

**IN THE ENVIRONMENT COURT
WELLINGTON REGISTRY**

**I TE KŌTI TAIAO O AOTEAROA
TE WHANGANUI-A-TARA ROHE**

UNDER	the Resource Management Act 1991
IN THE MATTER	of appeals under sch 1, cl 14(1) against the decision of Manawatū-Whanganui Regional Council on Plan Change 2 to the One Plan
BETWEEN	TE RUNANGA O RAUKAWA ENV-2021-WLG-20 NGĀTI TURANGA ENV-2021-WLG-21 ANDREW DAY ENV-2021-WLG-22 WELLINGTON FISH AND GAME COUNCIL ENV-2021-WLG-23 Appellants
AND	MANAWATŪ-WHANGANUI REGIONAL COUNCIL Respondent

**STATEMENT OF EVIDENCE OF TERRY GRAHAM PARMINTER ON BEHALF OF
MANAWATŪ-WHANGANUI REGIONAL COUNCIL**

COST OF CHANGES IN NITROGEN LEACHING MAXIMA

Dated: 5 February 2024


Cooper Rapley Lawyers
227-231 Broadway Avenue
PO Box 1945
Palmerston North
DX PP80001

S Johnston / A J R Sinclair
 06 353 5210
 06 356 4345
 sjohnston@crlaw.co.nz

STATEMENT OF EVIDENCE OF TERRY PARMINTER**A. INTRODUCTION**

- [1] My full name is Terry Graham Parminter.
- [2] I am currently self-employed as a private agricultural consultant with KapAg Ltd. I have been in that position since 2009. Prior to 2009 I was employed as a senior scientist with AgResearch.
- [3] I hold a doctoral degree in Management Systems from the University of Waikato. I am a member of the NZ Institute of Primary Industry Management, the NZ Agricultural and Resource Economics Association, the NZ Institute of Agriculture and Horticultural Science, and the NZ Association of Resource Management. I am certified in Advanced Sustainable Nutrient Management (Massey University), Farm Dairy Effluent: System Design and Management (Massey University), and Land Management Planning (NZARM).
- [4] I provide advice about farm management, farm systems, and the design of interventions for achieving human and social behaviour change. I work with individual dairy farmers across the North Island, including the Manawatū Whanganui Region, to plan for increasing their productivity whilst reducing their environmental 'footprint', including the improvement of water quality in nearby waterways.
- [5] I authored three reports in 2017–2018 on the request of Manawatū-Whanganui Regional Council ("**Horizons**"), in which I evaluated the impacts of requiring dairy farmers to meet the Table 14.2 cumulative nitrogen leaching maximums (**CNLMs**) in the operative One Plan (i.e., on the basis that farmers and growers were all required to comply), and compared those outcomes against the CNLMs recalibrated by Dr James Hanly. Those reports were:
- (a) Terry Parminter *An impact assessment of One Plan policies and rules on farming systems in the Tararua District and the Manawatu Wanganui Region* (KapAg Ltd, August 2017);

- (b) Terry Parminter *Selecting representative dairy farms for the Upper Manawatu River catchment* (KapAg Ltd, March 2018); and
 - (c) Terry Parminter *A comparison of changes to nitrogen loss allowances on dairying in the Upper Manawatu River catchment* (KapAg Ltd, May 2018).
- [6] The resulting dairy production estimates from those reports were relied on by NZIER when they prepared their analysis of the macroeconomic impacts of PC2.¹
- [7] I prepared a s 42A report (and a supplementary s 42A report) detailing this work for the Council-level hearing of Plan Change 2 (**PC2**), and I also gave evidence at the hearing. I have now been asked by Horizons to prepare this brief to reply to the evidence of Dr Dewes, as it critiques the results of, and methodology used in, my 2017–2018 reports.

B. CODE OF CONDUCT

- [8] I confirm that I have read and agree to comply with the Code of Conduct for Expert Witnesses contained in the Environment Court Practice Note 2023. This evidence has been prepared in accordance with that Code. I confirm that I have not omitted to consider material facts that might alter or detract from the opinions that I express. The evidence I am giving is within my area of expertise, except where I state I am relying on the opinion or evidence of other witnesses. I understand it is my duty to assist the Court impartially on relevant matters within my areas of expertise.

C. SCOPE

- [9] This evidence replies to the statement of evidence of Alison Dewes, dated 29 January 2024, to the extent that it critiques the methodology, assumptions, and results of my 2017–2018 reports.

¹ See the Statement of Evidence of Peter Clough (17 January 2024) and the Statement of Reply Evidence of Peter Clough (5 February 2024). The NZIER work also assessed the macroeconomic effects of changes in commercial vegetable growing regulation, though my work did not feed into that element of their analysis.

D. RESPONSE TO DR DEWES

- [10] The general thrust of Dr Dewes' critique of my work is outlined in paragraph 3.1, where she states that she "*question[s] the basis on which [my] assessment was made*", and that she "*question[s] the profitability and productivity analyses for cluster farms 4 and 5 in particular*".
- [11] I consider that the reports I prepared for Horizons were fit-for-purpose and their results and conclusions were entirely suitable to support the macro-economic work of NZIER. I expand on this further below.
- [12] At paragraph 6.6, Dr Dewes says that "*cluster 4 and 5 farms appear to have had questionable rudimentary assumptions applied to them*".
- [13] All the farms in my analyses were based on actual farms operating in the Upper Manawatū. Almost all the dairy farms operating in 2016 were included in my analyses – only three were not included due to a lack of information. Real farm data was used, including detailed descriptions of the farm systems and bio-physical information (including environmental such as each farm's calculated N-loss). Financial information was not provided (or requested). All the financial information about farm costs, returns and profitability was calculated by the three farm consultants, from the known (and real) farm system and bio-physical information and using a consistent pricing methodology. This was to avoid any distortions to cost created by family arrangements, personal contracts, etc, and was part of ensuring a consistent focus on assessing the impact the of policy changes Horizons was considering. As such, I consider that the elements of the farm data which were calculated (or 'assumed') were reasonable.
- [14] In paragraph 6.7, Dr Dewes states that "*cluster farm 4 represents ... farms of moderate intensity*" and in paragraph 6.9 she states that cluster farm 5 "*claim[s] to represent low intensity and self-contained system[s]*".
- [15] The representative farms were not specifically clustered based on their intensity (though Dr Dewes appears to have assumed this).² Instead, the

² Paragraph 6.9.

clustering process used all the information that I had on each farm to group together the farms that were most similar to each other. When I began the clustering exercise, I did not know how many clusters were going to be needed to include all the farms in the Upper Manawatū, but after I had done the analyses, I found that we needed five clusters. After I had the five clusters, I gave them the labels that Dr Dewes has highlighted (*“self contained and low intensity”*, *“medium intensity”*, etc), but I could just as easily have named them by their soil types.

- [16] In paragraph 6.11, Dr Dewes states that *“the full range of options ... to remain profitable does not appear to have been applied”*; and the *“analyses did not appear to consider a wider range of optimisation/adaptation methods ...”*.
- [17] The analyses in my reports adopted management practices that were commonly applied on dairy farms around the Region, able to be modelled in Overseer, and included both operational and farm system changes. They did not include recent technical innovations, market developments, or other modifications. It was important for my analyses of the impact of policy changes that I kept all extraneous conditions constant between year 0 and year 20 (y 20 being the year that the most restrictive CNLMs in Table 14.2 come into effect).
- [18] As such, I assumed that there was no change in farmer capability between the current situation within the catchment and year 20 of these analyses. Similarly, I assumed that the available technologies remained unchanged (noting however that a small annual improvement in dairy cow milk production was included in the comparison between the existing table and a revised table). On the basis that farmer capability remained unchanged, there has been no further optimisation of any of the farming systems used, either before or after the introduction of mitigations on each of the farms. The mitigations are described in in Box 1 of my s 42A report, and the same sequence of management practices were applied each time.³

³ At 23.

- [19] Those management practices applied followed a trajectory of difficulty, from commonly applied operational practices through to those that were increasingly onerous. These were introduced and applied consistently to each cluster farm irrespective of farm capacity, capability, or viability. For dairy farms to comply with the operative Table 14.2, additional management changes were usually required including reductions in dairy herd numbers, a shortened dairy season and reduced annual milk production. Across all five clusters, most of the farms in the catchment had to apply almost all these mitigations to comply with the recalibrated Table 14.2 in the One Plan. This reduced overall herd numbers by 50% and milk production by 40% by y 20.
- [20] In my view, the exercise described by Dr Dewes (with farmers needing to be advised by a team of interdisciplinary experts) would have been impossible to model in any meaningful way at the District and/or Regional level.
- [21] Overall, I consider that the assumptions applied in my reporting and the overall approach that I took was appropriate, when the purpose of my analyses was to assess the policy impact of a plan change *ceteris paribus*.

5 February 2024

Dr Terry Graham Parminter