

*Tabled @ Hearing  
23.08.16*

**BEFORE INDEPENDENT HEARING COMMISSIONERS APPOINTED BY  
THE CANTERBURY REGIONAL COUNCIL**

**IN THE MATTER OF** the Resource Management Act 1991

**AND**

**IN THE MATTER OF** Submissions and further submissions by Irrigation  
New Zealand Inc on Proposed Plan Change 5 to the  
Canterbury Land and Water Regional Plan

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**LEGAL SUBMISSIONS ON BEHALF OF IRRIGATION NEW ZEALAND  
INCORPORATED**

**23 AUGUST 2016**

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**MAY IT PLEASE THE COMMISSIONERS:**

- 1 These submissions on proposed Plan Change 5 (PC5) to the Canterbury Land and Water Regional Plan (LWRP) are presented on behalf of Irrigation New Zealand Incorporated (INZ).

**Introduction**

- 2 INZ represents the interests of over 3,600 irrigators, the majority of whom are schemes or individual irrigators in Canterbury. INZ also represents the interests of the majority of irrigation service providers. Mr Curtis explains why INZ considers PC5 will have significant implications both within Canterbury and beyond<sup>1</sup>.

- 3 In preparation for this hearing and to avoid duplication, INZ has coordinated with other participants in the primary sector group. As a result, INZ has focused its case on the irrigation and water use framework in Schedule 28 (**Irrigation Rule**) – which comprises:

3.1 The *irrigation and water use proxy* in Table s28 of Schedule 28 (**Irrigation Proxy**); and

3.2 By necessary association, Method s28.4 *Methodology for the application of irrigation water by spray irrigation systems under Good Management Practices (Method s28.4)*.

- 4 It is noted there is a lack of clarity as to how Method s28.4 relates to spray irrigation other than for cropping blocks. Method s28.4 is generically headed "Methodology for the application of irrigation water by spray irrigation systems under GMP", yet the Irrigation Proxy in Table s28 does not refer to the Method at all.

- 5 INZ's witnesses have assumed the Method s28.4 rules are to apply to all spray irrigation systems. The evidence of *Nicole Phillips* is explicit in this assumption<sup>2</sup>. There is nothing in the s42A report or Appendix D (which specifically addresses the Irrigation Rule) to suggest Method s28.4 is intended to have limited application. However, this is a point of uncertainty that would benefit from clarification. INZ's preferred

<sup>1</sup> Evidence of Andrew Curtis on behalf of INZ, dated 22 July 2016, at paragraphs 11 and 13

<sup>2</sup> Evidence of Nicole Phillips on behalf of INZ, dated 22 July 2016 at paragraph 39

provisions<sup>3</sup> clarify the relationship between the two components of the Irrigation Rule.

### Other relief being pursued

6 INZ's original submission sought numerous items of relief. For efficiency it does not produce evidence or argument on that relief because it is satisfied that others have. Nonetheless, it still maintains its requests in respect of many of:

#### Winter Grazing

6.1 INZ submitted on the winter grazing definition<sup>4</sup> in support of the relief proposed by DairyNZ in its submission<sup>5</sup>. INZ continues to support DairyNZ's proposed definition as recommended by the Officer's in their Report<sup>6</sup>;

#### Alternative consenting pathway

6.2 INZ submitted the Portal, being first generation and subject to the usual limitations of a model, may generate Baseline GMP Loss Rates and GMP Loss Rates that are less than a farm's nitrogen loss calculation, even where that farm is acting in accordance with GMP. To address this concern, INZ requested amendments to definitions<sup>7</sup>, policies<sup>8</sup> and rules<sup>9</sup> so that an irrigator might still consent an activity generating N beyond the Portal number.

6.3 INZ has considered the evidence of Fonterra on this point, particularly *Gerard Willis*<sup>10</sup> and *Mathew Cullen*<sup>11</sup>. It is content to support the relief put forward by *Mr Willis*<sup>12</sup> in place of the changes sought in INZ's original submission.

<sup>3</sup> Evidence of Andrew Curtis on behalf of INZ, dated 22 July 2016, at paragraph 36.3

<sup>4</sup> INZ Submission on PC5, dated 11 March 2016, at page 2

<sup>5</sup> DairyNZ Submission on PC5, dated 11 March 2016, at page 35

<sup>6</sup> Section 42A Report, page 105, at 7.222

<sup>7</sup> INZ Submission on PC5, dated 11 March 2016, at page 2

<sup>8</sup> Policies 4.36, 4.37, 4.38AA and 4.41A, INZ Submission on PC5, dated 11 March 2016, at pages 3 - 5

<sup>9</sup> Rules 5.45A and 5.46A and subsequent amendments, INZ Submission on PC5, dated 11 March 2016, at pages 7 - 9

<sup>10</sup> Evidence of Gerard Willis on behalf of Fonterra, dated 22 July 2016, at paragraphs 4.2 to 4.5, 8.1 to 8.2 and 9.1 to 9.15

<sup>11</sup> Evidence of Mathew Cullen on behalf of Fonterra, dated 22 July 2016, at paragraphs 7.1 to 7.4

<sup>12</sup> Evidence of Gerard Willis on behalf of Fonterra, dated 22 July 2016, at Appendix 1, page 40 (Definitions), page 44 (new Policy 4.38BA and associated amendments)

## Schedules

6.4 Schedule 7 – INZ requested amendments to the irrigation management targets in Schedule 7<sup>13</sup>. INZ supports the amendments recommended by the Officer's in their Report<sup>14</sup>.

### **The Irrigation Rule**

7 INZ's primary concern remains the Irrigation Rule in Schedule 28. Summarily, INZ submits the Irrigation Rule, and therefore the Portal, goes beyond what is necessary to achieve the Industry Agreed Good Management Practices (GMP)<sup>15</sup> for irrigation and water use.

8 As notified, the Irrigation Rule quantifies GMP relative to the particular irrigation system, by presuming (for most systems<sup>16</sup>) it is operating such that there is no drainage due to the irrigation event. In INZ's submission, the Portal defines GMP artificially high because it effectively decides everyone must deficit irrigate for every irrigation event that takes place, except for a small number of cases with travelling irrigators and spray lines<sup>17</sup>.

9 INZ's submits this assumption or requirement is unreasonable because<sup>18</sup>:

9.1 Some irrigation systems cannot be managed in that way;

9.2 Deficit irrigating at low percentages with small depths of water has inherent inefficiencies; and

9.3 Deficit irrigation practices increase production risk.

10 INZ also has a philosophical concern with the Portal, in that it has different rules for different farms depending on the irrigation system they have in place today. INZ submits all farms should be treated equal and subject to a well-run sprayline scenario<sup>19</sup>, aside from those

<sup>13</sup> INZ Submission on PC5, dated 11 March 2016, at page 10

<sup>14</sup> Section 42A Report, page 154, at 8.178-8.181

<sup>15</sup> MGM, Industry-Agreed Good Management Practices relating to water quality (Version 2, September 2015),

<sup>16</sup> Primary Evidence of Ian McIndoe on behalf of INZ, dated 22 July 2016 at paragraph 33

<sup>17</sup> Primary Evidence of Ian McIndoe on behalf of INZ, dated 22 July 2016 at paragraph 51

<sup>18</sup> Primary Evidence of Ian McIndoe on behalf of INZ, dated 22 July 2016 at paragraphs 51 and 65

<sup>19</sup> Primary Evidence of Ian McIndoe on behalf of INZ, dated 22 July 2016 at paragraph 75

on low PAW soils for the reasons explained in *Mr McIndoe's* evidence<sup>20</sup>. To do otherwise penalises those who have proactively sought to reduce drainage from irrigation (and N loss) in past years - their baseline performance is now fixed at the best they can do<sup>21</sup>.

- 11 INZ's preferred relief therefore comprises the following changes:
- 11.1 Replace the notified Method s28.4 with parts of the Table s28 in Appendix A of *Mr McIndoe's* primary evidence<sup>22</sup>, so that:
- (a) *Mr McIndoe's* sprayline irrigator values are used for all soils with a PAW<sub>60</sub> at or greater than 60mm; and
  - (b) *Mr McIndoe's* centre pivot irrigator values are used for all soils with a PAW<sub>60</sub> of less than 60mm.
- 11.2 Make consequential amendments to the irrigation proxy to correctly refer to the above changes to Method s28.4<sup>23</sup>.
- 12 If, however, the Regional Council wishes to retain per-system values, INZ requests (as alternative relief) the values in *Mr McIndoe's* Table s28 replace those used in Method s28.4. This is in reliance on *Mr McIndoe's* evidence that his values are based on:
- 12.1 Observations of actual irrigation systems on farms, taking into account the practical limitations of each irrigator type; and
- 12.2 Practical operation of irrigation systems under good practice.
- 13 As noted in *Mr McIndoe's* supplementary evidence, either approach results in about the same level of improvement as the Portal's approach<sup>24</sup>. The principal difference is how high the bar is set for those that exceed what is objectively GMP for the particular soil type<sup>25</sup>.
- 14 INZ's requested changes to the Irrigation Rule arise from its understanding of the role of the Portal in the LWRP.

<sup>20</sup> Primary Evidence of Ian McIndoe on behalf of INZ, dated 22 July 2016 at paragraph 72

<sup>21</sup> Primary Evidence of Ian McIndoe on behalf of INZ, dated 22 July 2016 at paragraph 89

<sup>22</sup> Primary Evidence of Ian McIndoe on behalf of INZ, dated 22 July 2016.

<sup>23</sup> Amended wording requested shown in the Evidence of Andrew Curtis on behalf of INZ, dated 22 July 2016, Table s28 at page 10

<sup>24</sup> Supplementary Evidence of Ian McIndoe on behalf of INZ, dated 5 August 2016 at paragraph 28

<sup>25</sup> Supplementary Evidence of Ian McIndoe on behalf of INZ, dated 5 August 2016 at paragraph 31

## Role of the Portal in the LWRP

### Regulatory impact of the Portal

- 15 The Portal is intended to quantitatively determine what the GMP Baseline is. The Portal Baseline number is then compared to a farm's current OVERSEER number. In general terms, if the OVERSEER number is less than the Portal baseline a farmer can easily secure consent to continue operating. If the OVERSEER number exceeds the Portal number a farmer might be prohibited from continuing, or at least face a very difficult consent process.
- 16 Therefore, the Portal number is highly significant in all zones, but particularly in the Red and Lake Zones where it can result in prohibited activity status.

### Policy intent of the Portal

- 17 The LWRP region-wide controls were originally introduced to 'hold the line' at current N-loss rates until the sub-regional process determined what, if any, other rules would be more appropriate in response to the local, per-catchment situation<sup>26</sup>. The sub-regional processes then determine if and by how much further that line should move. This two-step approach realises the LWRP objective whereby *all activities operate at "good environmental practice", or better, to optimise efficient resource use and protect the region's fresh water resources from quality and quantity degradation*<sup>27</sup>.
- 18 PC 5 alters the original approach by seeking to 'hold the line' at GMP rather than existing loss rates. Equity and fairness are key drivers for this change. The GMP narratives encapsulate reasonable expectations of on-farm practice<sup>28</sup>. GMP was not intended to be enough to achieve desired water quality standards in all catchments<sup>29</sup>.

<sup>26</sup> Section 32 Report, at page 4-1

<sup>27</sup> LWRP Objective 3.24, our emphasis.

<sup>28</sup> MGM, Estimating nutrient loss of Canterbury dairy farm systems operation at Good Management Practice (December 2015), at page 16

<sup>29</sup> MGM, Estimating nutrient loss of Canterbury dairy farm systems operation at Good Management Practice (December 2015), at page 16

- 19 It is submitted the Portal's role comprises:
- 19.1 Ensuring all activities operate at a consistent and calibrated bottom-line of "good management practice";
  - 19.2 Ensuring fairness between activities. In INZ's submission, this means two things:
    - (a) Those not operating at GMP do not benefit from poor practices; and, equally
    - (b) Those operating beyond GMP benefit from early adoption of better practice.
  - 19.3 Defining GMP in quantitative terms.
- 20 Importantly, it is submitted the Portal's role does not extend to achieving a certain amount of N-loss reduction – that is for each sub-regional chapter to do in the context of the prevailing circumstances.
- 21 Once the Portal is in place, the Regional Council will be able to estimate the amount of reduction the Portal alone will achieve. If the particular sub-region requires greater reductions, the Regional Council can quantify that and promulgate a policy and regulatory framework to achieve it.

### The Relevant GMP Narratives

- 22 The two irrigation GMP narratives are:
- 22.1 *Manage the amount and timing of irrigation inputs to meet plant demands and minimise risk of leaching and runoff; and*
  - 22.2 *Design, calibrate and operate irrigation systems to minimise the amount of water needed to meet production objectives*<sup>30</sup>.
- 23 By its ordinary meaning, the word *minimise* means something less than eliminate<sup>31</sup>. It effectively means to reduce the risk of leaching "as

<sup>30</sup> MGM, Industry-Agreed Good Management Practices relating to water quality (Version 2, September 2015), page 9 and pages 16-17

<sup>31</sup> Dictionary definitions:

1) *Reduce (something, especially something undesirable) to the smallest possible amount or degree* - <http://www.oxforddictionaries.com/definition/english/minimize>



far as possible". It is submitted just how much reduction is required by this word is strongly influenced by context<sup>32</sup>.

- 24 In the present circumstances, the immediate context is the GMP irrigation narratives. Both require a balancing of drainage and production objectives. It is submitted they effectively require the risk of leaching to be minimised but without compromising the needs of the farming activity.
- 25 The context for these narratives also includes sub-regional chapters that can (and have) required significant reductions beyond GMP. The narratives exist within a framework that does not rely solely on GMP to deliver the environmental outcomes required by the LWRP or the National Policy Statement for Freshwater.
- 26 It is further submitted the second irrigation GMP narrative does not oblige large numbers of irrigators to make capital investment in upgrades or implement substantial system changes<sup>33</sup>. This is consistent with the understanding of the Matrix of Good Management group, that achieving GMP would be *environmentally and financially sustainable*<sup>34</sup> and *would not require substantial farm system changes, nor large capital investments*<sup>35</sup>. This understanding is reiterated by the evidence of Mr Curtis<sup>36</sup> and other submitters commenting on the irrigation GMP narratives<sup>37</sup>.
- 27 The evidence of Ms Phillips explains how OVERSEER accounts for irrigation drainage<sup>38</sup>. Conversely, the Portal assumes most irrigation water is applied such that there is zero drainage from that event<sup>39</sup> (in effect it defines GMP as irrigating at 100% application efficiency)<sup>40</sup>.

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2) *To make (something bad or not wanted) as small as possible* - <http://www.merriam-webster.com/dictionary/minimise>

<sup>32</sup> *Environmental Defence Society Inc v New Zealand King Salmon Company Ltd* [2014] NZSC 38, at [100]

<sup>33</sup> MGM, Industry-Agreed Good Management Practices relating to water quality (Version 2, September 2015), page 17

<sup>34</sup> MGM, Estimating nutrient loss of Canterbury dairy farm systems operation at Good Management Practice (December 2015), page 16, 5<sup>th</sup> bullet point (their emphasis)

<sup>35</sup> MGM, Estimating nutrient loss of Canterbury dairy farm systems operation at Good Management Practice (December 2015), page 16 – cited in the Evidence of Andrew Curtis on behalf of INZ, dated 22 July 2016, at paragraph 25

<sup>36</sup> Evidence of Andrew Curtis on behalf of INZ, dated 22 July 2016, at paragraph 24

<sup>37</sup> Evidence of Reuben Edkins on behalf of Rangitata Diversion Race Management Ltd, dated 22 July 2016, at paragraph 9.4; Evidence of Dr Bruce Thorrold on behalf of DairyNZ, dated 22 July 2016, at paragraph 5.12(e); Evidence of Mark Neal on behalf of DairyNZ, dated 22 July 2016, at paragraph 8.5;

<sup>38</sup> Evidence of Nicole Phillips on behalf of INZ, dated 22 July 2016, at paragraphs 18 to 36

<sup>39</sup> Evidence of Nicole Phillips on behalf of INZ, dated 22 July 2016, at paragraph 52

<sup>40</sup> Primary Evidence of Ian McIndoe on behalf of INZ, dated 22 July 2016, at paragraph 18

- 28 *Ms Phillips*<sup>41</sup> and *Mr McIndoe*<sup>42</sup> discuss the implications of this expectation for farms. *Mr McIndoe* concludes [T]o move every irrigator to deficit irrigation would come at a cost and/or simply not be achievable in all cases.<sup>43</sup>
- 29 The expert evidence of *Mr McIndoe* discusses what level of application efficiency is reasonable as GMP<sup>44</sup>.
- 30 Both *Mr McIndoe* for INZ<sup>45</sup> and *Dr Dennis* for Beef+Lamb<sup>46</sup> conclude 100% application efficiency is not a realistic assumption for irrigation operating at GMP – achieving zero drainage is inherently best management practice, or beyond. Rather, an 80% application efficiency is generally regarded as being good practice<sup>47</sup>.
- 31 It is submitted this is consistent with Policy 4.68 of the LWRP, which considers 80% application efficiency is indicative of efficient use of water. In particular, it states:

*Water used for irrigation is applied using good practice that achieves an irrigation application efficiency of not less than 80%. (our emphasis)*

### **Costs and benefits of INZ's Requested Changes**

- 32 INZ's requested changes seek to quantify GMP using an objective assessment of 'good practice'. INZ's changes do this by taking into account the soil type being irrigated. It is submitted the result is an equitable bottom-line which more accurately reflects the irrigation GMP narratives and what is actually achievable on farm.
- 33 *Mr McIndoe* summarises the benefits of his recommended rules at paragraph 76 of his Primary Evidence. In his Supplementary Evidence he expands on paragraph 76.2 by quantifying the

<sup>41</sup> Evidence of Nicole Phillips on behalf of INZ, dated 22 July 2016, at paragraph 17

<sup>42</sup> Primary Evidence of Ian McIndoe on behalf of INZ, dated 22 July 2016, at paragraph 52

<sup>43</sup> Primary Evidence of Ian McIndoe on behalf of INZ, dated 22 July 2016, at paragraph 76.4

<sup>44</sup> Evidence of Ian McIndoe on behalf of INZ, dated 22 July 2016, at paragraphs 46 to 62

<sup>45</sup> Evidence of Ian McIndoe on behalf of INZ, dated 22 July 2016, at paragraph 45

<sup>46</sup> Evidence of Dr Samuel Dennis on behalf of Beef+LambNZ, dated 22 July 2016, at paragraphs 38 and 39.

<sup>47</sup> Evidence of Ian McIndoe on behalf of INZ, dated 22 July 2016, at paragraph 53

improvements and costs required to reach GMP under INZ's requested changes. A similar area of irrigated land would require infrastructure upgrades to meet GMP<sup>48</sup>, and would attract a similar cost<sup>49</sup> as compared to the notified version. It is submitted the benefit to the environment will be commensurate in that respect.

- 34 Further, it is submitted there is no cost to the environment from "lowering the bar" in respect of those operators who are exceeding GMP (as proposed by INZ). This is because the sub-regional plan is at liberty to require reductions in N loss beyond GMP so in the end, the environment will end up where it needs to be. The essential difference is the LWRP cannot rely on the Portal to do the entire job – the Portal's role is (it is submitted, quite properly) contained to ensuring equity through a defined bottom-line that is common for all irrigators.

### Scope

- 35 It is submitted the requisite scope exists to grant INZ's preferred or alternative relief.

- 36 INZ's submission sought amendments to the irrigation rule in Schedule 28 to either<sup>50</sup>:

36.1 *Refine the current irrigation modelling rule so it accurately reflects a travelling irrigator scenario, (Note: [this option] would also need to be related to a not-less-than 80% application efficiency policy); or*

36.2 *Develop a new 80% application efficiency modelling rule ...[where] 20% is lost to drainage and 80% is available for plant use.*

- 37 The principal relief pursued by INZ in its evidence and in these submissions is the former, though now seeking a sprayline framework to apply as the 'bottom-line' (ie GMP). It is *Mr McIndoe's* expert

<sup>48</sup> Supplementary Evidence of Ian McIndoe on behalf of INZ, dated 5 August 2016, at paragraphs 17 and

<sup>26</sup>

<sup>49</sup> Supplementary Evidence of Ian McIndoe on behalf of INZ, dated 5 August 2016, at paragraphs 21 and

<sup>27</sup>

<sup>50</sup> INZ Submission on PC5, dated 11 March 2016, at pages 11-12

opinion that if a particular irrigation system is to be used to set that line, it could equally be sprayline or traveling irrigation, as both represent GMP irrigation<sup>51</sup>.

38 *Mr McIndoe* confirms the options put forward by him all achieve an efficiency of at least 80%<sup>52</sup>. In that respect, it is submitted either relief sought by INZ is within the scope of its request for a Portal rule that allows 20% of applied water to be "lost" to drainage.

39 It is therefore submitted both requests were fairly and reasonably raised in INZ's original submission. No person has been denied an opportunity to respond. No rebuttal evidence has been received in opposition to the rules outlined by *Mr McIndoe*, despite the high level of participation from the irrigation sector.

### Conclusion

40 It is submitted the Portal's essential role is to quantify what the "bottom-line" should look like for irrigation and water use. However, it is submitted the proposed Irrigation Rule does more than 'hold the line' at GMP for irrigation – it holds most irrigation to best, or beyond best, management practice from the outset:

*...the Farm Portal is at a level that is hard to improve on...Virtually all of the possible improvements have been realised at that point.*<sup>53</sup>

41 It is further submitted INZ's requested changes to the Irrigation Rule will result in the Portal more accurately defining GMP for irrigation. At the same time, it will raise the bottom-line to a degree equivalent to the notified Rules.

42 Should further controls on N-loss be required to protect and/or improve water quality in a given catchment, that is open for the sub-regional to determine. The Portal-derived GMP values should provide an equitable starting point for that exercise. Sub-regional

<sup>51</sup> Primary Evidence of Ian McIndoe on behalf of INZ, dated 22 July 2016, at paragraph 75

<sup>52</sup> Primary Evidence of Ian McIndoe on behalf of INZ, dated 22 July 2016, at paragraph 75

<sup>53</sup> Primary Evidence of Ian McIndoe on behalf of INZ, dated 22 July 2016, at paragraph 89

requirements may go beyond GMP. It is submitted this is precisely the two-step approach contemplated by LWRP objective 3.24.


**Evidence called for INZ**

43 In support of its case INZ calls evidence from:

43.1 Andrew Curtis;

43.2 Nicole Phillips; and

43.3 Ian McIndoe.



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