
- Sites of Significance – Riparian (SOS-R) Value
- Inanga Spawning (IS) Value
- Whitebait Migration (WM) Value
- Sites of Significance – Cultural (SOS-C) Value
- Trout Fishery (TF) Value
- Trout Spawning (TS) Value
- Water Supply (WS) Value
- Flood Control and Drainage (FC/D) Value.

[5-28] Dr Olivier Ausseil, an expert witness for Fish and Game and DOC, who had been involved in their development, gave evidence on the derivation of these Values. He said the Values had been informed by the Schedule 3 Water quality classes in the RMA, with its different classes for water managed for the following purposes: aquatic ecosystems; fishery; fish spawning; the gathering or cultivating of shellfish; contact recreation; water supply; irrigation; industrial abstraction; natural state; aesthetic, and cultural. Section 69 RMA allows regional councils some latitude in including standards that are more stringent or specific and to include new classes and standards about the quality of water. It also requires that standards are not to be set which may result in a reduction in the existing quality of the water unless it is consistent with the purpose of the Act to do so.

[5-29] The catchments in the Region have been divided into Water Management Zones and Water Management Sub-zones for the purposes of managing water quality (among other things). Schedule D contains water quality *numerics* (recognising there is argument about the terminology) relating to the Schedule AB Values that apply to all rivers (region-wide quality *targets*) and additionally *targets* for rivers in a Water Management Sub-Zone, as well as for certain types of lakes. Table D.5A (D-17) contains the Key: Definition of abbreviations and full wording of the *targets*. (The RPS has a footnote stating: *Schedule D is not a component of Part 1 – the RPS. It is a component of Part II- the Regional Plan.* However, RPS policies refer to Schedule D and so we deal with it under the heading of the RPS.)

[5-30] For rivers the region-wide quantitative water quality *targets* are for:

- Escherichia coli (*E.coli*)
- Periphyton filamentous cover
- Diatom or cyanobacterial cover
- Quantitative Macroinvertebrate Community Index (QMCI).

[5-31] For specific rivers in water management sub-zones the quantitative *targets* are for (and may vary):

- pH
- Temperature
- Dissolved Oxygen (D)
- Soluble carbonaceous chemical oxygen demand ($sCBOD^5$)
- Particulate organic matter (POM)
- Periphyton
- Dissolved reactive phosphorus (DRP)
- Soluble inorganic nitrogen (SIN)
- Macroinvertebrate Community Index (MCI)
- Ammoniacal Nitrogen
- Toxicants (Tox)
- Visual clarity.

Lakes have:

- Algal biomass
- Total phosphorus (TP)
- Total nitrogen (TN)
- Ammoniacal Nitrogen
- Toxicants (Tox)
- Visual clarity
- Euphotic depth
- Escherichia coli (*E.coli*)

[5-32] The evidence was that many of the above measures are referred to in the water quality classes of Schedule 3 RMA as quantitative standards and others provide quantitative measures for narrative standards: eg visual clarity. There was also reference to standards and guidelines on which these standards were based and

reasons for any departure from them in the evidence from the Council's water quality witnesses. Mostly this evidence was uncontested. However, there were some issues raised about Schedule D and we deal with these later - see paras [5-44] to [5-46].

[5-33] Policy 6-2 Water quality targets (replaced by the word *numeric*) states:

> In Schedule D, water quality targets [replaced by the word *numerics*] relating to the Schedule AB Values (repeated in Table 6.2) are identified for each Water Management Sub-zone. Other than where they are incorporated into permitted activity rules as conditions to be met, the water quality targets [*numerics*] in Schedule D must be used to inform the management of surface water quality in the manner set out in Policies 6-3, 6-4 and 6-5.

(We question whether that statement is correct particularly given the other rule categories have similar conditions to *permitted* activities. However, we return to the question of the use of the word *numerics* later.)

[5-34] The three policies differentiate between situations where the water quality *numerics*, replacing the word *targets*, are met, not met and where existing water quality is unknown. (During the course of the hearings the parties agreed that the Schedule D *numeric* for sediment would only fall into the *state of the environment* monitoring category.)

[5-35] In summary:

- Policy 6-3 requires water quality to be managed to ensure the water quality *numerics* in Schedule D continue to be met beyond the zone of reasonable mixing within a WMSZ.
- Policy 6-4 requires where the existing water quality does not meet the Schedule D water quality numerics within a Water Management Sub-zone, water quality within that sub-zone must be managed in a manner that enhances existing water quality so that there is progress towards: the water quality *numeric* for the Water Management Sub-Zone in Schedule D; and/or the Schedule AB Values and management objectives that the water quality numeric is designed to achieve.
- Policy 6-5, covering a situation where there is insufficient data for a comparison with the Schedule D water quality *numerics,* requires management of water quality in a manner which maintains or enhances the existing water quality, has regard to the likely effect of the activity on the Schedule AB Values that the water quality *numeric* is designed to safeguard, and has regard to any information on the water quality in upstream or downstream WMSZs.

[5-36] Under the heading of 6.4.2.3 *Discharges and Land use Activities Affecting Water Quality* there are policies in contention under the following headings:

- Policy 6-7 Dairy Farming Land use activities affecting groundwater and surface water quality
- Policy 6-7A Rural land use activities other than dairy farming affecting groundwater and surface water quality in Water Management Sub-zones listed in Table 13.1
- Policy 6-7B Existing dairy farming and other rural land use activities in WMSZs not listed in Table 13-1 (i.e. not the targeted sub-zones).

The parties are a long way apart on the content of all policies except Policy 6-7B. That policy refers to identifying certain sub-zones as priority catchments for monitoring and assessment and a recognition of a Plan Change process to add other WMSZs where the Schedule D water quality *numerics* are not met and/or the relevant Schedule AB values are compromised and all the contributing land use activities will be effectively managed. The fundamental differences in the approaches before us are reflected, as would be expected, in the policy alternatives advanced by the various parties. For example, the Council's policies refer to setting cumulative nitrogen leaching rates for each LUC class of land which must not be exceeded and provides for a three year step-down approach to achieving compliance. The policies proposed by Fish and Game and the Minister include all intensive land uses, whereas the Council's refer to a review of the adequacy of the approach in the One Plan as further monitoring data is available and no later than 30 June 2017. The Council's proposal mentions assessing progress on achieving the water quality numerics in Schedule D and whether extending regulatory control over all rural land use activities is justified. This includes amending the cumulative nitrogen leaching maxima and potentially the mechanisms to provide for nitrogen trading. Where parties oppose the Council's LUC approach there are other policy amendment proposals. It is not helpful to deal with the detailed wording of the policy alternatives without considering their foundation in the different policy regimes in front of us.

[5-37] Table 13-1 in the Regional Plan lists several Water Management Sub-zones (WMSZs) where existing dairy farming land use activities are to be regulated. Some parties are seeking the inclusion and re-inclusion (from the NV POP) of additional

Water Management Sub-zones and the addition of other activities to be specifically regulated.

Secondly, the Regional Plan

[5-38] Objective 13-1 Management of discharges to land and water in the Regional Plan reflects the presented version of the RPS (as amended to align with our decision on Objective 6-1) stating:

> The management of discharges onto or into land (including those that enter water) or directly into water [and land use activities affecting groundwater and surface water quality] in a manner that:
>
> (a) Safeguards the life supporting capacity of water and recognises and provides for the Values and management objectives in Schedule AB,
>
> (b) provides for the objectives and policies of Chapter 6 as they relate to surface water and groundwater quality, and
>
> (c) where a discharge is onto or into land, avoids, remedies or mitigates adverse effects on surface water or groundwater.

[5-39] We do not understand other parties to object to the proposal from Fish and Game and the Minister to add the reference to *land use*, given the Regional Council is giving both land use consents and discharge permits for the activities involved. We agree that should be done, and note that this is also likely to be appropriate in other places in the Plan.

[5-40] Policy 13-1 Consent decision-making for discharges to water states:

> When making decisions on resource consent applications, and setting consent conditions, for discharges of water, or contaminants into water, the Regional Council must specifically consider:
>
> (a) the objectives and policies 6-1 to 6-8 of Chapter 6 (among other matters).

[5-41] Policy 13-2C Management of new and existing dairy farming land uses: - is another area of contention. As drafted by the Council, this policy refers to making decisions on resource consent conditions and setting consent conditions for existing dairy farming that meets the CNL (Cumulative Nitrogen Leaching) limits set for the LUC classes, within a three year step down period. Fish and Game and the Minister wish it to be amended to cover intensive farming and to cover all dairy farming,

commercial vegetation production, cropping, and intensive sheep and beef farming without a three year *compliance* period for existing activities and having reducing limits in years 5, 10, and 20. Fish and Game also supports Mr Day's wish for it to go further and to cover extensive sheep and beef farming. We shall return to that last point later.

[5-42] The LUC class (and Table 13.2) as reflected in the policy is also in contention for the pastoral industry interests. Federated Farmers and Ravensdown also seek specific policy provisions that would allow a different rule regime from the one based on CNL limits set by LUC class for all existing and new dairy farms, with Fonterra confining itself to seeking a similar outcome for existing dairy farms.

[5-43] We are being asked to consider major competing positions on both the policy and the associated rule regime. We will deal with the issues about a management regime generally and then consider the policy and rule regime changes needed to implement our decisions.

Suspended and deposited sediment in Schedule D

[5-44] There were two matters in Schedule D that were in contention – suspended and deposited sediment. Associate Professor Death, called by Fish and Game, said this about sediment in surface waterbodies:

> Land use, primarily agriculture, results in increased levels of deposited fine sediment in surface waterbodies (up to 2000% more) that smothers plants and animals, buries habitats and changes the composition of fish and invertebrate communities, in turn reducing ecological health. The Proposed One Plan (POP) does not provide any guidance on acceptable levels of deposited sediment. The proposed addition to Schedule D (presented in Appendix 1) should go some way to correcting this.

We did not understand any other witness to dispute his opinion. The addition to Schedule D he mentioned is a set of Deposited Sediment percentages for each of the WMSZs, which range between 15% and 25%, except for Specified Sites/Reaches of Rivers with a Trout Spawning (TS) Value, in which case he proposes 10%. However, it was agreed between the parties that this Schedule D matter would only apply to

State of the Environment Monitoring and compliance with it would not be a threshold condition for activity status.[2]

[5-45] The Associate Professor goes on to say that imposing a limit on allowable water clarity reduction is necessary to reduce the risk of increasing deposited sediment levels – and is important in its own right to protect recreational, aesthetic and fishery values. He considers that a maximum clarity change of 20% to 30% dependent on the geology of the river is appropriate: with those figures being the equivalent of the ... *any conspicuous change in the colour or visual clarity* ... standards in s70 and s107 of the RMA. (We dealt with the Schedule D treatment of visual clarity in Decision 4 but cover it here for completeness.) We heard nothing to seriously dispute that, and we agree that this appears to be an appropriate step to take. We ask the Council to settle the appropriate percentage figure in accordance with para [1-23].

Schedule D standards for shallow lakes

[5-46] Dr David Kelly, an expert on aquatic ecology, for the Minister and Mr Max Gibbs for the Council agreed that the nutrient standard for shallow lakes in Schedule D, which was relaxed in the DV-POP, is inappropriate and recommended a new figure (490mg/m^3 TN, 30mg/ m^3 TP, 8mg/ m^3 chlorophyll-a). However, this amendment is outside the scope of these appeals and unless the Court is minded to use the discretion under s293 of the Act will require a later plan change. The Minister submitted that s293 would be appropriate because it is supported by the expert technical evidence, relevant parties are represented in the proceedings and no party would be prejudiced as the change to Schedule D would not affect the Table 13-2 leaching rates that would apply in the relevant water management subzones. After some reflection, we have come to agree with that view, and invite the Council to consider invoking that process.

Coastal Rangitikei catchment

[5-47] The NV POP included in Rule 13.2 (Agricultural Activities Table 13.1 Water Management Sub-zones) the area known as the *Coastal Rangitikei* catchment as a targeted WMSZ, but it was removed from the Chapter in the DV POP. Fish and

[2] There is a footnote to Schedule D: The Deposited Sediment Cover (%) numeric only applies for State of the Environment monitoring purposes to determine if the percentage cover of deposited sediment on the bed of the river will provide for and maintain the values in each WMSZ.

Game, and the Minister of Conservation, are among those who wish to see it reinstated.

[5-48] It seems to be accepted by the expert witnesses that the lower Rangitikei River water quality is deteriorating in quality to the point (*on the cusp*, as one witness put it) of unacceptability. For reasons which do not reconcile with the evidence we heard, the Hearings Panel seemed to be saying that because its water quality had not got to the point of being critically bad, the evidence did not support retaining the Catchment in a management regime. We could not agree with that view of things. Such a view cannot be reconciled with the purpose and principles of the Act as expressed in, eg s5(2)(b), s6(a) and (c) and s7(aa), (d), (f), (g) and (h), or the objectives and policies of the POP.

[5-49] The Panel was also of the view that the loadings of pollutants in the lower River come largely from point source discharges – in the shape of sewage treatment plants and perhaps abattoirs. But the evidence was that 94.7% of the nitrogen in the river and its tributaries come from non-point sources. Similarly, the Panel said that the catchment has a .. *low number of dairy farming uses*. But the evidence was that some 20% of the catchment's land area is in dairying compared, for instance, to the 16-17% of the Upper Manawatu and the 18% of the Mangapapa, both of which are included in Chapter 13 of the DV POP. Further, given the high proportion of LUC Class I to III land in the catchment, and an ample quantity of non-allocated water, there is high potential for the expansion of dairying and the establishment of horticulture.

[5-50] Overwhelmingly, the evidence we heard is in favour of the Coastal Rangitikei Catchment being included as a targeted WMSZ, and in the leachate management regime.

Lake Horowhenua, coastal lakes, and related sub-zones

[5-51] The Minister of Conservation, supported by Fish and Game, wishes to see the West_4 and 5 (Kaitoke Lakes and Southern Wanganui Lakes), and Hoki_1 (Lake Horowhenua) water management subzones reinstated in Table 13-1 of POP. That would result in them being *specified* catchments and some land use activities would be

regulated to control discharges of contaminants, with the intention of raising the quality of surface water. Those zones were included in NV POP but not in DV POP.

[5-52] There are 17 lakes and one wetland in the West_4 and 5 zones. Hoki_1a and 1b contain Lake Horowhenua, which is the largest dune lake in the country.

[5-53] In respect of Lake Horowhenua, the Hearings Panel noted that it ... *is subject to extremely elevated total and dissolved nitrogen and phosphorus concentrations. Ammoniacal nitrogen is also occasionally elevated to levels that are toxic to aquatic life.* It went on to note that Levin's sewage was discharged into the lake until the mid 1980s, and that it continues to receive stormwater from the town. The Panel concluded that there is an evidential basis for including the Lake's catchment in Table 13-1 ... *provided cropping and horticulture are retained as intensive land uses to be regulated.* It went on to conclude that those intensive land uses should not be regulated, and so the Lake was withdrawn from the Table.

[5-54] For the lakes in West_4 and 5, the Hearing Panel came to the view that there was not an evidential basis for including them in Table 13-1. For those lakes, there was no, or limited, water quality monitoring data, and such as there was indicated relatively low concentrations of SIN. Further, for the Kaitoke Lakes (West_4) intensive land uses comprise only 5% of the catchment, and for Southern Wanganui (West_5) only some 9%.

[5-55] In passing, we note that one of the items of relief sought in Federated Farmers' appeal was the removal of the Northern Manawatu Lakes (Management Zone West_6) from Table 13-1. That is not now being pursued.

[5-56] The case made by the Minister and Fish and Game placed considerable reliance on the evidence of Dr David Kelly, presently a senior scientist with the Cawthron Institute in its Coastal and Freshwater Section. He, in turn, discussed the coastal lakes analysis undertaken by Mrs Kathryn McArthur and contained in her s42A Report, and a National Coastal Lake Survey, reported on in 2009 and 2011. Dr Kelly told us that dune lakes are an internationally rare environment class, known only in New Zealand, Australia, Madagascar and south-eastern coastal USA.

[5-57] In short, it is his conclusion that notwithstanding the lack of, or limited, monitoring of these lake systems it can be reliably said that 13 of these lakes are ... *nearly all predicted to presently exceed the POP standards for [total nitrogen] concentrations. This suggests that management within the lake catchments necessitates reductions in nutrient loadings to achieve POP standards, and future landuse development needs to be managed to limit nutrient losses.* He goes on to say that the figures for the five lakes within these management zones, for which there are available water quality data, support such a finding and that catchment nitrogen loading would need to be reduced by an average of 47% to meet POP standards for total nitrogen, and further reduced if a more protective nutrient standard was considered.

[5-58] As did other witnesses, Dr Kelly recognised that there is no one cure for Lake Horowhenua in particular. Its problems and its sources of N are complex, and may require a range of riparian and in-lake measures, such as sediment capping and dredging. Nevertheless its diffuse N sources still require management if the lake is to be brought within nutrient limits.

[5-59] The Council's present position on not including at least Lake Horowhenua and the northern Manawatu Lakes is that it considers that there has not been sufficient modelling of the impact of CNLs on them, but that there has been sufficient modelling in the case of the Coastal Rangitikei. That said, we understand the Council's position to be that, at worst, no harm could come from doing so, and Ms Barton agreed that in the case of Coastal Rangitikei it could be a precaution against deterioration to the point of total quality failure.

[5-60] That the problems of these lakes, with Lake Horowhenua as the worst case, are complex and remedies may extend beyond limitations of non-point source discharges, is absolutely not a reason to say ... *it's too hard* ... and do nothing about something that unquestionably must be contributing to the problem.

[5-61] Looking to the joint witness statement on this topic – recording the views of Dr J K F Roygard, Ms M E Clark, Dr Brent Clothier, Mrs Kate McArthur, Mr Max

Gibbs (all Horizons witnesses), Dr M R Scarsbrook (Fonterra), Ms Corinna Jordan (Fish and Game), Dr R G Death (Fish and Game), Dr O M N Ausseil (Fish and Game), Dr Lindsay Fung (Hort NZ), and Dr Kelly, we find a large measure of agreement with those views. For instance:

> All parties agree that from the ecological point of view the concern is with the management of water management zones or sub zones rather than their inclusion in Table 13.1 leaving 13.1 to be a matter for the planners.
>
> All parties agree that the actual measured state is likely to be as bad, if not worse, than the modelled state based on TN [total nitrogen] (ref D Kelly p.28 para 67 table 3).
>
> All parties agree that Dr Kelly's modelling is informative and sound for these lake catchments.
>
> Kaitoke Lakes (West_4)
>
> - All parties agree that the current state does not meet Schedule D limits.
> - All parties agree that the current state of the lakes are hypertrophic/supertrophic (with the exception of Kohata for which we do not have measurements) (ref D Kelly table 3 and fig 3 2012).
> - All parties agree that the Kaitoke Lakes zone requires management action.
>
> Southern Wanganui Lakes (West_5)
>
> - All parties agree that lakes in this zone require management action.
> - All parties agree that the modelling by Dr Kelly indicates the current state of total nitrogen does not meet Schedule D limits.
> - Anecdotal observations suggest the state of the lakes are degraded and they have algal blooms (ref TEB v9 p4400).
> - Modelling predictions show that 7 out of the 7 largest lakes within this zone are supertrophic to hypertrophic.
> - All parties agree that further monitoring of the lakes would be valuable in determining the current state.
>
> Lake Horowhenua (Hoki 1a and 1b)
>
> - All parties agree that the current state does not meet Schedule D limits.
> - All parties agree that the current state of the lake is hypertrophic (highest of the lot) and requires management action (ref D Kelly table 3 and fig 3 2012).

[5-62] Given that degree of unanimity from a group of people pre-eminent in their field, the case for bringing these lakes and management zones into a management regime so that their situation can be improved (even if not completely cured) is, again, overwhelming.

Chapter 13 – all intensive farming, or only dairying?

[5-63] As we have said, the Hearing Panel dropped intensive sheep and beef farming, cropping, and commercial vegetable growing from the regime regulating N leaching leaving only new (and existing, within *targeted water management sub-zones*) dairy farming within it.

[5-64] We take this summary of their reasons from para 8.6.9.3 of the Panel's decision, discussing the types of intensive farming to be included in Rule 13-1:

> ... The range of leaching rates [for cropping] is therefore 6 to 35 kgN/ha/year, with most results being 24 kgN/ha/year or more. On that basis, it would seem appropriate to include cropping in Rule 13-1.
>
> However, we also heard compelling evidence that the farmed areas used for cropping varied on a paddock by paddock basis annually. In some areas, the land was typically involved in a ten year rotation whereby it would be cropped two years in a row and then left fallow (in pasture) for 5 to 10 years. The cropped paddocks were generally leased from farmers on a "hand shake" contractual basis. We find that it would be extremely problematic to include such a transient land use in a regulatory framework. For that reason, as well as the small areas of cropping noted below and the lack of information we had about the ability for cropping to meet the Rule 13-1 limits and the consequences for the farmers, we have decided that cropping should not be included in Rule 13-1.
>
> We are also mindful that, of the target catchments that we have decided should be retained in Table 13.1, only the Lake Horowhenua catchment (3%) has any area in cropping. In that catchment, the cropping area is very small compared to dairy and sheep and beef farming and so its overall contribution to nitrogen leaching will be commensurately small.
>
> In their End of Hearing Report in April 2010 the officers recommended that "market gardening" be deleted from the Glossary and from Rule 13-1 and the alternative term "commercial vegetable growing" be used instead. They recommended a definition of "commercial vegetable growing" as follows:

Commercial vegetable growing means using an area of land greater than 4 hectares for vegetable growing, on an annual basis, for human consumption. Fruit crops and vegetables that are perennial are not included.

We were provided with evidence on the nitrogen leaching rates for commercial vegetables by the officers and submitters. Dr Clothier told us that for a large commercial vegetable enterprise near Levin his calculations using the SPASMO meta-model had predicted 431 kgN/ha/year of leaching over a two year period, or around 215 kgN/ha/year. We note, however, that the Levin enterprise had crop failures so it seems to us that those estimates should be used with care. Dr Shepherd used Overseer Version 5.4.3 to predict nitrogen losses from a potato crop at 10 kgN/ha/year. Dr Whiteman, appearing for Horticulture NZ, advised us of a "Fictitious Farm Strategy" prepared by LandVision for 400ha of crops comprising potatoes, carrots and brussel sprouts. This study also used Overseer Version 5.4.3. The vegetable crops and their predicted nitrogen leaching rates were potatoes at 58 kgN/ha/year, carrots at 18 and 19 kgN/ha/year and brussel sprouts at 30 kgN/ha/year.

We find that the latter Overseer predictions are more reliable than the earlier SPASMO results as they use more recent modelling software developed specifically for cropping situations. The range of predicted leaching rates is therefore 10 to 58 kgN/ha/year, with most results being 18 kgN/ha/year or more. On that basis alone, it would seem appropriate to include commercial vegetable growing in Rule 13-1.

However, commercial vegetable growing also occurs on a mix of leased and farmer-owned land. For example, Ms du Fresne told us that for her 200 ha enterprise "40% of the land is owned and 60% is leased. The nature of the leases varies, with some being renewable annually and some longer term, usually on a 3yrs basis with a right of renewal. The area of land that we grow on could change a number of times a year depending on when leases become available or cease." As with cropping, we find it would be extremely problematic to include such a transient land use in a regulatory framework. That is one reason why we have decided that commercial vegetable growing should not be included in Rule 13-1.

We also have very little evidence about the ability of commercial vegetable growers to meet the limits in Rule 13-1 or the consequences for them.

We are also mindful that of the target catchments or Sub-zones that we have decided should remain in Table 13.1, only the Managapapa (2%) and Lake Horowhenua (3.5%) have any areas in horticulture (which includes commercial vegetable growing). These are very small areas compared to the areas in dairy and sheep and beef farming and so their overall contribution to nitrogen leaching will be commensurately very small.

In their End of Hearing Report in April 2010 the officers recommended that "intensive sheep and beef farming" be defined as:

Intensive sheep and beef farming means using land for sheep, beef and mixed sheep/beef farming on properties greater than 4 ha where irrigation is used in the farming activity.

We were provided with very little evidence on the nitrogen leaching rates of intensive sheep and beef farming by the officers and submitters. None of the 25 case study farms discussed in the evidence of Mr Taylor comprised irrigated sheep and beef farms. Dr Shepherd provided information on an irrigated beef unit in Dannevirke. He predicted a nitrogen leaching rate of 19 kgN/ha/year. That is a relatively high leaching rate but it does not relate to a sheep or sheep/beef enterprise. We received no evidence on the actual area of land within the Table 13.1 Sub-zones currently comprising irrigated sheep and beef farming. None of the tables in Mrs McArthur's evidence showing "proportional land use" for those catchments contained any data relating to irrigated sheep and beef farming. We accordingly find that there is no evidential basis for including intensive sheep and beef farming in Rule 13-1.

We find that only dairy farming should be retained as an "intensive farming land use" to be regulated under Rule 13-1. We accept that the term "dairy farming" must be defined. We have amended the definition of that term in the Glossary based in part on the recommendations of the officers.

Returning to our earlier findings regarding the target catchments to be retained in Table 13.1, this means that Lake Horowhenua should be deleted from that table as its retention depended upon market gardening (horticulture) being regulated under Rule 13-1.

The conclusions we have underlined are those that we particularly discuss in this and other sections of this Part of the decision.

[5-65] We record that there was no dispute among the galaxy of scientists who gave evidence that even with leaching from sources as diffuse as a paddock containing livestock or growing carrots, the amount of leachate can be calculated with acceptable margins of accuracy by using a tool such as OVERSEER. For nitrogen (N) for instance, the production of leachate is expressed as kilograms of N, per hectare, per year (XkgN/ha/yr).

[5-66] We pause to explain the OVERSEER® *tool*. It is a nutrient budget model from which farmers and their advisers can calculate both the inputs of nutrients by

way of fertilisers, supplements and so on, and outputs by way of produce, nutrient transfers, gas emissions, leaching etc. It has been through several iterations since first developed – we were told that the sixth version is due for release very soon. It is a long-term equilibrium model which can predict nitrogen leaching, given a set of farming practices and average long-term rainfall. Its use in similar situations has been the subject of approving comment in earlier decisions of the Court – see eg *Carter Holt Harvey Ltd v Waikato RC* (A123/2008). We acknowledge that the horticulture industry expresses reservations about the workability of past and current versions of OVERSEER for horticulture. As Ms Atkins put it in opening, if the pending latest version – OVERSEER 6 - is not ... *everything we are hoping it to be* ... an alternative means of calculating leachate may need to be found. Without relitigating the principles, we would be prepared to consider an interim solution pending the outcome of trialling OVERSEER 6 in the context of horticulture, if the affected parties think it necessary.

[5-67] Nor is there any substantive dispute that the intensive land uses already mentioned – dairying, intensive sheep and beef, cropping, and commercial vegetable growing (ie horticulture) – each produce N leachate. While dairying is the land use most commonly criticised for the production of N pollutants, it is by no means solely to blame.

[5-68] We also note here that Dr Stewart Ledgard was engaged by Regional Council to analyse the use of the OVERSEER tool for the first instance hearing, and did so, but was then engaged by Fonterra on other issues. One study of 3300 dairy farms nationwide (including 143 in the Manawatu-Wanganui Region) gave an average N leaching figure of 22kgNha/yr in the region, compared to 34kgN/ha/yr nationally. The region's 75th percentile was 27kgN/ha/yr. The overall results indicate that much of the variability is management dependent, so many farms should be capable of reducing their leaching. That and other information indicates that there is a wide range of N leaching from dairy farms in the region – from 8 to 47kgN/ha/yr, as modelled using OVERSEER.

[5-69] In terms of N leachate currently being produced by the different land uses, there seemed to be a good measure of agreement that, as outlined by Dr Dewes, the

result of the 2007 Clothier et al study into the Upper Manawatu catchment probably holds good for the region as a whole. In that study it was found that more than 90% of the total N in the river came from dairying and (extensive) sheep and beef farming. Of that, dairying contributed some 50%, while occupying some 17% of the catchment land area. Sheep and beef occupied some 77.3% of the land area and contributed the other 50%.

[5-70] Logically, three conclusions can be drawn from that. First, for the land area it occupies, dairying contributes a disproportionately high percentage of N leaching. Secondly, that unless, somewhere along the line, extensive sheep and beef farming can be brought into a N leaching reduction and management regime, one half of the problem will never be addressed. Thirdly, the dairy industry could rightly feel unfairly done by in being expected to spend money and effort to address its leachates, while their sheep and beef farming colleagues may carry on as they always have.

[5-71] The convincing case for including all of intensive land uses in a leachate management regime is summarised in the Joint Witness Statement produced on 23 March 2012 by these expert witnesses: Dr D C Edmeades (Federated Farmers); Dr A M Dewes (Fish and Game); Dr A H C Roberts (Ravensdown); Dr J K F Roygard (Horizons); Dr A D Mackay (Horizons); Dr R W Tillman (Federated Farmers); Dr L A Waldron (Fish and Game); Mr P H Taylor (Horizons); Mr I L Grant (Horizons); Dr B E Clothier (Horizons); Dr L E Fung (Hort NZ). They expressed their collective views in this way:

> All parties agree that all land use activities contribute to the water quality issue. There is evidence that sheep and beef farming, and dairy farming (including all cropping activities), are significant contributors to the N loadings in rivers and lakes in the Horizons Region. In some specific catchments there may be other significant sources of N.
>
> All parties recognise that all uses contribute, they also recognise that dairy farming results in high N loss per hectare relative to other pastoral land use activities and represents the greatest opportunity for making reductions to N loading.
>
> In some catchments, other land uses may present significant opportunities to make improvements to water quality. For example, commercial vegetable production, cropping.

Sheep and beef farms have a low N loss per hectare relative to other farming activity but make up a large proportion of most catchments, and therefore contribute a significant amount of the non-point source N load.

Due to the large land area of sheep and beef a relatively small increase in N loss per hectare could cause a significant increase in diffuse N loss (Aussiel Table 18 & 19). Any intensification of land use on those units could result in a significant increase in N load.

All parties agree there are fewer opportunities on sheep and beef farms to reduce N loss through mitigation.

All parties agree that the contribution of sheep and beef farming, including cropping activities, to the in-river N loading should not be ignored by the One Plan.

All parties agree there is a three-to six-fold increase in leaching losses from extensive sheep farming to dairy farming on a per hectare basis (Clothier et al., 2007).

All parties agree that all land users in the catchment should contribute to solving the problems of water quality/in-river N levels. This is because there is a significant risk that the regulated land users will shift their load to unregulated land users.

All parties agree that there will be a need to set a N load goal per catchment. Once this has been established, all farmers must know the targets they are required to achieve.

All parties agree that <u>if</u> an allocation mechanism is instigated, it should be directed to all land uses in the catchment.

Little more need be said. The case is plainly made out for including the intensive land uses of dairying, cropping, horticulture and intensive sheep and beef farming within a leachate management regime. Issues of equity also arise if only dairy farming is subject to controls, while other land use activities which also leach nitrogen are not, a point repeatedly made by Mr Day. All intensive land uses need to be brought into the mix in order for the regulatory regime to be efficient and effective.

Scope to include extensive sheep and beef farming in the regulatory regime

[5-72] *Scope* in this context means the ability, as a matter of law, to consider and decide upon a particular issue. In turn, that depends on whether, at an appropriate stage in the proceeding, that issue has been raised by one or more of the parties in a way that makes it clear to all parties that the issue is *up for discussion.* Discussion of the point almost always involves a citation of the decision in *Re an application by Vivid Holdings Ltd* [1999] NZRMA 467 and the view expressed in that decision that to be within scope, the relief sought has to be ... *reasonably and fairly raised in the*

course of submissions ... and whether it was raised ... *should be approached in a realistic workable fashion rather than from the perspective of legal nicety.*

[5-73] *Extensive sheep and beef farming* means the farming of cattle for meat and by-products, and of sheep for meat and wool, in the traditional way – without the use of processes such as irrigation. Mr Day submits that his original submission to the Council about NV POP was broad enough to capture extensive sheep and beef farming. In his submission he expressed the view that all land in the targeted catchments should be allocated an N loss figure. In that, he is supported by Fish and Game. Federated Farmers though point out that the Hearing Panel thought that there was not scope. The Panel said:

> ... there is no scope within submissions to include non-intensive sheep and beef farms within Rule 13-1. Even if submissions had sought that as an outcome, given the number of farms that would be potentially affected, that would be a matter more appropriately considered under a Plan variation or change.

[5-74] The Council's submission on the point also points to the decisions such as *Royal Forest and Bird Protection Soc v Southland DC* [1997] NZRMA 408 (HC) and *Estate Homes Ltd v Waitakere CC* [2006] NZRMA 308 (CA). It also identifies the actual language used by Mr Day in his submission (Exhibit MW10) – and indeed Mr Day quotes the extract himself. The language is quite tentative - ... *If by chance this model is correct and isn't economically prohibitive then more areas of land use should be included than those targeted to date.* In its summary of submissions on NV POP the Council certainly did not record Mr Day (or anyone else) as advocating the inclusion of extensive sheep and beef in the regime.

[5-75] We agree with the Hearing Panel on the point – there is no scope to bring extensive sheep and beef into the regime at present.

Section 293 process

[5-76] We also agree with the Council's submission that the use of s293 in these circumstances would be quite inappropriate. A move to include extensive sheep and beef farming would be one of great consequence throughout the region, and should be approached in an orderly and measured way. Given the number of persons and

organisations who would have a vital interest, to use s293 to try to accomplish that within the present proceedings would be to create an administrative nightmare and would be very dubious procedurally.

[5-77] That is not to say that we are dismissive of the possibility on its merits. Given that extensive sheep and beef farming appears to produce about half of the N leachate in the region's waterbodies - see para [5-69] - the comprehensive and integrated sustainable management of resources would unquestionably be enhanced by the eventual inclusion of such a land use in a management regime. In the interests of equity among land users and in the interests of sustainable management we think the Council should promote a Plan Change as soon as it is able.

Practicality and costs of obtaining consents and permits for horticulture

[5-78] This issue arose in the context of commercial vegetable growing in the region. As part of avoiding risks to plant health for at least some varieties of vegetables, growers have a strategy of not growing some crops in the same ground in successive years. Sometimes the interval is longer than that. For instance, in the case of seed potatoes, a lapse of at least five years between crops in the same ground is required.

[5-79] Frequently, the crops will be grown on land not owned by the grower, but leased from another farmer who may, in other years, lease it to other growers where the successive crops are not incompatible, or may use it in his or her own farming operations for pasture or some other purpose. We understand that these lease arrangements are frequently quite informal, arranged at short notice, and settled on a handshake.

[5-80] It was argued that such casual and short-term arrangements could not reasonably be accommodated within a resource consent regime. It was said that the delay involved in preparing, lodging and negotiating a consent with the territorial authority could be incompatible with the ad hoc nature of the use, and that the costs of doing so, perhaps running into some thousands of dollars in each case, would be unsupportable for growers, who may have a number of such arrangements in place in any given year.

[5-81] We have come to agree with Ms Helen Marr, the planner called by Fish and Game, that this concern has become overstated. If it was only to be the individual growers who could or would be required to seek the consents, we could see the basis for that argument. But, as was discussed at the hearing, it seems to us that it would make far more sense for a landowner, who knew or hoped that some of his or her holding might be attractive for such a purpose, to make a *whole of farm* application for a resource consent, with leachate and other factors being assessed at the high but plausible end of the range. The application would be presented on the basis that only a finite portion of the farm would be so used at any one time, and thus be leaching at up to the defined rate, in any one year. Depending on the exact nature of the consent required, its term could be indefinite or for a finite but still ample period of years, and the cost of the consent could be amortised over that time.

[5-82] We note too that, at present, (and there was no suggestion of changing them) to fall within the definitions of *cropping* and *commercial vegetable growing* in POP the areas occupied by those activities at any one time would have to exceed 40ha and 4 ha respectively. That, we imagine, may move many such casual and short-term uses outside the requirements for resource consents. If a consent was required, we assume it would be treated the same as other land uses.

[5-83] This argument appears to be the principal reason why the Hearings Panel did not include horticulture in the management regime, but on the evidence we heard we do not find it a sound and influential point, and we put it aside.

The Alternative Regulatory Regimes in front of us

[5-84] We now deal with the alternative regulatory regimes sought by the different parties – on the one hand the LUC based regime, and on the other, the possibilities offered by the pastoral industry bodies.

Land Use Capability Based Regimes

[5-85] We deal first with the common elements in the land use capability based approaches which Fish and Game/the Minister and the Council support. Then we move to considering the differences between the NV-POP with its Year 1, 5, 10 and 20 nitrogen leaching limits (supported by Fish and Game/the Minister) and the

Council's proposal for only Year 1 nitrogen leaching limits for dairy-farming (with a three year step-down for existing dairy farming) which differs from the DV-POP. When we refer to *limits* the word is here used as indicating threshold limits for a *controlled* activity given the *restricted discretionary* activity default category allows consideration of greater leaching maxima under either of the proposed regimes. We recognise that the threshold limits for a *controlled* activity are the desired lower levels of nitrogen leaching, with that more favourable consent status set to encourage their adoption.

- *Land Use Capability (LUC) classifications*

[5-86] This system of classifying land is described as ... *a systematic arrangement of different kinds of land according to those properties that determine its capacity for long-term sustained production. Capability is used in the sense of suitability for productive use or uses after taking into account the physical limitations of the land.* It takes account of characteristics such as soil and rock types, landform and slopes, erosion susceptibility and history, vegetation cover, climate, and flood risk. There are eight classes. Classes 1 to 4 are suitable for arable cropping (including vegetable cropping), horticultural (including vineyards and berry fields), pastoral grazing, tree crop or production forestry use. Classes 5 to 7 are not suitable for arable cropping but are suitable for pastoral grazing, tree crop or production forestry use and, in some cases, vineyards and berry fields. The limitations on use reach a maximum with LUC Class 8. Class 8 land is unsuitable for grazing or production forestry, and is best managed for catchment protection and/or conservation or biodiversity.

[5-87] The NV POP adopted the LUC approach to leachate management because it was seen as focussed on the potential productivity of a given piece of land, rather than its current type and level of use. It also focuses on outputs, rather than inputs, and thus it allowed flexibility of choice of what can be produced on the land, and in the method of leachate management. It had a scheme of reducing N loss targets over a period of 20 years. The Hearing Panel did not retain the NV POP approach. Rather, it applied the LUC based N Loss target only to new dairy farms throughout the region, and with no reduction over time. The Minister, Fish and Game, Mr Day and the Council seek to have the NV POP approach restored.

[5-88] Dr Ledgard regards the LUC based prescribing of N loss *limits* as having merit for future uses because it directs higher intensity farming uses onto land which has fewer limitations on its productive potential. He is not so supportive of it for existing uses because he believes that it does not recognise that the existing technologies in use have changed the productivity of the land, and that existing farms may thus be required to make major changes to meet what he describes as a relatively low N loss requirement.

[5-89] The proposal for an LUC based regime has its critics, some sternly so. Dr Edmeades, called by Federated Farmers regards it as a ... *fatally flawed* ... concept and thinks it most unfortunate that it was introduced into the debate. Dr Roberts, the Chief Scientific Officer for Ravensdown, is equally uncompromising, regarding it as having ... *no valid scientific basis.*

- *The basis of the LUC approach*

[5-90] The case for a natural capital/LUC approach begins with the premise that land available for primary production is a finite resource and that land based industries are the basis for the region's economic wellbeing. The allocation of an N loss limit based on the natural capital of the soils was identified in the report by *Clothier et al* (2007) as the best option to meet the dual requirements for continued economic growth and ongoing flexibility in land use in the region, while meeting water quality targets.

[5-91] The reasons why the Council selected the LUC approach was described by Mr. Maassen in these terms:

> NV-POP sought to identify those intensive food production systems that were the major contributors to non-point source nutrient leaching now and foreseeably in the future through growth as well as regulating those activities on a whole farm basis through annualised N output based leaching limits in kg/ha/year set at a level that achieves progress towards the water quality objectives while allowing maximum flexibility in land use recognising the different productive efficiencies of different soil types. This on-farm limit is expressed as a 'cumulative nitrogen leaching maximum' defined in the glossary of POP as:
>
> > Cumulative nitrogen leaching maximum means the total kilograms of nitrogen leached per hectare per year for the total area of a farm (including any land not

used for grazing) and is calculated using the values for each land use capability class specified in Table 13.2.

Establishing limits requires a regime. A regime means a control methodology applied to a complex dynamic system in a coherent and reasoned fashion. Hallmarks of the regime had to be:

(a) Transferability – the ability to apply the regime to other water management zones where trends for non-point source contributions justified regulatory intervention;

(b) Scalability – the ability to apply the regime over a wider range of land uses contributing to poor water quality as required;

(c) Flexibility – allowing land owners to make decisions on resource use rather than being tied to existing patterns of activity;

(d) Output based – focussed on the effect and contaminant output of concern with individual farmers deciding how to achieve that at an operational level;

(e) Efficient – recognise the differences in finite soil resources and their relative productive efficiencies;

(f) Measurable – the mechanism had to be measureable through the application of current technology such as OVERSEER and enable calculation of the consequential outcomes of the regime for surface water quality.

[5-92] Dr Mackay, a Soil Scientist, currently Principal of Science and Programme Leader in the Climate, Land and Environment Group of Ag Research based on the Grasslands Campus in Palmerston North, was called by the Council. His evidence explains that in the absence of a method for calculating the soil's natural capital, a proxy that serves as a useful alternative is the ability of the soil to sustain a legume-based pasture that fixes nitrogen biologically under optimum management and before the introduction of additional technologies. Dr Mackay stated:

> A legume-based pasture is a self-regulating biological system with an upper limit of the amount of N that can be fixed, retained, cycled and made available for plant growth. Legume pasture dry matter base provides one indicator of the underlying productive capacity of the soil, taking into account the influence of new plant germplasm and the use of phosphorous, sulphur, potassium fertilisers, lime input, trace elements and technology to control pests and weeds. It reflects the underlying capacity of soil to retain and supply nutrients and water, and the capacity of the soil

> to provide an environment to sustain legume and grass growth under the pressure of grazing animals.
>
> Estimates of the potential productive capacity of a legume-based pasture fixing N biologically under a *typical sheep and beef farming system* for each Land Use Capability (LUC) unit in New Zealand are listed under *obtainable potential carrying capacity* in the extended legend of the Land Use Capability worksheets, which are based on the capability for long-term sheep and beef livestock production.
>
> Using productivity indices (ie attainable potential carrying capacity) listed in the extended legend of the LUC worksheets for calculating the natural capital of soils is a new application of the information in the extended legend.

[5-93] We understand the criticisms of the LUC approach by Dr Edmeades, Dr Tillman and Dr Roberts, to fall generally under the following headings:

- LUC classes per se do not determine the actual or predicted amounts of N leached from dairy soils.
- The use of LUC in setting and managing nitrate leaching levels is not logical.
- The application of LUC to manage nitrate leaching in this case could *trap* future generations of farmers into a 1980's *time warp.*
- The LUC approach is inequitable.

We will consider those criticisms in turn.

- *LUC Classes Do Not Determine Actual or Predicted Amounts of N Leaching from Soils*

[5-94] It has never been suggested by the Council that LUC determined the actual or predicted amount of N to be leached. The actual N leached will be primarily determined by the land use and intensity of production. The LUC is a proven method of determining inherent soil productivity. The Council intends it to be used to allocate N leaching maxima across the various soil types and to encourage intensive farming towards higher quality soils. N leaching maxima will be allocated according to inherent soil productivity – irrespective of current land use or intensity.

[5-95] LUC Class I and II soils will produce more and require less input for output at a given level of production. The cost of technology inputs generally increases, as does the production. Soils on which production technologies have their biggest impact on production levels will also be those land types that provide the greatest challenge in

mitigating N losses. Further, the number of options for mitigating N loss decreases as the producer moves from soils in LUC Classes I and II to those in Classes III and greater.

- *The Use of LUC in Setting and Managing Nitrate Levels is Not Logical*

[5-96] Dr Edmeades asserts that the LUC based approach is arbitrary and essentially meaningless because the anticipated effects on N loading relative to the current situation, when expressed as percentages, are within the margin of error associated with OVERSEER. In any case they are not dissimilar to the water quality differences anticipated to be achieved from the application of a single number limit advocated by Federated Farmers and other parties.

[5-97] It is our understanding that, (with the exception of Horticulture NZ, as discussed elsewhere) all the parties accepted OVERSEER as the best tool for measuring N loss from a farm. OVERSEER would be used in any of the regimes before us, with whatever inherent margin of error.

[5-98] In terms of the anticipated water quality results it is simply inaccurate to suggest that the *single figure* limits proposed by the appellants will achieve similar results to the LUC approach put forward as NV POP. We discuss this further elsewhere in our decision.

[5-99] We accept the evidence of Dr Mackay when he states:

> The major strength of this approach is that in calculating the N leaching loss limit, it considers the whole catchment and is not prescriptive. It is not linked to current land use, but rather linked to the underlying land resource in the catchment. The approach does not target the land use or intensity of use and it does not place limits on outputs; rather it allocated N leaching loss limits to each LUC unit based on the biophysical potential of the natural capital of the soil. It treats farms with the same resources in the same manner, regardless of current use. It disadvantages high input, highly productive farms on soils with little inherent natural capital (eg sand country, gravels and steep land soil) to limit N leaching, even when BMPs have been followed.

He goes on to say that to achieve the most efficient use of resources with the least environmental impact, N leaching loss limits should be weighted towards those soils with the greatest natural capital, and continues:

> The LUC natural capital approach is also portable beyond the priority catchments and sends important messages (it does not reward the biggest polluters, does not penalise conservative behaviour and does not disadvantage owners of undeveloped land) and timely signals (eg establishes a target for mitigation practice and to find a threshold above which the capital investment in increasing production must be extended to mitigation technologies, including significant modifications to farm design).

[5-100] Dr Roberts' criticism of the LUC followed a similar theme to that of Dr Edmeades. He insisted that using a *1970s Land Classification* as a proxy for the natural capital of the soil resource is itself arbitrary. He argues that the white clover /grass system (on which LUC is based) is not natural and has in fact been created by input. We do not disagree. However, in our view that does not stop the LUC reflecting the inherent productivity of a particular soil resource and Dr Roberts conceded this in answers to questions from the Court – although he thinks there are better ways of doing it. He also agreed that under the proposed LUC regime the more intensive land uses will be *directed or encouraged* towards soils of higher quality. We see this as one of the major advantages of the LUC regime over those proposed by Federated Farmers, Fonterra and Ravensdown, and better providing for the efficient use of resources.

- *The Application of LUC Could Trap Future Generations of Farmers into a 1980s Time Warp*

[5-101] Dr Edmeades' point here is that there are a number of existing management practices (which he lists) and in the future there will be more developed that control nitrate leaching. He appears to be suggesting that an LUC based policy does not allow for the implementation of such technologies and for this reason dairy farming will be trapped into a 1980s *time warp*.

[5-102] We have difficulty with the logic of this argument. The LUC simply informs an allocation regime. The use of technologies such as those Dr Edmeades lists are

available to anyone to assist in achieving the N cap for any particular LUC class, as they would be for any of the N loss management regimes before us. It is, however, acknowledged, as we have already stated, that as the LUC class/natural capital of soil declines, the available options to reduce N loss become fewer, and become more expensive.

- *The LUC Approach is Inequitable*

[5-103] Dr Edmeades argues that those farmers on lower quality soils: - Class III and beyond, who have invested in technologies such as irrigation, supplements, modern pasture species, and management are being disadvantaged. He states that dairy farming on this land will now be less profitable and for some may become uneconomic.

[5-104] The evidence did not support this argument. And the LUC classification for soils in sand country on the West Coast of the region, where irrigation and recontouring to create dairy farms has occurred on a large scale, has been refined to recognise the investment to overcome some of the production limitations of the soils – although Dr Roberts argues that the adjustment did not go far enough.

[5-105] In terms of such technologies as nutrient inputs, we agree with Ms Barton when she states:

> With regard to technologies such as nutrient inputs, these technologies, where applied, have had impacts on the levels of nutrient leaching from the farming operations. These inputs are hard to mitigate on lower quality soils and produce lower levels of production compared with elite soils. The requirement to manage this situation and provide mitigation is not unreasonable. It is more inequitable to fail to distinguish such farming operations from existing operators that do not generate the same effects or to fail to recognise the inherent capacity for greater production and mitigation on superior soils where they exist.

[5-106] Dr Edmeades also posits the scenario of intensive agricultural production on high quality soils where a farmer has a generous allocation for N leaching. It could well be possible for a farmer to employ current technologies in farm management practices to reduce the actual nitrate leaching below the limit required by the LUC, thereby contributing to even better water quality. He considers that the LUC regime

will not encourage such activity. But neither will any of the other regimes, including the Fonterra approach which grandparents the N leaching level below 27kgN/ha/yr to the 2007-2010 leaching of an existing farm.

[5-107] An N trading regime would address this issue and we refer to the possibility of such a scheme elsewhere in the decision.

[5-108] Those opposed to the LUC approach stated that the *reasonably practicable* farm practices or *Best Practicable Option* (BPO's) would also address this issue. However we have reservations regarding the definition, practicalities and enforceability of any provisions related to *reasonably practicable* farm practices or BPO's. Further, we see no reason why many of those management options listed as BPO's should not form part of any farm management regime irrespective of what N leaching regime is adopted.

[5-109] Other approaches to managing N loss including *grandparenting* tend to penalise those farming superior soils and results in sub optimal utilisation of the finite soil resource. Farmers on high quality soils may be prevented from taking advantage of the productive potential of their soils if they have been *grandparented* to a production level below the soil's inherent productive capacity. It favours greater utilisation of inferior soils with associated increases in inputs necessary to sustain production.

[5-110] A further criticism of the LUC approach was contained in the findings of the Hearings Panel when they held that assigned N leaching maxima allocated across the LUC classes to be arbitrary. They found that the only scientifically robust figures were those of Dr Mackay before they were *adjusted* by the council officers to form Table 13.2 NV POP. For this reason the Panel rejected the LUC approach for existing dairy farms in favour of *reasonably practicable farm management practices.*

[5-111] The reasons given by the Council for the adjustment of Dr Mackay's original figures were to ... *recognise the likely distribution of existing leaching values particularly in the case of class IV and V soils. There were also social considerations and practical considerations applying to dairy farms in those situations that perhaps*

warranted higher values than the natural productivity values. The Council argued that making such adjustments to address the needs of existing users and equity issues is a much more transparent and appropriate approach than jettisoning the LUC approach entirely. We agree.

[5-112] Interestingly, the Hearings Panel retained the LUC approach for new dairy farms (an approach supported by Dr Ledgard). The reasons given for the rejection of LUC approach for existing dairy farms was that it was inequitable and did not recognise the investment in technologies to improve production particularly on soils of LUC III and beyond. There would be a fiscal impact on these farms. We agree and think that outcome (to some extent) is inevitable. It is in our opinion an intended consequence of the proposed regime to encourage more intensive land use on the higher quality soils where fewer inputs such as N fertiliser are required. These soils provide more options for production and more options for mitigating N loss.

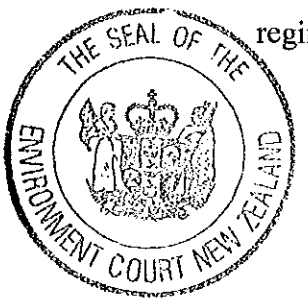
- *Conclusion on LUC*

[5-113] We find the evidence strongly supports the use of the LUC approach as a tool for allocating N limits for all the land uses contemplated by the Council for N loss management.

- *Setting the Nitrogen Leaching Maxima*

[5-114] We had evidence about the NV POP maxima for N leaching for Years 1, 5, 10, and 20 from several Council witnesses. For each target catchment, a calculation was made on what the annual load of SIN would be in the rivers if all land in the catchment leached at the allowable Table 13.2 maximum leaching rates. The Council then calculated what the load of SIN would need to be in those rivers if the standards in Schedule D are to be achieved.

[5-115] The Council provided evidence of the existing loads, the improvements required, and the attenuation factor from land to water. We did not understand any of that to be in dispute and we accept that to be an appropriate basis for settling the rules regime.



• *LUC based limits at years 1, 5, 10 and 20 (the Fish and Game/Minister) Option*

[5-116] The NV POP at Table 13.2 set reducing N loss targets or values, based on LUC calculations, for years 1, 5, 10 and 20 for all new farms and for existing farms in target water management sub-zones.

[5-117] The Minister, and Fish and Game, seek a return to the NV POP regime, with years 5, 10 and 20 in Table 13.2 to read:

Table 13.2 Cumulative nitrogen leaching maximum by Land Use Capability Class (kgN/ha/yr)

Period (from the year that rule becomes operative)	*LUC* I*	*LUC* II*	*LUC* III*	*LUC* IV*	*LUC* V*	*LUC* VI*	*LUC* VII*	*LUC* VIII*
Year 1	30	27	24	18	16	15	8	2
Year 5	27	25	21	16	13	10	6	2
Year 10	26	22	19	14	13	10	6	2
Year 20	25	21	18	13	12	10	6	2

[5-118] Two reasons given by the Hearing Panel for deleting the reducing loss targets for existing dairy farming are:

- The year 5, 10 and 20 nitrogen leaching reduction values were derived arbitrarily and do not relate to the achievement of the Schedule D water quality standards;
- The achievement of the year 20 leaching values will not resolve the actual environmental issues of concern (namely the high soluble inorganic nitrogen levels and levels of periphyton in the affected rivers) for those few rivers where Council has been able to assess the effect of Rule 13-1. In some of the target catchments which we have decided should remain in Table 13.1, we have no idea how effective the rule will be.

[5-119] The Hearing Panel's decision refers to the concern of submitters about the reducing leaching rates in Table 13.2 as being overly restrictive. It said:

> Given the concern about the year 5 and beyond leaching rates in Table 13.2, we next considered whether or not the achievement of the recommended year 20 leaching values would solve the actual environmental problem of concern, namely excessive soluble inorganic nitrogen (SIN) levels in rivers contributing to periphyton proliferation.
>
> A key conclusion we reach is that the effect of applying the Table 13.2 nitrogen leaching reductions is negated by allowing ongoing dairy conversions to occur (which

> Rule 13-1 does[3]), such that after 20 years the river water quality and periphyton biomass will be no better in 20 years time than it is now. We accept that it will stop the situation from getting worse, but see little sense in such an approach.

The Hearing Panel went on to refer to around 20% of targeted dairy farms not being able to meet the year 20 leaching values in a practicable and affordable manner and the significant cost of imposing Rule 13-1 on existing dairy farms: these are matters we return to later.

[5-120] We had evidence that explained the rationale for the nitrogen leaching reduction values as being a uniform percentage decrease for the better LUC classes and a lesser percentage decrease for the LUC classes which would present a greater challenge for existing dairy farming. We are satisfied that they are useful in achieving the purpose of the One Plan regime. We also had different evidence, including the results of modelling, on the water quality outcomes that would be achieved in front of us than the Hearing Panel. In discussing the merits of reducing targets, Ms Marr, a consultant planner called by Fish and Game, summarises the position in this way:

> The environmental benefits of some of the options are set out in the evidence in chief of Dr Roygard et al, Dr Ausseil, Dr Dewes, and Associate Professor Death. These are modelled in the evidence of Dr Ausseil and Dr Roygard. The evidence is complex, but is helpfully summarised and agreed to by all experts at the expert conferencing. The experts agree that of the scenarios modelled, the NV POP year 20 numbers will lead to the greatest reduction in nitrogen pollution in the targeted catchments.

We look further at the modelling in considering the different regimes.

[5-121] When questioned, Mr Rhodes, an economics witness for the Council, said there are benefits to the 20 year regime, the time frame in the NV-POP, in the certainty it would create for investment decisions, such as on the life of infrastructure. It would signal the position a long way out and allow people to be aware of and take responsibility for the externalities of their farming activities within the framework of the One Plan. We see that as an advantage over the *single figure* and a reliance on a future Plan change or review. If resource consents are granted for a term of, say, 20 years (which was indicated as the likely term), it will be all but impossible to effectively reduce leaching, even if there is a rule change within that period. It also

[3] We presume the Hearing Panel was referring to Rule 13-1B, having new dairy farming land use activities as a *controlled* activity.

better aligns with what Mr Maassen referred to as a *journey in time* and the need for a credible plan that provides a definitive pathway to the long term improvement in water quality particularly in the specified catchments.

[5-122] We address the other reasons given by the Hearing Panel for deleting the reducing loss targets for existing dairy farms elsewhere in this Decision.

The Year 1 limit (the Council approach)

[5-123] The DV POP at Table 13.2 set a single cumulative nitrogen leaching maximum by Land Use Capability Class. The table is this:

Table 13.2 Cumulative nitrogen leaching maximum by Land Use Capability Class (LUC) (kgN/ha/yr)

LUCI	LUCII	LUCIII	LUCIV	LUCV	LUCVI	LUCVII	LUCVIII
30	27	24	18	16	15	8	2

[5-124] The Hearing Panel considered that these limits (the Year 1 limits) should not apply to existing dairy farming in the targeted WMSZs but only to dairy conversions everywhere in the region. Among other reasons it concluded that firstly Dr Mackay's *natural capital* approach is not based on technological changes that have enabled farmers to lift productivity levels since the 1980s, and secondly ignores existing land use and existing levels of farm production which is inequitable and impracticable. The Panel also said that the officers have taken Dr Mackay's scientifically derived values and arbitrarily amended them to address the second point which has resulted in Table 13.2 lacking scientific robustness.

[5-125] However, subsequently the Council proposed that the Year 1 limits should apply to existing dairying in the targeted WMSZs, but that the maximum only needed to be achieved after three years. That involved requiring farm N loss to be estimated, using OVERSEER, and if that is higher than the CNL maximum measured as kgN/ha/yr, a 33% reduction in that amount, or 2kgN/ha/yr, whichever is greater, would then be required in each year over the ensuing three years. Further, the Council is proposing that Rule 13-1 should come into force in different years for different WMSZs; eg 1 July 2013 for Mangatainoka, 1 July 2014 for Upper Manawatu above Hopelands, etc – see Table 13.1.

The Pastoral Industry Alternatives

[5-126] Before looking at the individual positions of the pastoral industry parties for dairying we summarise the rule regime sought, drawing on the helpful analysis and table provided by the Council in closing.

[5-127] The regimes for existing dairying were all based on management thresholds for on-farm average cumulative N leaching values:

Average cumulative leaching in kgN/ha/yr	<24	≥ 24 but ≤ 27	>27
Fonterra	Controlled up to N leaching to 2007-2010 years No power to require N leaching mitigation	As with <24	Controlled up to N leaching to 2007-2010 years Power to require reasonably practicable Tier 1 N leaching mitigations
Ravensdown	Permitted	Controlled No power to require N leaching mitigations	Controlled Power to require reasonably practicable Tier 1 N leaching mitigations
Federated Farmers	Permitted	Controlled Power to require reasonably practicable N leaching mitigations	Controlled Power to require reasonably practicable N leaching mitigations

Common features were:

- The management threshold based on an average N leaching value kilograms N/ha/year
- Below the management threshold the farming operation is grandparented to that number. In the Fonterra proposal, the capping or grandparenting of existing farmers at their current leaching rate was also to levels determined on the basis of N-leaching from the 2007-2010 years.
- The management threshold interventions are based on reasonably practicable measures requiring consideration of at least the following factors: present

infrastructure, present farming system, capital structure of the farming business, cost.

- In the case of Fonterra and Ravensdown mitigations were limited to those classified as Tier 1.

[5-128] *Grandparenting*, taken literally in the RMA context, means allowing existing operators to carry on producing current levels of effects, particularly adverse effects, and imposing restrictions only upon new entrants to whatever activity is being dealt with. It hardly need be said that it is a concept usually favoured by existing operators, who rationalise it by pointing to the investment they have made in the activity, and claiming that it would be unfair to require them to change, (or cease, in extreme cases) the way they do things.

[5-129] The Fonterra regime for existing farms differed from the regimes proposed by Federated Farmers and Ravensdown in an important particular. The Fonterra regime, with its requirement that ... *the annual nitrogen leaching shall not exceed the maximum nitrogen leaching loss that occurred from the land over the period 2007-2010 (or such shorter period for which there is available information)* also involved *restricted discretionary* activity status for those farms wishing to exceed that level.

[5-130] Fonterra did not appear to take a position on new dairying in its opening or closing submissions, but confined its attention to existing dairying. However, positions different to the Council's were taken by Ravensdown and Federated Farmers on new dairying. Ravensdown took a similar position to the one taken on existing dairying. That is, up to 24 kg N/ha/yr would be a *permitted activity*, and above that a *controlled activity.* Between 24 and 27kg, there would be no power to require N leaching mitigations but above 27kg there would be power to require Tier 1 N leaching mitigation. Federated Farmers took a different position and proposed an average cumulative leaching in kg N/ha/yr of up to 24 as a *permitted activity,* but between 24 and 45 as a *controlled* activity with the power to require *reasonably practicable* leaching mitigation. In closing Federated Farmers ultimately proposed *restricted discretionary* activity status for over 27kg, submitting that in practice it was likely to be little different from a *controlled* activity.

[5-131] New dairy farming anywhere in the region that does not meet the cumulative nitrogen leaching maximum would be a *restricted discretionary* activity under the Council's proposal, but not under the Ravensdown approach, or that of Federated Farmers, which proposed 45kg as the threshold for *non-complying* activity status. In summary, for new dairying:

Average cumulative leaching in kgN/ha/yr	<24	≥ 24 but ≤ 27	>27
Ravensdown	Permitted	Controlled No power to require N leaching mitigations	Controlled Power to require reasonably practicable Tier 1 N leaching mitigations
Federated Farmers	Permitted	Controlled Power to require reasonably practicable N leaching mitigations	Restricted Discretionary but >45 Non-complying

The Fonterra Option

[5-132] Dr Ledgard supports the requirement of DV POP that existing dairy farms in *targeted* catchments should be required to:

a) Prepare and comply with annual Nutrient Management Plans (Rule 13-1)
b) Exclude cows from waterways (Rule 13-1)
c) Avoid direct runoff from farm lanes to waterways (Rule 13-1)
d) Manage the use of fertilisers (Rule 13-2)
e) Comply with stock feed and feedpad use rules (Rule 13-3), biosolids discharge requirements (Rule 13-4), and farm effluent discharge requirements (Rule 13-6)

For existing dairy farms Dr Ledgard believes that the focus of reducing N leaching should be on the quartile of farms (assessed on a regional basis) leaching the greatest quantity of N and should require the adoption of *Tier 1* – (see para [5-136]) mitigation options.

[5-133] Mr Sean Newland did not give evidence in an expert capacity, but rather as Fonterra's Manager, Sustainable Dairying Policy. He said that Fonterra accepts the principle of all dairy farms in targeted catchments being regulated through a resource

consent process, however he lodges a considerable caveat in the case of existing operations, and says, as did Dr Ledgard, that it is the *bad performers* who should be the main target of rules. Unlike Dr Ledgard though, he does not support a regime based on LUC classes. Through him, Fonterra proposes what he described as ... *a hybrid form of grandparenting*. His evidence is that Fonterra regards some of the Council's modifications to the DV POP as outlined by Ms Clare Barton, as:

- Relatively arbitrary in its time limits for farmers to meet N loss limits.
- Providing insufficient time to raise land manager awareness of the need to manage N loss from pastures and to up-skill and educate farmers on the available techniques to reduce N loss.
- Providing inadequate time to implement management tools on farms, particularly those likely to find it difficult to adapt without significant economic hardship.

We have touched on some aspects of this point in discussing Voluntary (and the like) approaches – see eg para [5-9]. We need to say here though that we were more than a little surprised to hear the country's largest dairy farming-related organisation, which champions the *Dairying and Clean Streams Accord* of May 2003 as a model of voluntary environmental best practice, telling us that: a) up to 20 years (from now) is a *relatively arbitrary* period within which to achieve quite modest N loss targets; and b) there are land managers out there who are unaware of the need to manage N loss from pastures, and who are unaware of available techniques to do so. We particularly note this extract from the *Priorities for action and performance targets* section of the *Accord*:

- Nutrients are managed effectively to minimise losses to ground and surface waters
  Performance target
  100% of dairy farms to have in place systems to manage nutrient inputs and outputs by 2007

We can only assume that if these *unaware land managers* do exist, they have been farming in some form of information vacuum for the last 20 years, and certainly for the nine years since the *Accord* was signed.

[5-134] The version of Policy 13-2C now advanced by the Council as an acceptable formula is this:

> Policy 13-2C: Management of new and existing dairy farming land uses
> When making decisions on resource consent applications, and setting consent conditions for dairy farming as a land use, the Regional Council must: ...

(b) seek to exclude cattle from the following waterbodies within the water management sub-zones listed in Table 13.1:

(i) a wetland or lake that is a rare habitat, threatened habitat or at risk habitat.

(ii) a river that is permanently flowing, or is intermittently flowing with an active bed width greater than 1 metre at any time the bed contains water.

For the purposes of this policy "exclude" means stock access must be restricted to the waterbody by any permanent or temporary fence or barrier or any natural barrier. Where there are more than 1350 stock movements per week across a river identified in (b)(ii) then a culvert or bridge shall be installed.

We note that Fish and Game and the Minister propose replacing the word *seek* with a requirement to exclude cattle.

[5-135] We have considerable reservations about this provision. First, a policy that requires the Council to ... *seek to exclude cattle from ... water bodies ...* imposes no measurable standard at all. Keeping stock out of waterways is such a basic step in protecting waterways from effluent pollution that it must be regarded as an absolute requirement. *Seeking* to do so is simply not good enough. Secondly, we had no convincing explanation for the number of 1350 stock movements per week as the policy trigger for requiring a culvert or bridge which is reflected in the condition for *controlled* activity status. If, for instance, such a river is crossed by the race leading to and from the milking shed then, assuming twice per day milking, it will be crossed four times per day by each cow, so only 48 cows or fewer could be accommodated without a culvert or bridge. If the river is not bridged and these 48 cows crossed the river for milking twice each day, if only 10% of them defecate and/or urinate while doing so, this still means that on 19 occasions on each and every day, the waterbody will be polluted with directly deposited sewage. That cannot be acceptable in the present era. Again, we particularly note two parts of the *Priorities for action and performance targets* section of the *Dairying and Clean Streams Accord*:

- Dairy cattle are excluded from streams, rivers and lakes and their banks.

  Performance Target

  Dairy cattle excluded from 50% of streams, rivers and lakes by 2007, 90% by 2012.

- Farm races include bridges or culverts where stock regularly (more than twice a week) cross a watercourse.

  Performance Target

  50% of regular crossing points have bridges or culverts by 2007, 90% by 2012.

We do of course hesitate before deciding not to accept an outcome agreed to by parties between themselves. But on occasions the Court feels compelled to do so. As outlined in *Halswater Holdings Ltd v Selwyn DC* (1999) 5 ELRNZ 192 notwithstanding what the parties may agree ... *there is still a proceeding to be determined as the Court still has a discretion (to be exercised judicially of course) to grant or refuse consent* ... (or, in this case, to settle upon RPS or Plan provisions which best accord with the purpose of the Act). On this topic, we cannot imagine any reason why the POP, a document being brought into existence nine years after the *Accord*, when both knowledge and management techniques are so much more sophisticated, should have less exacting standards than that document contains, and to allow it to do so would be to fail to give effect to the purpose of the Act.

[5-136] Thirdly, the restriction of ... *reasonably practicable measures* ... to those defined as *Tier 1* measures is not acceptable. As ultimately advanced by Mr Gerard Willis, Fonterra's consultant planner, with the purpose of reducing the subjectivity of interpreting ... *reasonably practicable measures* ... Tier 1 mitigation measures were defined as:

> *N fertiliser use:*
>
> -Application of N fertiliser according to FertResearch fertiliser Code of practice
>
> -Avoidance of winter N applications
>
> -Use of frequent low N rates (eg ≤30kgN/ha during slower growth and ≤50kgN/ha at other times
>
> -Reduction in N fertiliser use and replace lost production by low protein brought-in feed
>
> *Dairy farm [ie dairy shed] effluent*
>
> -Use of land application rather than two-pond discharge systems
>
> -Ensure application area is sufficient to achieve ≤150kgN/ha/yr (and reduce fertiliser N accordingly)
>
> -Use of storage (sealed for leakage), deferred application and low rate application methods as required according to soil risk
>
> *Brought-in feed*
>
> -Use of low-protein feed sources rather than brought-in pasture silage
>
> -Reduction in N fertiliser use and replace lost production by low-protein brought-in feed
>
> *Winter forage crops*
>
> -Minimisation of use of forage crops (particularly winter forage crops)

-Minimal or nil cultivation for crop establishment

-Minimisation of N fertiliser use by soil N testing to define requirements

Soil management

-Apply DCD according to industry specifications

Farm management options

-Winter cows off-farm (preferably in low-N-sensitive catchment)

Tier 2 mitigation measures are:

... one of the following nitrogen leaching mitigation measures:

-Installing constructed or artificial wetlands

-Create riparian or buffer strips beside stream margins

-Cease use of N fertiliser

-Use stand-off pads or animal shelters (lined for effluent collection) during autumn/winter with effluent storage system and optimised land-application system for effluent use in low-risk periods

-Introducing ungrazed pasture or treed areas

Mr Willis acknowledges the Tier 1 measures to be ... *nil-low cost* ... . We would go further and classify them as generally being no more than the responsible farm management practices we would expect any farmer to follow, even if confident that his or her N leaching was satisfactory. If there is any question that a given farm may not meet a required leaching standard, it is self-apparent that more than stock-standard ... *nil-low cost* ... efforts and measures are required.

Some Other Considerations

[5-137] The Council, in closing, submitted that Fonterra's proposal had other weaknesses. These included the arbitrary nature of the nitrogen leaching limit of 27 kgN/ha/year, derived as the leaching from the 75th percentile of all dairy farms in the Manawatu Region, with the remaining 25% presented by Fonterra as targeting of farms where the most environmental gains are likely to be made as the primary purpose and targeting the laggards as the secondary purpose. This did not reflect the position across different catchments, such as the 49% across the Upper Manawatu Catchment. Also the Council was concerned, that the regime would unfairly grandparent existing dairy farms operating below the management threshold. The Council was of the view that there is no reason why those below the management threshold cannot, and should not, make a contribution to improving water quality. The evidence is plain that they can, and at a reasonable cost. Dr Tillman, a witness for

Federated Farmers, said precisely that. The Council also criticised the assumptions in Dr Ledgard's modelling of the water quality improvements which we shall return to. Finally, and most importantly, the Council questioned how effective the rule regime would be in practice.

[5-138] We accept the point made by Mr Willis that the Fonterra approach does not focus on reducing N leaching from only the worst 25% when applied to the *specified water management zones*. But even though 49% of farms in the Upper Manawatu for example would exceed the 27 kgN/ha/year threshold and be caught under the more stringent *controlled* activity regime, that regime would allow leaching up to the level of the 2007-2010 years with consideration only of Tier 1 mitigations.

The Ravensdown Option

[5-139] As we said earlier, Ravensdown proposes a regime requiring ... *improvement towards* ... target loads over a five year period; non regulatory methods such as good practice and education; investigation of links between intensive farming and actual effects, aiming towards an agreed criteria or standard for each WMSZ to be introduced by way of a Plan Change. In the meantime it proposes that both new and existing dairy farms emitting less that 24kgN/ha/yr be *permitted* activities; those exceeding 24kg being *controlled* activities with those exceeding 27kg being required to adopt ... *reasonably practicable farm management practices* defined as Tier 1 mitigations.

[5-140] The Council also had a major concern about the suggestion from Ravensdown that the regime should only last five years, emphasising that it had already spent a considerable sum getting the One Plan to this point.

Federated Farmers' Option

[5-141] We have also mentioned that Federated Farmers agrees that it would be appropriate to include intensive (ie irrigated) sheep and beef farming within the Rule regime. As we said earlier it does not agree that cropping (for fodder) should be an included activity and, apart from agreeing with the view that the casual basis on which land is used for cash cropping makes management of a resource consent regime *too hard*, it has no view about vegetable production. It submits that low risk dairying

should be a *permitted* activity. The Federation opposes the use of the LUC classification system as the basis for such a regime and supports a so-called single figure N leaching regime of 24 kgN/ha/yr above which existing dairy farms should be required to do what is ... *reasonably practicable* ... to reduce N leaching as a *controlled* activity. New dairy farms assessed as leaching not more than 24kgN/ha/yr would be a *permitted* activity; those between 24 and 27kg would be a *controlled* activity, and those assessed at more than 27 and up to 45 kgN/ha/yr would require a resource consent as a *restricted discretionary* activity. Beyond that, a *non-complying* consent would be required.

[5-142] The Council considered the Ravensdown and Federated Farmers regimes together because of their family likeness and considered them to have many of the same problems as the Fonterra approach. Importantly, the planning goals which they sought to implement were only to *maintain* water quality. Their planning witnesses acknowledged that they had to rely on the experts as to what the appropriate N leaching threshold figure should be for the various consent categories – so did Mr Willis, Fonterra's planner.

What the modelling tells us

[5-143] Extensive modelling of the different scenarios was done, including modelling over the course of the hearing as the *single figure* regimes proposed by some parties gradually emerged. The modelling tended to focus on the Manawatu and Mangatainoka Rivers, perhaps unsurprisingly because of their water quality problems.

[5-144] Fonterra submitted that the modelling work can only be used as a guide to rank the various proposals. We are well aware of the nature of modelling as a tool and of the need to take care in considering whether the modelling represents reality.

[5-145] While there was some questioning of the assumptions built into the models, they all show the most positive trend towards water quality improvement is the re-adoption of the NV-POP N cumulative N leaching maximums (with year 1-20 LUC based maximums) sought by Fish and Game (recognising that there will still be the ability to apply to exceed those maximums by way of successful resource consent application – just as there is under any of the scenarios modelled).

[5-146] There is no doubt that the regime which is likely to deliver the best water quality outcome is the Fish and Game and Minister's one (with year 1-20 LUC-based limits), as confirmed by all the modelling (both the initial and further modelling) undertaken by Dr Roygard, Ms Clark, Dr Ausseil and Dr Ledgard. The yet further modelling carried out by Dr Roygard confirmed that. The Fish and Game/Minister regime is likely to achieve the desired water quality improvements more often, and for longer periods, especially during times of low flow which, as Dr Scarsbrook, an ecology witness for Fonterra, acknowledged is the most important time for maintaining aquatic values. The other approaches result in no, or very limited, improvement in water quality.

[5-147] While Dr Ledgard's modelling results came in quite late in the piece, we are satisfied that there was sufficient opportunity to adequately consider them, and prepare evidence about them.

[5-148] There were several issues raised about the assumptions and approach used in the modelling undertaken by Dr Ledgard (which mirror issues raised with the Fonterra's rule regime approach). We mention them for completeness. One concern was the limitations of the 10 year time horizon (as opposed to the 20 year) used in other modelling.

[5-149] A significant concern was that the Ledgard modelling did not factor in that fodder cropping could be undertaken on non-intensive sheep and beef farms to support the dairy industry (for example in the Coastal-Rangitikei Catchment) rather than on the dairy farms themselves. This would transfer nitrogen from one part of a catchment to another, but would not necessarily reduce it or improve water quality within the catchment (particularly if fodder cropping is not included within the rules regime). Also, the wintering-off of dairy cows on non-intensive sheep and beef farms could have the same effect.

[5-150] The modelling by Dr Roygard and Dr Ausseil was based on intensification scenarios (increase in dairying of 11% and 18%, and an increase in leaching from non-intensive sheep and beef farms from 10 to 12 kgN/h/year over the next 20 years) and an increase in cropping on non-intensive sheep and beef farms to support the dairy

industry. These scenarios were accepted as realistic by the agricultural experts in conferencing (and by Dr Ledgard in his reply evidence).

[5-151] Dr Ledgard did not model an 18% intensification, or an increase in leaching on non-intensive sheep and beef farms, or an increase in cropping on non-intensive sheep and beef farms to support the dairy industry. However, in cross examination, Dr Ledgard accepted that intensification on non-intensive sheep and beef farms in the region could occur with an increase in nitrogen leaching by as much as *+22% on sheep and beef farms* over the next 10 years. Dr Ledgard accepted this on the basis of the evidence he presented to the Environment Court when it heard the Waikato Plan Variation 5 appeals. Dr Ausseil had modelled a 20% increase in nitrogen leaching over 20 years – a much more conservative figure.

[5-152] A yet further concern was the reality of assumptions about the lifting of the performance of existing dairy farmers and the likely ensuing reductions in N leaching. These included questions about whether existing dairy farmers, *grandparented* at the rate of 27 kgN/ha/year, would consider this to be an entitlement. The point was made that there would be no requirement or incentive for them to voluntarily reduce their leaching rate by implementing *Tier 1* mitigation practices and, perversely, there would be an economic incentive to leach up to this entitlement.

[5-153] In the end even Dr Ledgard accepted that there were a number of issues with the modelling he had undertaken and that Dr Roygard's modelling was more reliable.

[5-154] The regimes proposed by Ravensdown and Federated Farmers were not modelled by their proponents. This is not surprising given their late appearance during the course of the hearing. It is also hard to see how the concept of *reasonably practicable* farm management practices could be effectively modelled given the concept necessarily implies a judgment call. However we had sufficient modelling of different scenarios from Dr Roygard and Dr Ausseil so that taking even the most positive view of what the regimes might achieve, the results would be a long way short of meeting the objectives and policies and Part 2 of the Act.

[5-155] Fonterra raised concerns that economic considerations were not factored into the development of the Schedule D limits and that the nutrient parameters in particular are overly conservative and largely unachievable. However, the evidence of witnesses for the Council, and particularly Associate Professor Death, satisfied us that the Schedule D limits were set in a pragmatic way, and represent a good, rather than excellent or perfect level of protection for water quality values. We accept that the nutrient limits were established recognising the need for trade-offs between what would be an ideal ecological outcome and social, practical and economic considerations. We recognise that no regime proposes meeting the Schedule D limits at all flows.

[5-156] We are satisfied that the Schedule D limits represent environmental bottom lines, which are intended to achieve the objectives of the Plan.

[5-157] We now turn to considering the social and economic effects of the different regimes in front of us.

Social and economic effects

[5-158] The primary industries submitted that the LUC regime would impose social and economic costs on existing dairy farmers, as well as on the community, and there needed to be robust and conclusive cost and benefit evidence to justify this. This is reinforced by the POP's recognition of the importance of farming to the social, cultural and economic wellbeing of the region and its people.

[5-159] In opening, the Council's position, which was described as aligned to Fish and Game and the Minister on existing farming, was described as:[4]

> Water quality improvements cannot be achieved while completely protecting the balance sheets of farmers or those who are capital constrained;
>
> Those farms that can meet the specified targets should be a controlled activity providing them with an easy consenting pathway that sets conditions to control the contaminant pathways for nutrients through a whole of farm consenting regime;

[4] Council's opening legal submissions, paragraphs 10(f) – (k).

> The rate of change expected of farmers significantly beyond the cumulative nitrogen leaching values must be reasonable and a consenting pathway must exist (through a restricted discretionary classification) for those intensive food production systems (in about the 90th percentile) that cannot meet the targets. No farm should be rendered uneconomic because the available array of mitigation measures will be insufficient over the life of the plan to achieve the specified nitrogen targets;
>
> A full suite of mitigations must be considered by those farms that cannot meet the specified cumulative nitrogen leaching values including what Fonterra NZ Limited calls 'Tier 2' mitigations;
>
> The choices as to the mitigation measures to be adopted and the rate of the implementation is primarily for the individual farmer to choose with the regulatory agency concerned with whether the targets are met and if not the sufficiency and pace of improvement and its overall reasonableness;
>
> Those farmers in lower quality soils will be more challenged than others. A proper analysis by a farmer of the proper structure of the farming platform must include the farmer's mitigation responsibilities.

[5-160] Mr Jeremy Neild and Mr Anthony Rhodes were engaged by the Council to prepare a report on the economic impacts of the proposed N leaching values (ie the implementing of Rule 13.1 and Table 13.2) for the hearing before the Panel. Both are well-qualified to do so and gave evidence at the hearing. Their material is drawn from case studies supplied to them, and from data from MAF Farm Monitoring for the years 2007/08 to 2010/11, from which they draw what they describe as ... *an indication of the relative affordability of N loss mitigation costs.*

[5-161] They summarised the position in this way:

> Overall, the average cost of N-loss mitigation is equivalent to less than 5% of annual cash farm expenses. This does not appear to be an excessive cost to pay to mitigate off-farm impacts. Clearly, at 16.6%, the cost of mitigation for Group 1 farms is much more significant. For Group 2 farms, an additional cost equivalent to 7.5% of cash farm expenses may be significant in periods of low product returns or lower-than-average production.
>
> As has been previously discussed, individual farm modelling and optimisation may indicate a range of less costly solutions, especially for the more capable farm managers. Another method for assessing the affordability of these costs is to consider them in relation to the level of discretionary cash available in the business (also referred to as

farm surplus for reinvestment). A useful index of affordability or resilience is the number of times the amount of discretionary cash can cover the proposed cost, Table 4. Across the period 2007/08 – 2010/11, the average level of discretionary cash was $117,794.

Depending on the Group within which a given farm falls, the cost of N loss mitigation will be covered by that discretionary cash figure between 1.62 and 21.54 times, with a figure for all Groups of 6.20 times.

[5-162] At the expert witness conferencing on this topic (LUC/Best Practice) - the witnesses recorded their view that: *All parties agree that the costs are hugely variable and farm specific, and depend on the magnitude of reduction of N loss required.*

[5-163] We note that the farms in Group 1 (higher rainfall and soils of lower quality than the average across the region) that will be financially impacted to the greatest extent number 48 out of a total of 428 farms in the target WMSZs.

[5-164] We do not underestimate an increase of 16.6% to their annual farm running costs. However, the work of Messrs Neild and Rhodes indicate that this Group across the period 2007/8 – 2010/11 generated on average $117,794 (discretionary cash or farm surplus for reinvestment) or 1.62 times the average cost of implementing NV POP Rules 13.1 and 13.6. We accept that this work involves the use of averages – something of a *blunt instrument* according to Mr Hassan. However, this is the only quantative evidence we have on this subject, there was no credible challenge to it and it reflects the range of debt profiles in the rural sector.

[5-165] With these figures in mind and the relatively small number of farms in Group 1, we are sceptical of Mr Hassan's submission that the NV POP (or similar) regime would put farmers out of business – and the social and economic costs that would follow.

[5-166] Mr Hassan went on to submit that the *POP regime seeks to provide growth opportunities for future land uses (eg, dairy conversions). To allow yet-to-be business to benefit from this growth potential at the cost of existing farmers who are put out of business is grossly inequitable and therefore highly undesirable.*

[5-167] We cannot agree with this submission. Allowing existing dairy farmers to be excluded from the proposed LUC regime would itself be inequitable and inefficient. Existing farmers would have no requirement or incentive to improve their N losses and new entrants would bear the cost of any improvement in water quality. There would be no encouragement for intensive land uses to operate on higher quality soils nor would the desired water quality improvements be achieved.

[5-168] While we accept a small number of farmers will find the financial costs of compliance difficult under the *controlled* regime, taking an alternative regulatory pathway may well make the transition more financially palatable.

[5-169] It needs to be recognised too that there is good evidence supporting the view that depending on land class and management techniques being employed, significant N loss reductions can be made while at the same time improving farm profitability. Dr Alison Dewes, called by Fish and Game, is involved in developing farm systems for optimal profit while minimising the farm's environmental footprint. She notes that many farms are already within the proposed year 1 and year 20 LUC based limits. She agrees with Dr Ledgard and Mr Smeaton that a 10% reduction in leaching can be made without affecting profitability in most cases, and indeed concludes that reductions of 30% to 40% are possible while maintaining or improving farm profitability.

[5-170] Mr Peter Taylor, the Council's Manager – Rural Advice, has been involved in assisting farmers undertaking new dairy conversions in various parts of the region, implementing Rule 13-1B of DV POP which controls that process. For the 18 farms discussed in his evidence, he advises that eight would immediately comply. Of the ten needing to reduce N leaching, three would achieve compliance by the end of year one, and two by the end of year two. Of the remaining five, it would be possible for two, with some difficulty, and it would be very difficult for the remaining three, the greatest difficulty being financial rather than technical.

[5-171] Ms Marr would have qualified exceptions in Policy 13-2D – applicable to Policy 13-2C - for resource consent decision making for existing intensive farming land uses, to read:

> (i) where land has 50% or higher of LUC Classes IV to VIII and annual average rainfall of 1500mm or greater; or
>
> (ii) where uses cannot meet year 1 N leaching maximums in year 1 they shall be managed through consent conditions to ensure year 1 maximums are met within 4 years.

Ms Barton was inclined to recommend a similar approach to the treatment of land with challenging LUC classes and rainfall at first, but moved away from it, because she believed it may lead to inequities. Ms Marr continued to support it, although in a somewhat narrower form. Her rationale was that:

> ... it is appropriate to provide an exception or policy pathway for those small minority of properties that, because of their location, will find it difficult to meet the nitrogen loss maximums that are achievable elsewhere.

[5-172] We see Ms Marr's exceptions in Policy 13-2D as a reasonable concession to existing farmers who may otherwise genuinely struggle with the new regime, and believe them to be appropriate additions to the Plan's policies. But we cannot accept Ms Marr's qualification to exception (i) which she proposed as:

> That the nitrogen leaching from the activity does not exceed the nitrogen leaching demonstrated for the property from 1 July 2010 to 31 June 2011.

That might imply the potential to *grandparent* existing leaching. We consider that the *restricted discretionary* status would allow adequate consideration of all these matters.

[5-173] Later in this decision, we set out our reasons for not accepting the Council's approach which would allow an automatic three year step down to reach the CNL maximum, within a *controlled* activity status.

[5-174] On the basis of those figures and provisions, we conclude that the economic costs for a majority of farms will be manageable across a span of years, and thoroughly justified by the desired outcome.

[5-175] There was no specific evidence before us on the costs and benefits of the planning regimes proposed by Fonterra, Ravensdown or Federated Farmers that would

lead us to the conclusion that those regimes should be preferred, particularly given our conclusion that other intensive land uses should be included in the regime. None of the regimes put forward by pastoral interests dealt with their suitability for other intensive land uses.

Putting farmers out of business

[5-176] Somewhat related to the issues both of economic costs and of *grandparenting* is our surprise at finding, in the closing submissions for Fonterra, the assertion that:

> The Court has questioned several witnesses throughout the hearing, on the topic of whether the POP regime should be used to put some existing farmers out of business.

If what that assertion means is that the Court was advancing the view that there should be some such purpose in whatever regime is settled upon, that simply is not so. What the questions were attempting to elicit was the opinion of expert witnesses about the possible outcome of a *situation* where, say, N loss limits are put in place and a given farm/farmer simply cannot meet them. Should that farmer be given some sort of exemption from a regime that his or her colleagues can comply with? Or, at the other end of the spectrum, should he or she be told that the category of farming, or the management regime, or the intensity of the operation being conducted on that particular type or class of land, is simply unsustainable because of the quantity of apparently irreducible nutrient loss? If the latter, the farmer will have decisions to make: - to seek a resource consent for a more stringent activity status; to change the category of farming or the management regime or intensity; or to move somewhere else. Those are the same options that might face the operator of any business in a changing rules regime, and there is nothing that gives farmers a privileged place in the scheme of things.

[5-177] Whether the *Grandparenting* be a pure or hybrid version, we regard it as an unattractive option. Quite apart from its inherent disadvantages of failing to provide an incentive to reduce leaching, such a process would be administratively inefficient. Ms Barton's evidence is that there are over 500 landowners in 35 water management zones, and each would need to be assessed to confirm the property's history, and thus its entitlements.

Should there be a reference to reasonably practicable farm management practices?

[5-178] That phrase (or variations of it) appears at several places in the policy as well as the rules in the various versions of the One Plan. The DV POP contained it, such as in the controlled activity status for existing dairy farming land use activities (rule 13-1), with control reserved over the implementation of such practices. There was a lot of evidence as to what *reasonably practicable farm management practices* might involve. To be fair, the proposals put before us by all parties recognised its limitations, and sought to better define what it might include in policies as well as rules.

[5-179] Fish and Game submitted that such a phrase (or a variation of it) should not be used in the plan because:

- Farmers would seek to argue that any measure that increases costs is not practicable.
- For the default rules for intensive farming activities that do not comply with year 1 to 20 limits, it is better to reserve discretion over compliance with the nitrogen leaching maximums specified in Table 13.2 or maximum leaching limits.
- Implementation of *reasonably practicable farm management practices* will not necessarily reduce nitrogen leaching.
- It is not possible to quantify an amount of nitrogen leaching reduction that would be achieved by implementation of *reasonably practicable farm management practices*.
- It lacks certainty and would not prevent the transfer of nitrogen leaching from one part of a specified zone/catchment to another.

[5-180] We also accept that it is likely that new farm management practices to reduce nitrogen leaching will be available in the future - so a list of *reasonably practicable farm management practices* (in policy or rules) which decision-makers could refer too, even as a guide (as had been proposed by some parties), may become outdated. We also consider that including a hierarchy with *Tier 1* and *Tier 2* mitigation measures, as proposed by some witnesses, to not have utility or integrity in dealing with these issues. For example, there are some existing dairy farmers who farm on land less (or even not at all) suitable for dairy farming, resulting in high amounts of N leaching, and with little ability to reduce leaching. Implementing Tier 1 mitigation

measures as far as *reasonably practicable* is not consistent with the principle of internalising adverse effects to an acceptable level. *Tier 2* mitigation practices may be necessary, or if the situation is serious enough, certain types of land should not be used for dairy farming at all.

[5-181] For those reasons, the phrase *reasonably practicable farm management practices* (or variations on the theme) should not appear in the surface water quality objectives, policies or the rules of the One Plan.

Trading of leaching 'rights' - scope and merits

[5-182] Some witnesses, particularly those of an economics bent, saw virtue in having, as part of the POP and presumably administered by the Council, a scheme through which farmers or growers who find themselves able to reduce leachates at a reasonable cost could sell the *rights* to leach N (being the difference between what they do leach and the maximum figure for their particular LUC) to those who are unable to reduce theirs to the maximum allowed level. Those who favour such an adjunct to the regulatory regime see it as a logical extension of the regulatory approach, providing an incentive to reduce leachates as far as can be done at reasonable cost, and a means for those who are unable to get below allowed levels to nevertheless continue their operations. Mr Phillip Percy, a consultant planner called on this topic by Mr Day, supported the introduction of such a scheme, and Mr Day regarded a trading scheme as most important in the modifications to the POP that he supported. Mr John Ballingall, an economist called by Fonterra, says that a trading scheme warrants and requires further analysis, but that to introduce it now would cause confusion and uncertainty.

[5-183] As was acknowledged by Mr Percy, the incentives of such a scheme will not necessarily all pull in the desired direction. While recognising that it may be profitable in net terms for one operation to reduce leachates and sell the rights, depending on the profit margins of another operation, one could speculate that it may be easier for that operation to simply buy in rights rather than reduce its emissions, so that the net quantum of leachates will remain as it began – which is not the desirable outcome for the receiving environment. Mr Percy did temper that concern a little by

suggesting that the cap, within which trading could take place, should be fixed from the outset at the reduced 20 year level.

[5-184] Whether or not that might be so, we agree with witnesses such as Dr Daniel Marsh, the Chair of the Department of Economics at Waikato University, and called by Fish and Game, that the possibility of a trading scheme is insufficiently thought through and developed, both as to principles and as to practicalities, to be seriously considered as part of POP at present. Indeed the joint statement produced by the Economics witnesses, Mr J Ballingall (Fonterra); Mr Rhodes (Horizons); Mr Neild (Horizons) and Dr Marsh (Fish and Game) agreed that an ... *appropriately designed nitrogen trading scheme could improve the efficiency of achieving the desired outcomes.* They also agreed that such a scheme would be more efficient ... *when a wider range of land uses and a higher proportion of the catchment are included.* They were unanimous too in considering that the features or criteria outlined by Mr Ballingall at para 111 of his evidence would need to be considered in designing such a scheme. As we understand the evidence, that has not been done.

[5-185] The evidence is though that the concept has merit as an extension of the regulatory regime and, if it can be developed as such, a future Plan Change could bring it to fruition. We would encourage that further work, but we do not think that we can responsibly take it further now. That being our clear view, we do not need to embark on a discussion of whether Mr Day's Notice of Appeal was sufficiently broadly worded to provide scope for a trading scheme to be brought into POP.

National Policy Statement Freshwater Management

[5-186] The RMA provisions about National Policy Statements are not entirely easy to interpret or apply. Both as it stood between 2005 and 2009, and currently, s55 of the Act requires both operative and proposed regional policy statements and regional plans to be amended so as to *give effect to* a national policy statement. That is to be done:

- as soon as practicable; or
- within the time specified in the national policy statement

The National Policy Statement Freshwater Management 2011 (NPSFM) was issued by notice in the Gazette on 12 May 2011 and is expressed to be effective from 1 July 2011. Policy E1 contains the timeframes within which the NPS is to be implemented:

> a) This policy applies to the implementation by a regional council of a policy of this national policy statement.
>
> b) Every regional council is to implement the policy as promptly as is reasonable in the circumstances, and so it is fully completed by no later than 31 December 2030.
>
> c) Where a regional council is satisfied that it is impracticable for it to complete implementation of a policy fully by 31 December 2014, the council may implement it by a programme of defined time-limited stages by which it is to be fully implemented by 31 December 2030.
>
> d) Any programme of time-limited stages is to be formally adopted by the council within 18 months of the date of gazetting of this national policy statement, and publicly notified.
>
> e) Where a regional council has adopted a programme of staged implementation, it is to publicly report, in every year, on the extent to which the programme has been implemented.

There is also what might be termed an interim policy provision, expressed to be made under s55, in Policy A4:

> By every regional council amending regional plans (without using the process in Schedule 1) to the extent needed to ensure the plans include the following policy to apply until any changes under Schedule 1 to give effect to Policy A1 and Policy A2 (freshwater quality limits and targets) have become operative:
>
> *"1. When considering any application for a discharge the consent authority must have regard to the following matters:*
>
> > *a) the extent to which the discharge would avoid contamination that will have an adverse effect on the life-supporting capacity of fresh water including on any ecosystem associated with fresh water and*
> >
> > *b) the extent to which it is feasible and dependable that any more than minor adverse effect on fresh water, and on any ecosystem associated with fresh water, resulting from the discharge would be avoided.*
>
> *2. This policy applies to the following discharges (including a diffuse discharge by any person or animal):*
>
> > *a) a new discharge or*
> >
> > *b) a change or increase in any discharge –*

> *of any contaminant into fresh water, or onto or into land in circumstances that may result in that contaminant (or, as a result of any natural process from the discharge of that contaminant, any other contaminant) entering fresh water.*
>
> *3. This policy does not apply to any application for consent first lodged before the National Policy Statement for Freshwater Management takes effect on 1 July 2011."*

Notably, the interim policy makes no specific reference to *proposed* regional plans, which presumably means that the definitions of *plan* and *proposed plan* in both the pre-2009 (see s2) version and s43AA and s43AAC of the post-2009 version will apply.

[5-187] Those definitions distinguish between proposed and operative plans – the term *plan* is not inclusive of both. We must take it then that the legislative intention was to make the interim regime applicable only to operative regional plans.

[5-188] So far as we are aware, the Horizons Council has not taken any decisions, formal or informal, under Policy E1. In terms of para d) it has until 12 November 2012 to adopt time-limited stages of implementation of the NPSFM, if it decides that full implementation by 31 December 2014 is impracticable and opts instead for a staged programme to be completed by 31 December 2030.

[5-189] All of which rather begs the question of what effect should be given to, or what account taken of, the NPSFM now - in the course of considering the appeals about the POP with the purpose of it becoming operative. That it must be given some status appears clear from the direct and mandatory command of s62(3) in respect of regional policy statements:

> A regional policy statement ... must give effect to a national policy statement ...

And the matching provision of s67(3) in respect of regional plans:

> A regional plan must give effect to -
>
> (a) any national policy statement

[5-190] That may mean that unless steps are taken to modify them sooner, when these documents become operative at the end of the appeal process, they will not comply with s62 and s67 because so far, in the Schedule 1 process for the POP, no effort has been made to address the NPSFM. This is a matter the Council will need to turn its

mind to. While we had evidence about the extent to which different versions of the provisions met the policy directives of the NPSFM we cannot give this any weight. That is not intended as a criticism - the NPSFM (as noted above) only came into force long after the POP was well advanced.

[5-191] We have given effect to the New Zealand Coastal Policy Statement 2010, particularly in including areas of the coastal environment in the targeted water management sub-zones.

The Policies

[5-192] We now come to our conclusions on the policy approaches required in both the RPS and Regional Plan to implement the objectives and our decisions, working off the various annotated versions provided to us at the beginning of the hearing by Ms Barton.

[5-193] We have already concluded that Objective 6-1, and Policies 6-1 and 6-7 of the RPS and Objective 13-1 of the Regional Plan need amending: - see paragraphs [5-23] to [5-26] and [5-38] and [5-39]. There may be other places in both the RPS and Regional Plan where an objective, policy, method or other material needs amending to be consistent with our decision. RPS policy provisions along the lines of the new Policy 6-X and the revisions to Policy 6-7 generally proposed by Fish and Game/Minister are appropriate to deal with the resource management issues and implement our decision. We accept that there may be a need to refine some of these provisions in the light of the Court's decision.

[5-194] Similarly the Fish and Game/Minister Regional Plan revision of the policy provisions in Policy 13-2C are generally suitable, with the exception of the item providing for 1350 cattle movements a week as the trigger for requiring culverts and bridges to accommodate cattle movements:- see paragraph [5-135]. Most of the Fish and Game/Minister version of a new Policy 13-2D is acceptable. However, the policy provision that could imply the potential for grandparenting of existing nitrogen leaching for existing intensive farming activity on land with 50% or higher of LUC Classes IV to VIII and has an average annual rainfall of 1500mm is not accepted. We note that the Council has already modified the LUC leaching allocation maxima for

these classes and in any case we do not accept that there is any possibility of farming on Class VIII. Again, some fine tuning might be necessary.

Rule Regime

[5-195] We have already discussed the objectives and policies and now consider the details of the rule regime to implement them.

Additional activities to be subject to rules

[5-196] In line with our decision and the changes sought by Fish and Game and the Minister, Rules 13-1 and 13-1B will need to be amended to refer to existing *intensive farming* land use activities, with the activity described as for *any of the following types of intensive farming:*

(a) dairy farming

(b) commercial vegetable growing

(c) cropping

(d) intensive sheep and beef farming

... and associated with that *intensive farming.*

Similar changes are needed to Rules 13-1A and 13-1C which deal with new *intensive farming* in line with our decision and the changes sought by Fish and Game and the Minister.

Intensive farming – controlled or permitted status

[5-197] Mr Christopher Hansen, a consultant planner called by Ravensdown, has the view that there is no reason why both existing and new dairy farming could not have *permitted* activity status, and that such an outcome would represent good planning practice. Mr Hansen considered that everything that needed to be could be achieved through the *permitted* activity status:- conditions/standards/terms could be crafted to be certain and enforceable and that this would be more efficient.

[5-198] Ms Barton discusses this issue at some length in her evidence. She says that with the exception of Mr Hansen and Mr Hartley, the planner called by Federated Farmers, the planners agreed in their conference that a *permitted* activity status was inappropriate, a view she continues to hold. In summary, the reasons for her view are, first, that it is difficult to impartially and consistently demonstrate compliance with the

OVERSEER model under a *permitted* regime, because it requires a good degree of technical knowledge to run accurately. Secondly, without the accountability inherent in a resource consent regime, there will be very little interaction between the farmer and the Council about addressing nutrient management. Thirdly, a *controlled* activity allocates the cost of monitoring and compliance to the farmer, whereas under a *permitted* regime it would be borne entirely by the Council. Fourthly, the discharge of farm animal effluent onto or into land is a controlled activity under Rule 13-6 and it makes sense to align the two activities to streamline and integrate the consenting process. Fifthly, under the operative Land and Water Regional Plan (Rule 4 page 21) the discharges of agricultural effluent require a resource consent as a *controlled* activity. This establishes an expectation with respect to the management of nutrient leaching effects associated with dairy farming. The effects of the discharge of farm animal effluent (as controlled through Rule 13-6) are similar to the effects associated with dairy farming land uses (covered by Rule 13-1 and 13-1B). The integrity of the POP would come into question if one activity with similar effects requires consent and the other does not.

[5-199] We accept these reasons arising from all of the material – evidence, joint statements and submissions - for not supporting a *permitted* activity rule:

- Rule 13-1 proposes a one farm consent to manage all contaminant vectors (not just N) based on a systems approach to farm management commended by the Parliamentary Commissioner for the Environment.
- Managing N leaching (effectively) would require significantly more interaction between a local authority and farmer than a *permitted* activity would allow.
- There is limited transactional efficiency given the consent needed for discharges of effluent (an activity caught by Rule 13-1 as ancillary to dairy farming).
- The *permitted* activity rules proposed would only really work on a fixed and not a graduated step-down in N leaching.
- A consent provides much greater certainty for a farmer than *permitted* activity status (which could be changed at any time).
- Control of land use to achieve water quality outcomes of *the commons* is best achieved by a consent identifying the metes and bounds of the farming activity, with explicit conditions, available for inspection as a public record, and with monitoring (at the expense of the consent holder) and enforcement.

- A *permitted* activity rule would allow some farmers to leach up to the relevant threshold number without any control on management practices (with undesirable results).
- Mr Hansen acknowledged the benefits that having better on-farm information would have for future plan change decisions. Fonterra considered a *controlled* activity regime would deliver that information directly to the Council, allowing them to check and verify it within a resource consent process and a better approach.
- Section 70 requires that before a rule that allows, as a *permitted* activity, a discharge of a contaminant into water, or onto land in circumstances where it may enter water, can be included in a regional plan, the Court must be satisfied that, after reasonable mixing, certain adverse effects are unlikely to arise. Those effects include, under s70(1)(g), ... *any significant adverse effects on aquatic life.* There was no evidential basis on which we could conclude that the requirements of s70 would be met.
- The application of the OVERSEER model means there will be a level of discretion and uncertainty which is not appropriate for a *permitted* activity rule.
- It would not allow an iterative process between farmers and the Council, including the careful record keeping and auditing of the OVERSEER inputs and assumptions needed to ensure sound environmental outcomes.
- While the Council may have powers to impose a targeted rate under other legislation, that does not substitute for the direct recovery of the Council's actual and reasonable costs under the RMA from those parties carrying out an activity with actual and potential effects on the environment.

[5-200] We find the logic of that line of thought compelling and agree that a *controlled* activity status would better give effect to the purpose of the Act. We do not accept the *permitted* activity rule put forward by Horticulture NZ in closing for similar reasons. We note that Fish and Game submitted that we have no *scope* to impose *permitted* activity status in any event, but we do not need to decide the point, given our decision that *permitted* activity status is not justified.

Controlled activity conditions/standards/terms

[5-201] We do not accept the distinction between *Tier 1* and *Tier 2* mitigation measures proposed by some parties – see para [5-136].

[5-202] For existing farms and conversion to new farming uses, the Council version had conditions/standards/terms as follows:

(a) A *nutrient management plan* must be prepared from the date specified in Table 13.1 and provided annually to the Council. The activity must be operated in accordance with the *nutrient management plan*.

(b) The *nutrient management plan* referred to in condition (a) above, must demonstrate that the nitrogen leaching loss will not exceed the *cumulative nitrogen leaching maximum* as set out in Table 13.2.

We agree with the version proposed by Fish and Game and the Minister with the conditions/standards/terms to be amended to read:

(a) A *nutrient management plan* must be prepared for the land and provided annually to the Regional Council.

(aa)The activity must be operated in accordance with the *nutrient management plan* prepared under (a).

(b) The *nutrient management plan* prepared under (a) must demonstrate that the nitrogen leaching loss will not exceed the *cumulative nitrogen leaching maximum* specified in Table 13.2.

[5-203] For existing and new uses the Council version had control reserved over:

(a) the implementation of the *nutrient management plan*.

Fish and Game and the Minister sought the addition of:

(aa) compliance with the nitrogen leaching maximums specified in Table 13-2.

We agree that the version provided by Fish and Game and the Minister is a better option for both existing operations and conversions to new types of farming – the Council version is too narrow and will not achieve the policies of the Plan.

Should the 'step down' require a separate consent category?

[5-204] The Council built a 3 year step-down or period of grace to the N leaching limit into the *controlled* activity rule. Fish and Game (and Ms Marr) did not support the proposed 4 year delay until existing dairy farms have to meet the Year 1 LUC numbers under Table 13.2. Ms Marr proposed that a failure to meet the N leaching limit in Year 1 (or any successive year) should require consent for a *restricted discretionary* activity.

[5-205] Fish and Game submitted that the POP has already been so many years in preparation that no party could claim to be taken by surprise, and that the imperative for water quality improvement is becoming urgent. It submitted that the requirements of Table 13.2 should take effect once the plan becomes operative. We agree, and also observe that the Plan's provisions will not take immediate effect, nor will they simultaneously do so. Table 13-1 specifies the date Rule 13-1 comes into effect for individual water management sub-zones. However, some of those dates will need revision, depending on progress with making the Plan operative

Restricted discretionary activity rule

[5-206] The Council's approach to *restricted discretionary* activity status as the default category for existing dairying and conversion to different farming uses that would not comply with the *controlled* activity requirements, involving the restriction of discretion to (most relevantly):

(a) preparation of a *nutrient management plan* for the land

(b) the implementation of reasonably practicable farm management practices for minimising nutrient leaching, faecal contamination and sediment losses from the land.

[5-207] Fish and Game and the Minister opposed these provisions and sought their replacement with:

(a) preparation of and compliance with a *nutrient management plan* for the land

(aa) compliance with the nitrogen leaching maximums specified in Table 13.2

(b) measures to avoid, remedy or mitigate nutrient leaching, faecal contamination and sediment losses from the land.

We agree that the versions provided by Fish and Game and the Minister are a better option for both existing operations and conversions to new types of farming, given the uncertain and changing face of *reasonably practicable farm management practices.*

Should there be a discretionary or non-complying activity rule?

[5-208] No party suggested a *discretionary* activity status for existing farming was warranted as a default category (although that is the agreed position for new farming activities). At the hearing, Federated Farmers floated, as part of a package, the possibility of a *non-complying* activity rule for existing dairying - as a default rule. Given our decision on the substantive approach, and in the absence of evidence

supporting another approach, we leave the default status categories to those proposed by the Council and otherwise agreed by the parties.

The term 'numerics'

[5-209] Ms Barton explained that the term *numerics* was developed by the participants in the mediation process to avoid deadlocks arising from the connotations of using terms such as *standards*, *targets* and *limits*. From there, the term found its way into the DV POP. We are very sympathetic to the use of the term as a way of getting people talking without becoming bogged down in shades of meaning. But when it comes to writing subordinate legislation which, after all, is what a statutory planning document is, accuracy of language is greatly to be desired. Without it, understanding, compliance and enforcement become difficult, if not impossible. The Shorter Oxford defines *numeric* as: *any number, proper or improper fraction or incommensurable ratio*. In the context of, for instance, Policies 6-3 to 6-5, using a term with that meaning conveys nothing – in fact it is nonsense. For instance, as proposed by Fonterra, Policy 6-4 would read:

> Where the existing water quality does not meet the relevant Schedule D water quality numerics within a Water Management Sub-zone, water quality within that sub-zone must be managed in a manner that enhances water quality in order to meet (in a manner consistent with Policy 6-7, and 6-8):
>
> (ii) the water quality numeric for the water management Zone in Schedule D; and/or
>
> (iia) the relevant Schedule AB values and management objectives that the water quality numeric is designed to safeguard.

What that must mean is that the figure specified in Schedule D for water quality in a particular WMZ is a *standard*, to be met, and if it is not met certain action must be taken. Ms Barton concludes her discussion of how the term arose by saying:

> 36. The numerics are applied as absolute standards in the context of permitted activities and are threshold limits for assessment through the resource consent process.

Without wishing to return to discussions involving ducks, we have a very clear view that if that is what a *numeric* is, then it should, for the avoidance of confusion and argument when these provisions come to be used in the real world, be given its real name. For what it is worth, we note that the Act's definition of *Conditions* is ... *in relation to plans and resource consents, includes terms, standards, restrictions, and prohibitions.* Also to fall into a particular consent category *the activity must comply with the requirements, conditions, and permissions ... specified in the ... plan* (s87A).

[5-210] As additional matters to be thought of in addressing this point, we mention that the Shorter Oxford defines *limit* as *...a point beyond which something does not or may not pass* ... or ... *a restriction on the size or amount of something. Standard* is defined as ... *a required or agreed level of quality or attainment.* A *target* is *...an objective or result towards which efforts are directed.*

[5-211] The NPSFM defines the term *target* as: - *A limit which must be met at a defined time in the future. This meaning applies only in the context of over-allocation.* In turn, *limit* is defined as:

> ... the maximum amount of resource use available, which allows a freshwater objective to be met ... and ... over-allocation is defined as being ... the situation where the resource:
>
> a) has been allocated to users beyond a limit or
>
> b) is being used to a point where a freshwater objective is no longer being met.
>
> This applies to both water quantity and quality.

[5-212] If a given numeric is a *limit*, it should be called that. If it is a *standard* or a *target*, then that is what it should be called. We have not lost sight of the concern expressed by Palmerston North City Council, and recognised by Mr Burns in his closing submissions for Fish and Game, that the term *numeric* as used in Schedule D should not be considered a *standard* for the purposes of s69. We have to say that we are not convinced about the concerns of the City Council, but if they cause difficulties in redrafting the affected provisions we are prepared to receive further submissions on the point.

Part 2 – sections 7, 6 and 5

[5-213] Of the 11 facets of s7 RMA, at least eight are engaged by this issue of surface water quality. The relevant parts of the section are:

> In achieving the purpose of this Act, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, shall have particular regard to—
>
> (a) Kaitiakitanga:
>
> (aa) The ethic of stewardship:
>
> (b) The efficient use and development of natural and physical resources:
>
> (c) The maintenance and enhancement of amenity values:
>
> (d) Intrinsic values of ecosystems:

(f) Maintenance and enhancement of the quality of the environment:

(g) Any finite characteristics of natural and physical resources:

(h) The protection of the habitat of trout and salmon:

Kaitiakitanga and the ethic of stewardship both embrace the concept that the present generation should husband natural and physical resources both for their own sake and for the sake of future generations – a concept that re-emerges in s5. Allowing water resources to deteriorate to the point of being unusable and even toxic is the antithesis of that. Nor is it efficient to use and develop the land and water resource in such a way that one's usefulness is destroyed by management practices, or the lack of them, on the other. Amenity values and the quality of the environment will not be maintained, and certainly not enhanced, by such profligate use. The capacity of the region's water to withstand such treatment is finite, and the overloading of waterways with nutrients lost from farming activities will eventually destroy the habitat of trout in many of them.

[5-214] In terms of s6 – matters of national importance to be recognised and provided for – these parts are particularly relevant:

> In achieving the purpose of this Act, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, shall recognise and provide for the following matters of national importance:
>
> (a) The preservation of the natural character of the coastal environment (including the coastal marine area), wetlands, and lakes and rivers and their margins, and the protection of them from inappropriate subdivision, use, and development:
>
> (c) The protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna:

It could plausibly be argued that at least some of subparas (b) and (d) to (g) could be relevant also, but for present purposes we shall confine ourselves to these two. The natural character of wetlands, lakes and rivers will certainly not be preserved from inappropriate use if they are made to decline in quality to the point of unusability and even toxicity by inadequate management of activities on the surrounding land. Nor will the indigenous vegetation, and particularly the indigenous fauna which have their habaitats in that water, be protected.

[5-215] All of the discussion leads to the purpose of the Act, as contained in s5:

> (1)The purpose of this Act is to promote the sustainable management of natural and physical resources.

> (2) In this Act, sustainable management means managing the use, development, and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural wellbeing and for their health and safety while—
>
> (a) Sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and
>
> (b) Safeguarding the life-supporting capacity of air, water, soil, and ecosystems; and
>
> (c) Avoiding, remedying, or mitigating any adverse effects of activities on the environment.

There can be no doubt of course that enabling ... *people and communities to provide for their ... economic ... wellbeing ...* includes so enabling the farmers and communities of the region. But that part of the purpose is not absolute, or necessarily even predominant. It must be able to coexist with the purposes in subparas a), b) and c). For the reasons already traversed, unless effective and thorough steps are taken to manage N leaching from the region's farms, none of those three purposes will be met.

[5-216] We have considered the theme throughout the POP of the importance of farming to the region. We are satisfied that our decision properly recognises and deals with the tensions between the social and economic wellbeing of the affected people and communities and slowing the decline of, and progressively improving the region's water quality.

Section 32

[5-217] In discussing the ranges of options presented by the parties, we have dealt with what we see as the most appropriate ways of achieving the purpose of the Act, and with whether the options for policies, rules and methods are, in our view, the most appropriate for achieving the objectives of the Plan. In so doing we have considered what we see as the costs and benefits of the alternatives presented. In this Part of the decision, we are particularly mindful of s32(4)(b):

> ... the risk of acting or not acting if there is uncertain or insufficient information about the subject matter of the policies, rules, or other methods

As we mention – see, eg para [5-8] – we are conscious that there are things we do not know about the relationships between water quality and ecological health, and there are issues about which those expert in the field hold different views. But we are convinced by the evidence we heard and accept that decisive action on the planning front is necessary now to minimise the risk of serious damage to the ecosystems which

support plant, animal and human life, which contribute greatly to the economic, social and cultural wellbeing of the region and its communities.

Summary of conclusions for Part 5

A. RPS Objective 6-1 and Policies 6-1 and 6-7 and Plan Objective 13-1 should be drafted as ... *recognises and provides for ... the values in Schedule AB.* Paragraphs [5-23] to [5-26] and [5-38].

B. A reference to *land use* should be added in Objective 13-1 of the Plan and in other appropriate places. Paragraph [5-39].

C. Schedule D should contain deposited sediment (for State of the Environment monitoring) and visual clarity standards. Paragraph [5-45].

D. We consider that s293 could be an appropriate means of setting a nutrient standard for shallow lakes in Schedule D. Paragraph [5-46].

E. The Coastal Rangitikei Catchment should be brought within the policy and rules regime as a targeted sub-zone. Paragraph [5-50].

F. Lake Horowhenua, the coastal lakes and their related subzones should all be brought within the rules regime. Paragraphs [5-51] to [5-62].

G. All intensive land uses – dairying, cropping, horticulture and intensive sheep and beef - should be brought within the policy and rules regime. Paragraph [5-63] to [5-71].

H. Pending the proving of OVERSEER 6, possibly an interim tool for assessing N loss for horticulture may need to be considered. Paragraph [5-66].

I. Presently, there is not scope to include extensive sheep and beef farming in the rules regime. Paragraph [5-72] to [5-75].

J. The Council should consider a Plan Change to bring extensive sheep and beef within an N leaching regime. Paragraph [5-77].

K. It is practicable to obtain resource consents for horticulture. Paragraphs [5-78] to [5-83].

L. The LUC classification system should be used as a basis for leaching limits. Paragraph [5-85] to [5-113].

M. Reducing LUC based limits at years 1, 5 10 and 20 should be the basis of the policy and rules regime. Paragraphs [5-114] and [5-115].

N. In Policy 13-C(b) a requirement that the Council should *seek to exclude cattle* should be replaced with must *require the exclusion of cattle.* Paragraph [5-135].

O. In Policy 13-C the reference to *1350 stock movements* should be replaced with *stock movements.* Paragraph [5-135].

P. There may be an exception to Policy 13-2D for existing farming operations with defined limitations. Paragraphs [5-171] and [5-172].

Q. *Grandparenting* in the sense of allowing existing operations to continue to leach nutrients at rates based on their own historic performance should not form part of the rules regime. Paragraph [5-177].

R. *Reasonably practicable farm management practices* should not be included in any of the policy and rules regime. Paragraph [5-136] and [5-178] to [5-181].

S. A trading scheme has potential merit and should be further investigated with a view to a possible later plan change. Paragraph [5-182] to [5-185].

T. RPS and Plan policy provisions as suggested by the Minister and Fish and Game, with amendments, are appropriate. Paragraphs [5-193] and [5-194].

U. Intensive farming should be given *controlled* (and not *permitted*) activity status. Paragraph [5-197] to [5-200].

V. A 3 year period of grace to meet year 1 limits for existing farming operations in the *controlled* activity rule is not satisfactory but a policy can allow its consideration during consent applications for a *restricted discretionary* activity. Paragraph [5-173] and [5-204] and [5-207].

W. A revision of the Table 13.1 dates for various target water management sub-zones to come into effect is required. Paragraph [205].

X. The term *numerics* should be replaced with terms such as *target*, *standard* or *limit* as appropriate. Paragraph [5-209] to [5-212].

Dated at Wellington the 30th day of August 2012

For the Court

C J Thompson
Environment Judge

Appendix 1 - sections 69 and 70 RMA

69 Rules relating to water quality

(1) Where a regional council—

(a) Provides in a plan that certain waters are to be managed for any purpose described in respect of any of the classes specified in Schedule 3; and

(b) Includes rules in the plan about the quality of water in those waters,—

the rules shall require the observance of the standards specified in that Schedule in respect of the appropriate class or classes unless, in the council's opinion, those standards are not adequate or appropriate in respect of those waters in which case the rules may state standards that are more stringent or specific.

(2) Where a regional council provides in a plan that certain waters are to be managed for any purpose for which the classes specified in Schedule 3 are not adequate or appropriate, the council may state in the plan new classes and standards about the quality of water in those waters.

(3) Subject to the need to allow for reasonable mixing of a discharged contaminant or water, a regional council shall not set standards in a plan which result, or may result, in a reduction of the quality of the water in any waters at the time of the public notification of the proposed plan unless it is consistent with the purpose of this Act to do so

70 Rules about discharges

(1) Before a regional council includes in a regional plan a rule that allows as a permitted activity—

(a) A discharge of a contaminant or water into water; or

(b) A discharge of a contaminant onto or into land in circumstances which may result in that contaminant (or any other contaminant emanating as a result of natural processes from that contaminant) entering water,—

the regional council shall be satisfied that none of the following effects are likely to arise in the receiving waters, after reasonable mixing, as a result of the discharge of the contaminant (either by itself or in combination with the same, similar, or other contaminants):

(c) The production of conspicuous oil or grease films, scums or foams, or floatable or suspended materials:

(d) Any conspicuous change in the colour or visual clarity:

(e) Any emission of objectionable odour:

(f) The rendering of fresh water unsuitable for consumption by farm animals:

(g) Any significant adverse effects on aquatic life.

(2) Before a regional council includes in a regional plan a rule requiring the adoption of the best practicable option to prevent or minimise any actual or likely adverse effect on the environment of any discharge of a contaminant, the regional council shall be satisfied that, having regard to—

(a) The nature of the discharge and the receiving environment; and

(b) Other alternatives, including a rule requiring the observance of minimum standards of quality of the environment,—

the inclusion of that rule in the plan is the most efficient and effective means of preventing or minimising those adverse effects on the environment.