BEFORE A HEARINGS PANEL OF THE GREATER WELLINGTON REGIONAL COUNCIL AND MASTERTON DISTRICT COUNCIL

IN THE MATTER	of resource consent applications to Greater Wellington Regional Council pursuant to section 88 of the Resource Management Act 1991
AND	
IN THE MATTER	of a Notice of Requirement to Masterton District Council pursuant to section 168, 168A and 181 of the Resource Management Act 1991
BY	Masterton District Council
FOR	the proposed upgrade of the Masterton Wastewater Treatment Plant

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SUPPLEMENTARY STATEMENT OF EVIDENCE OF ANDREW BALL ON BEHALF OF MASTERTON DISTRICT COUNCIL

RESPONSE TO OFFICERS' REPORT

Subject Area: Public Health

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1. INTRODUCTION

1.1 This evidence responds to the Regional Council officers' report. For the most part, the officers' discussion relevant to health-related microbiology and my evidence are contained in Sections 12.4.2 to 12.4.4 and in Schedule 2 (Monitoring) of the Officer's Report.

2. MONITORING CONDITIONS

2.1 I agree with the intent of the officers' monitoring proposals, and largely agree with the proposed monitoring schedule. However, several issues warrant consideration; these and the proposed consent conditions they relate to are noted below.

2.2 Condition 16 requires both *E. coli* and faecal coliform monitoring. I suggest that it would be better to use *E. coli* instead of faecal coliforms because:

(a) *E. coli* is the indicator organism used in the recreational water guidelines.

(b) faecal coliforms (which should actually be referred to as thermotolerant coliforms) can grow in the environment and are therefore a less reliable indicator of faecal contamination than *E. coli*.

2.3 Condition 40 requires faecal coliform monitoring in groundwater samples. This should be changed to *E. coli* for the same reasons specified in relation to this issue for Condition 16.

2.4 The compliance criteria given in Condition 12 appear ambiguous (eg 6-monthly rolling median for *E. coli* of 300/100mL in summer where summer is 5 months (Dec-Apr)). As written, this would mean that the rolling median in early summer would be affected by data either from the previous summer or the end of the winter monitoring. If the former, then it uses data that is well out of date. If the latter then the summer geometric mean *E. coli* threshold of 300 cfu/100mL will be the data used in the rolling median will be affected by the winter values, for which the allowable maximum is 1,000 cfu/100mL.

2.5 Conditions 13, 22 and 25 refer to the detection limit of *E. coli* of 1 cfu/100mL in receiving waters. This is lower than is really needed and may impose additional analytical costs. A detection limit of 10 *E. coli*/100mL is more appropriate and is the

limit usually applied for receiving waters. The usual way of dealing with counts that are below the detection limit is to treat the count as half detection limit, so less than 10 would become 5. This would not unduly affect the rolling geometric mean.

2.6 As a further technical point, I note that the *E. coli* limits are specified variously as cfu/100mL or MPN/100mL. Colony forming units (cfu) implies a colony count method is used whereas MPN implies the Most Probable Number technique. I expect these units were specified as cfu or MPN in ignorance of this implication and there is no intent to restrict *E. coli* analysis of water and effluent samples to either colony counting or MPN. If so, it would be sensible to remove this potential source of confusion and refer to the unit of *E. coli* measurement as *E. coli*/100mL.

2.7 There may be a further issue with the groundwater monitoring programme specified in Conditions 36-40. I do not understand the intent of this monitoring and would be grateful for clarification from the officers.

(a) If the effluent discharge causes groundwater that is used for drinking-water (i.e. private bore supplies) to be contaminated with *E. coli* then land disposal should not occur. The limit for drinking-water is no *E. coli* detected in 100mL.

(b) If the land discharge does not impact upon drinking-water bores, then the limit of 50 *E. coli*/100mL seems overly precautionary. Given the groundwater will enter the river it would seem appropriate to use the same standard as applied to the river.

Andrew Ball
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23 February 2009