

IN THE MATTER of the Resource Management Act 1991

AND

IN THE MATTER of the Proposed Canterbury Land and
Water Regional Plan

**SUPPLEMENTARY EVIDENCE OF DAVID GRAEME MCCALL
RESPONDING TO QUESTIONS FROM THE GROUP 2 HEARING**

1. INTRODUCTION

- 1.1 My name is David Graeme McCall and I hold the position and possess the qualifications and experience described in my rebuttal evidence for the Group 2 Hearing.
- 1.2 I have prepared this supplementary evidence in response to a question asked by Hearing Commissioner van Voorthuysen during Group 2 hearings. Specifically the question related to variance in modelled nitrogen loss in the Hurunui catchment when utilising version 5.4 and version 6 (respectively) of the OVERSEER model.
- 1.3 At paragraph 3.8 of my rebuttal evidence, nitrogen losses modelled using OVERSEER version 5.4 showed minimum nitrogen leaching had a range of 19 - 28kg/ha across those farms analysed, with a mean of 23kg/ha.
- 1.4 The input data for the farms referred to in paragraph 1.3 were subsequently input to version 6 of OVERSEER by Fonterra as part of the Primary Growth Partnership project conducted in the Hurunui catchment.
- 1.5 Predicted nitrogen leaching loss for these same farms using version 6 of the OVERSEER model increased by an average of 6kg/ha, to a mean of 29 kg/ha or a 26% increase.
- 1.6 The change in nitrogen leaching loss prediction was not uniform across farms between OVERSEER versions. The change in predicted leaching loss between version 6 and version 5.4 of OVERSEER ranged from -7kgN/ha to

+27kgN/ha. This means, prediction on one farm was 7kgN/ha less leaching using version 6 and on another was 27kgN/ha, or 135%, greater.

- 1.7 The range in difference between prediction results for individual farms makes it difficult to derive at a rule of thumb conversion ratio between the versions of OVERSEER.
- 1.8 The factors that affect the magnitude of the difference in prediction between version 5.4 and version 6 are primarily soil type and rainfall. In regions or farms with free draining soils and or high rainfall, OVERSEER version 6 will predict significantly higher nitrogen leaching losses than version 5.4 for the same level of nitrogen surplus.
- 1.9 Where there is lower rainfall or heavy soils then predictions using version 6 of OVERSEER can be at a similar level or lower than those for version 5.4.