

**BEFORE THE CANTERBURY REGIONAL COUNCIL**

**In the matter** of the Resource Management Act 1991

**And**

**In the matter** a submission by Dairy Holdings Limited in respect of the proposed Canterbury Land and Water Regional Plan

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**SUPPLEMENTARY STATEMENT OF EVIDENCE OF BAS VEENDRICK**

**17 JUNE 2013**

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## SUPPLEMENTARY EVIDENCE OF BAS VEENDRICK

### Introduction

1. My name is Bas Veendrick
2. My qualifications and experience are set out in my earlier evidence.
3. In this statement of supplementary evidence I provide a number of corrections to paragraphs 29, 31 and 51 of my earlier evidence in chief. These corrections arise following advice of possible flow losses within Taylors stream.

### Amendments to evidence

4. The amendments to my evidence in chief are shown in track change below:

29 This continuous 'unmodified' flow series was used to estimate the reliability of supply for the submitter based on the status quo flow regime (300 L/s) and the proposed flow regime (500 L/s) for the minimum flow sites '*Taylors Stream immediately downstream of intake C*' and '*Taylors Stream at above South Branch Confluence*'. For the analysis it was assumed that the unmodified flow series at '*Taylors Stream at above South Branch Confluence*' is representative for the flows immediately downstream of the confluence between Bowyers Stream and Taylors Stream and is therefore also representative for the flows '*immediately downstream of intake C*'. In other words, it was assumed that there are no significant losses or gains between the two sites. However, I have been made aware that losses between these two sites may be significant. I have therefore requested concurrent flow data from ECan in order to quantify the losses for these two sites. Unfortunately no concurrent flow data (i.e. measured flows for both sites on the same day) is available.

30 Table 2 below shows a summary of the analysis and Appendix E shows the full results of the reliability analysis for the period

2005/2006 till the 2012/2013 irrigation season. These reliability analyses are based on the same assumptions as the reliability analysis in the Horrell (2012) report. Table 1 below and Appendix E show the resulting number of days when the full abstraction is available together with the number of days in partial restriction, full restriction and the total days in restriction.

<b>Irrigation Season</b>	<b>Full abstraction available</b>		<b>Total days in restriction</b>	
	<b>Status quo</b>	<b>Proposed flow regime</b>	<b>Status quo</b>	<b>Proposed flow regime</b>
2005/2006	165	152	47	60
2006/2007	174	164	38	48
2007/2008 (Dry year)	161	147	52	66
2008/2009	183	172	29	40
2009/2010	167	163	45	49
2010/2011(Wet year)	212	211	0	1
2011/2012	213	208	0	5
2012/2013	173	159	31	45
<b>Average</b>	<b>181</b>	<b>172</b>	<b>30</b>	<b>39</b>

31 As can be seen the estimated average number of days in restriction increases from 30 days to 39, an increase of 9 days. In a dry year (2007/2008) the estimated total number of days in restriction increases from 52 to 66 days, an increase of 14 days. The increase in total number of days in full restriction is also 9 days on average and 14 days for a dry year. As discussed in paragraph 29 there are reported to be losses between the existing minimum flow site (immediately below intake C) and the proposed minimum flow site (Taylors Stream at above South Branch Confluence) and therefore the difference between the current reliability and the reliability under the Plan will be worse than shown in Table 2.

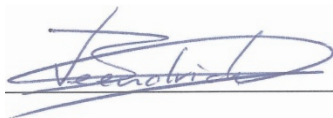
Therefore prior to changing the location of the minimum flow site ECan should undertake concurrent gauging runs to establish the losses between the current and proposed minimum flow sites. Changing the location of the minimum flow site without an accurate estimate of losses (or gains) may result in adverse effects on reliability. ECan has not assessed these effects or undertaken concurrent gaugings and therefore the current minimum flow site should be retained.

...

51 Alternatively, if ECan prefers to manage the takes in Taylors Stream based on a single minimum flow site (and to provide equity among all users in Taylors Stream) a minimum flow of 300 L/s (~~instead of 500 L/s~~) will be set at 'Taylors Stream immediately below intake C above the South Branch confluence' (~~instead of 500 L/s 'above the South Branch confluence'~~). This minimum flow site should not be changed to 'above the South Branch confluence' considering the potential losses between the two sites and associated potential adverse effects on reliability of supply as detailed in paragraph 29 and 31.

5. With those amendments, I confirm my earlier evidence is, to the best of my knowledge, true and correct.

Dated 17 June 2013



Bas Veendrick