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*in the matter of:* the Resource Management Act 1991

*and*

*in the matter of:* a number of applications to take and use water from  
the Upper Waitaki catchment

Addendum to brief of evidence of Simon Richard Harris

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Dated: 26 November 2009

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## **ADDENDUM TO BRIEF OF EVIDENCE OF SIMON RICHARD HARRIS (ON CUMULATIVE WATER QUALITY EFFECTS)**

### **INTRODUCTION**

- 1 My full name is Simon Richard Harris.
- 2 My qualifications and experience are set out in the brief of evidence dated October 2009.
- 3 I have been engaged by Meridian Energy Limited (Meridian) to provide an addendum to my evidence dated October 2009 on the economic impact assessment in response to the supplementary evidence presented by MWRL.
- 4 I confirm that I have read the Environment Court's Code of Conduct for expert witnesses and this evidence has been prepared in accordance with that code. I agree to comply with the code's terms. In that regard, I confirm that the statements made in this evidence are within my area of expertise (unless I state otherwise) and I also confirm that I have not omitted to consider material facts which might alter the opinions stated in this evidence.

### **SCOPE OF ADDENDUM**

- 5 In this addendum I outline:
  - 5.1 My response to the addendum of evidence of **Mr Butcher**;
  - 5.2 Alterations to my evidence as a result of reading the addendum of **Dr Snow**.

### **ADDENDUM PROVIDED BY GEOFFREY BUTCHER**

- 6 I am satisfied that **Mr Butcher** has addressed points 11.1 to 11.3 of my primary brief in his addendum. **Mr Butcher** has also presented the impacts using the land use mix as provided by GHD, which presumably is the same as that used by MWRL for the water quality modelling. The Commissioners can be satisfied that his evidence is a robust representation of the likely economic impacts from irrigation in the Mackenzie Basin.
- 7 The addendum provided by **Mr Butcher** does not address the other items raised in my evidence, particularly:
  - 7.1 the partial nature of the analysis, and lack of consideration of the overall costs and benefits of the water application and therefore its overall economic efficiency.

- 7.2 the concern I raised in my primary brief of evidence that there is an inconsistency between the systems modelled by MacFarlane Rural Business Ltd (MRB) and MWRL. Although not directed at my evidence, **Dr Snow** in her addendum discusses in some depth the pasture modelling in response to comments from **Dr Clothier**. The discussion between **Dr Snow** and **Dr Clothier** is beyond my expertise and I cannot therefore comment on it. I accept **Dr Snow's** contention that the differences in pasture production and stocking rates will produce lower or higher nutrient leaching depending on the reasons for the differences, and therefore the point raised in 42 of my primary brief should be that the modelled nutrient leaching could be higher or lower than those under real feasible farm systems. I do however remain concerned at the inconsistency between the pasture growth rates used in different sets of evidence and the difficulty it creates in assessing the overall impacts and efficiency of the applications.
- 7.3 the lack of consideration of land use intensification separate to the applications being heard in this consent hearing.
- 7.4 the lack of consideration of mitigation in the economic analysis, particularly the costs of such mitigation and the feasibility of systems that are required to include mitigation measures.
- 7.5 the costs, complexity and feasibility of the nutrient cap system, particularly if it is to apply to all land in the Mackenzie Basin.

### **SUMMARY**

- 8 **Mr Butcher** has addressed the concerns raised in paragraphs 11.1 to 11.3 of my primary brief of evidence and the Commissioners can be satisfied that his evidence is a robust representation of the likely economic impacts from irrigation in the Mackenzie Basin.
- 9 The concern raised in paragraph 42 of my primary brief of evidence should now read that the modelled nutrient losses could be higher or lower than those under real feasible farm systems
- 10 The concerns raised in paragraphs 12 – 41 and 43 - 53 remain unaltered.

Dated: 26 November 2009

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**Simon Richard Harris**