

IN THE MATTER

of the Resource
Management Act 1991
(RMA)

AND

IN THE MATTER

of the Environment
Canterbury: Proposed
Canterbury Land &
Water Regional Plan
(PCLWRP)

TO BE HEARD BY

Canterbury Regional
Council

HEARING DATE

24 May 2013

**Supplementary Statement of Evidence of Greg Sneath on Behalf of
the Fertiliser Association of New Zealand**

24 May 2013

Introduction

1. This is the supplementary statement of evidence by Greg Sneath. My qualifications and experience in my earlier evidence 27th March 2013.
2. The supplementary statement of evidence is in support of the original planning evidence prepared for Hearing Group 2 dated 2 April 2013.
3. With me today are Mr. Chris Hansen, Mr Warwick Catto and Mr Nigel Sadlier. Mr. Catto and Mr. Sadlier will speak to a case study referenced in the planning evidence.

Outline of Supplementary Evidence

4. Our approach today is to provide you with:
 - A summary of the key principles FANZ is proposing through its submission for nutrient management (Greg Sneath)
 - The details of a case study to demonstrate FANZ's concerns regarding the capability of the industry to provide the expertise required to implement the nutrient management approach in the PCLWRP (Warwick Catto and Nigel Sadlier).

Nutrient Management Principles (Greg Sneath)

5. The following are the key nutrient management principles FANZ is proposing:
“Principle 1 – Nutrient budgets and farm environment plans are only necessary for farms above 50ha and/or ‘high nutrient risk’ activities and/or sensitive/high risk areas.”

Comment: The FANZ submission on PCLWRP as notified, noted that it understood Council believed the nitrogen discharge limit of 20kg N/ha/yr proposed in Rule 5.46 would provide for 92 % of land area to continue with existing land use as a permitted activity.

In principle we support the view that permitted activity should apply to the majority of properties, subject to conditions. FANZ does not consider the 20 kg N/ha/yr limit is an appropriate value to define permitted activity. FANZ believes it will be difficult to determine a single N loss value which could

apply, and supports the approach offered in the Officer Report of defining farm categories based on nutrient loss risk.

The Officer Report has recommended a threshold of 5 ha to apply the rule regime, and for activity not '*high nutrient risk farming activity*' a threshold area of 50 ha is recommended. FANZ in its submission [Section 2.6] suggested 10 ha should apply. This would encompass commercial farming operations, and support industry capability to produce Nutrient Budgets (NB's) and report using Farm Environment Plans (FEP's). FANZ supports the threshold value of 50 ha where there is no "*high nutrient risk farming activity*' as recommended by the Officer Report.

(From a planning perspective this topic is covered in Mr Hansen's evidence of 2nd April – paragraphs 39/40; paragraph 95; and paragraphs 247 – 258; Officer Report – Page 76; Rule 5.39 (P.129))

“Principle 2 – all farmers with a farm environment plan should be required to collect/archive data annually in an agreed format so as to be available upon request.”

Comment: The Fertiliser Industry has a strong commitment to understanding nutrient cycling on farms systems. This is evidenced by the fact that for more than 20 years it has invested significantly into developing the Overseer Nutrient Budget model and initiated and funded the development of the Sustainable Nutrient Management Courses (Intermediate and Advanced) at Massey University.

Capability to efficiently and reliably produce Nutrient Budgets and Nutrient Management Plans (as part of a Farm Environment Plan) is improved by having data in a consistent and agreed format. Indeed, agreed protocols will be required for Regional Council to accept the validity of Overseer reporting. Not just regional, but national consistency in data collection, format and input will be required to most efficiently utilise the industry systems.

FANZ supports the requirement to retain appropriate records with standardised industry led protocols for data inputs. The requirements recommended in the Officer's report for Schedule 7 are in largely supported, while being mindful there may need to be some flexibility as version changes occur. Caution is also expressed regarding the requirement for reporting and meeting Nitrogen Conversion Efficiency (NCE) targets (as a regulatory requirement) as indicated in Schedule 7, FEP- Part B 5 (a) and 6 (b).

(From a planning perspective this topic is covered in Mr Hansen's evidence – paragraph 315; paragraphs 321 and 324; Officer Report – Schedule 7 Part B (P.137); Part D (P.138))

“Principle 3 – Nutrient budgets and farm environment plans do not need to be reviewed and provided to Council annually.”

Comment: The Fertiliser Industry fully supports Nutrient Budgets and Nutrient Management Plans (as part of a Farm Environment Plan) to promote responsible nutrient use and efficient profitable agricultural production. It is recognised reliable input data is essential to ensure reliable model outputs. However, at the same time, as presented in the evidence of Dr Roberts, the Overseer model is a long term steady state, annual average model.

FANZ contends in its submission [section 5.1] that a nutrient budget (and Nutrient Management Plan) should remain valid for 3 years. It is an inappropriate use of the model to try and reflect annual variation with annual inputs into the model. Evidence provided by Dr Roberts in response to questions on his expert evidence of Overseer [Hearing session on 7th May 2013] identifies the approach where average data collected over a minimum of three years could be applied to the model. Further, as reliable data becomes available longer term averages could be utilised (e.g. 6 or 7 year rolling averages utilised to deliver a Nutrient Budget and Nutrient Management Plan every 3 years.)

This principle is linked to OVERSEER evidence of Dr Roberts.

(From a planning perspective this topic is covered in Mr Hansen's evidence – paragraph 263; paragraph 324)

“Principle 4 – Farm environment plan audits need only be conducted every 3 years where impacts (grading) is established as acceptable.”

Comment: It is recognised that annual average inputs will require annual data collection, and to ensure the farm system is currently operating to 'Good Practice' and operating within the bounds of the FEP, annual auditing may be required. It is also recognised that the primary industry sector groups in their own right engage in a number of different auditing and quality assurance programmes for a range of purposes and there is an investment in time and effort required to align any such programmes with nutrient management audit requirements. These requirements should be recognised as entirely separate to the function of producing Nutrient Budgets and Nutrient Management Plans.

Notwithstanding the need for confidence in annual data as outlined above, where there is adherence to performance standards and capability within the industry, incentives could be provided to both encourage and reward good performance in relation to the objectives and targets stipulated within farm environmental plans. This may include reduced auditing costs/frequency/intensity where impacts (grading) are established as acceptable. It is noted this approach would be consistent with the PCLWRP Rule 5.40 (3) and Rule 5.42 (5) as notified.

(From a planning perspective this topic is covered in Mr Hansen's Evidence – paragraph 318; paragraph 324; multiple references; Officer Report – Schedule 7)

“Principle 5 – encourage and incentivise early engagement/adaption of nutrient budgets and farm environmental plans pre-2017 through methods.”

Comment: Support is given to methods which embrace an acceptable degree of flexibility and innovation, while also providing for ongoing farm production and growth in the farming sector. Methods based on good practice (as defined by industry) in addressing nutrient management and the ability to

achieve nutrient discharge allowances through a collaborative process is supported, given that it is both enabling and accords with the purpose of the Act. This approach is reflected in FANZ submission [Section 4.6] with partial support, based on the premise, for Policy 4.28, as notified.

(From a planning perspective flexibility and innovation is covered in Mr Hansen's evidence paragraph 50; Paragraph 138; paragraph 189)

“Principle 6 – Establish a Working Group to develop (within the interim period) the protocol and processes necessary to implement the new policy and rule regime.”

Comment: The FANZ submission on Policy 4.28 as notified, while supporting industry good practice, flexibility and innovation sought amendment to include “ ...and /or established alternative methods to achieve collaboratively agreed catchment-based water quality outcomes” In consideration of this approach, support is given to the principle of establishing working groups. It is important to recognise the value and time necessary to bring the appropriate expertise and experience together to develop the protocols and processes necessary to give practical effect to the new policy and rule regime. This may occur in combination with, or parallel to the Schedule 8 processes currently underway.

(It is recognised that Schedule 8 remains a blank page at this point in time and its development lends itself well to the working group approach. The Fertiliser Industry continues to make itself available, however, this principle based on s.42A recommended policies and rules, expands the scope of the Schedule 8 Working Group.)

(From a planning perspective this matter is covered in Mr Hansen's evidence paragraph 138 - 141)

Other Matters

6. The following are other matters of concern:

- The definition of 'change in land use'

The definition of change in land use for the purpose of this plan is largely centred around the 'material change (increase) in nitrogen leaching loss'. As it is not possible to measure N loss from a farm system, the accepted best available option is the use of the model Overseer Nutrient Budgets. Based on the evidence of Dr Roberts and Dr Edmeades as presented on Hearing date 7th May, material change in N loss, as estimated by Overseer is most reasonably defined as;

1. *Any land use leaching, as estimated by Overseer, less than 15 kg N/ha (range 10-20 kg N/ha given $\pm 30\%$ uncertainty around the estimate) has no requirement to demonstrate change.*
2. *Trigger value is +30% for all land uses (based on Overseer uncertainty term)*

Or an alternative:

3. *Category 1 land uses (expected to have relatively low N loss): Sheep, beef and deer farms, arable farms, mixed arable/livestock farms (including those farms which winter dairy cows or graze young dairy stock) and perennial horticultural crops – Trigger value is +30% change in N loss.
Example: a mixed arable/livestock farm leaching 18 kg N/ha would have undergone material change in N loss if it increased to 23 kg N/ha or more (increase in 5.4 kg N/ha) as estimated by Overseer.*

Category 2 land uses (which may have relatively high N loss): Dryland and irrigated dairying, commercial vegetable production - Trigger value is +10% change in N loss.

Example: an irrigated dairy farm on shallow, stony soils leaching 60 kg N/ha would require a new consent if N loss increased to 66 kg N/ha (increase of 6 kg N/ha).

FANZ supports this approach to determining material change in N loss from a farm system – recognising that it is not necessarily indicative of environmental outcomes. (Estimating N loss from a farm boundary

does not provide any information on the receiving environment or attenuation).

- *'Advanced Mitigation Measures'* definition

FANZ supports a list of mitigation measures which may be implemented singly or in combination to reduce nutrient loss from the farm system. Some caution is expressed about how mitigations may be promoted and implemented in practice, and provision for new or improved mitigations should be allowed for.

Capacity Case Study

7. This issue regarding the capability of the industry to deliver in a timely manner the nutrient management plans and advanced mitigation measures within the timeframes of the PCLWRP is referenced in paragraph 51 of Mr Hansen's planning evidence and an assessment was attached as Appendix 1.
8. I would like to invite Mr Catto and Mr Sadlier of Ballance to speak to this assessment.



Greg Sneath

24 May 2013

Estimates of 'Effort' to deliver PCLWRP as publically notified

Introduction

The table presented reflect a member company's experience in preparing Nutrient Budgets (NBs) and Nutrient Management Plans (NMPs) for its existing clients, and estimates the 'effort' that will be needed to implement the PCLWRP, as publically notified.

To assist the Commissioners, the Company has first estimated the 'effort' (estimated in '*person days per year*') to complete three nutrient budgeting and management planning scenarios, being:

- a. The pre-PCLWRP nutrient management plan and NB regime.
- b. The NB and FEP regime that is advanced within the PCLWRP (as publically notified).
- c. The NB and FEP regime the Company has proposed as an alternative.

The outcomes of this analysis are set out within **Table 1** below.

Findings

In essence the assessment undertaken by the Company demonstrates that 16 full time staff would be required once the PCLWRP became operative prior to 2017, and 34 full time staff are required after 2017.

This compares with 3 full time staff pre-PCLWRP and 8 full time staff if the alternative is adopted.

Table 1: Assessment pre and post PCLWRP vs. proposed alternative

PCLWRP Requirements	Pre PCLWRP:	Post PCLWRP notification & pre 2017 (interim): <u>Annual</u> NBs "any existing farming activity"; & <u>Annual</u> FEPs Lake Zone (c.80) & new/change farms (c.100/yr)	Post PCLWRP notification & at July 2017: <u>Annual</u> NBs "any existing farming activity"; & <u>Annual</u> FEPs Lake Zone (c.80), new/change farms (c.100/yr) & those above 20kgN/Ha/yr losses (22% of 6298)	ALTERNATIVE: <u>Three yearly</u> NBs & <u>Three yearly</u> FEPs, limited to Lake Zone (c.80); new/change farms (c.100/yr); & an alternative FEP requirement threshold than that of the 20kgN/Ha/yr (i.e. to achieve 10% of farms or less – such as e.g. "High Nutrient Risk Farming Activity")
Farm System Focus	All Canterbury Focus Dairy	All Canterbury Large Scale/ Commercial Farms "Principal Agriculture Land Uses"	All Canterbury Large Scale/ Commercial Farms "Principal Agriculture Land Uses"	All Canterbury Large Scale/ Commercial Farms "Principal Agriculture Land Uses"
Number of 'Principal Agriculture Land Uses'	750	6300	6300	6300
Nutrient Modelling (Person Days Per Year) 3hrs Dairy 4hrs (avg) All	281	3150	3150	1050
NMP Production (Person Days Per Year) 4hrs Dairy	375			
FEP Production (Person Days Per Year) 3 Days / FEP		540	4698	810
NMP Audit (Person Days Per Year)	20			
FEP Audit (Person Days Per Year)		13	40	28
Total (Person Days Per Year)	676	3703	7888	1888
Full Time Equivalent Staff (at 229 Working Days per year)	3	16	34	8

In order to conduct this analysis a number of assumptions were made, which are listed (for completeness) on the following page. In developing these assumptions the collective opinions of the Company staff as they apply to Scenarios (b) and (c), and, in one instance, the recent experience of agricultural consultants were drawn on. As a consequence, while the Company accepts that Table 1 cannot (and, indeed, should not) be treated as being definitive, it is confident that it is both a reasonable and robust estimation of the relative 'effort' that is expended, and that which would be expended.

Assumptions Used In Deriving Table 1

- Section 32 report (Appendix 1, page 58 & 68) which identifies a total 16,137 'landowners' in Canterbury.
- Section 32 report (Appendix 1, page 58 & 68) which identifies 6298 'landowners' by principal agricultural land use. Being Arable (896) Beef (890) Dairy (750) Deer (554) Grazing (396) Sheep (1547) Sheep and Beef (1265). 6298 excludes those undertaking 'lifestyle' (9459) and forestry (380) land uses.
- Section 32 report utilises both statistics NZ and Landcare Research data to provide total 'landowner' numbers ranging from 16,000 to 17,000.
- Rules 5.39 to 5.49 pLWRP do not discriminate between types of agricultural uses or endeavour, but rather refer to (and thus apply to) 'any farming activity'. The Company therefore understands that these rules would apply to 16,137 rural land holdings.
- For the dairy industry, the fertiliser industry has been preparing nutrient budgets using OVERSEER™ for some time. Experience suggests that preparing a NB (using OVERSEER™) takes at least 1 hour for a 'straight' dairy unit where a base nutrient budget already exists. However, many other sectors have not placed emphasis on nutrient budgeting, hence, the base files do not exist and need to be created. Experience suggests this can take around 4 hours for a Sheep/Beef/Deer unit, 4 hours for a dairy unit, and 8 hours for an arable unit. Arable systems tend to take the longest currently due to the dynamic nature of these systems with various stages of different crop rotations. Currently the Arable industry is looking to develop protocols to better manage such data input requirements
- Experience suggests that NMP production takes at least 2 hours per farm, depending on level of complexity required and objectives of the NMP. Extremely complex NMPs with multiple scenario analysis can take much longer than this. To maintain a relatively simple NMP over time, may require an additional hour per year. Please note that these numbers are conservatively based on the reviews being limited to 'sample based auditing', which by its very nature confines the effort that needs to be applied. Moving to a more comprehensive auditing protocol could, potentially quite dramatically, increase the effort that would be needed here.
- It has been very conservatively estimated that FEP production will take at least 3 days (up to two days on site and one day preparing the FEP). Please note, however, that this assumes that the agricultural endeavour that is being undertaken is reasonably 'straight-forward' and that templates will be developed by the industry in response to the obligations set out within the PCLWRP. It is also expected that the FEP maintenance / review process will consume 1 day (again, this assumes 'sample-based auditing').
 - *It is noted a recent FEP example took in excess of 80 person hours to prepare, and that the associated OVERSEER™ analysis consumed in excess of 120 hours. This FEP & OVERSEER™ report were prepared in accordance with the structure set out in Schedule 7 of the pLWRP, for Ohau Downs Station in the Mackenzie Basin. The FEP was prepared by Katherine McCusker, a well-known and well-respected agricultural consultant with the 'The AgriBusiness Group'. The OVERSEER™ report was produced by Ms Nicola Waugh & Mr James Allen, both of whom are well respected & experienced agricultural consultants with 'AgFirst Limited'.*
- It is recognised that the current PCLWRP definition "any existing farming activity" would currently also include "lifestyle" customers, the numbers of which have not been used in these calculations.
- For the purpose of the assessment it has assumed that Canterbury will have 100 new or 'change' proposals to farming operations each year.
- Section 32 report Appendix 1 p.68 which identifies 22% of 'principal agricultural land use' losses are expected to be above 20kgN/ha/yr.
- It has been assumed 229 'working days' per year. This figure has been derived by excluding weekends, public holidays, four weeks of annual leave and one week of sick leave. Equally, an 'eight-hour' working day is assumed.
- "The Alternative" has assumed that a requirement to produce FEPs for more than 10% of farms would be expected to have diminished productivity and environmental returns.