

IN THE MATTER The Environment Canterbury (Temporary
OF Commissioners and Improved Water
 Management) Act 2010 and the Resource
 Management Act 1991.

AND

IN THE MATTER The hearing of submissions on the Proposed
OF Canterbury Land and Water Regional Plan.

STATEMENT OF EVIDENCE OF JULIET ANN MACLEAN

1. INTRODUCTION

- 1.1. My name is Juliet Ann Maclean. I am the CEO of Synlait Farms Ltd. I co-founded the Synlait Group in 2000 and joined as a full-time executive in 2006 as GM of Synlait Farms Ltd. I am one of seven directors on the Synlait Ltd board.
- 1.2. I am responsible for all aspects of farm operations, leading farm recruitment and training and livestock procurement. I have over twenty years of dairy farming experience, including owner-operator experience through to managing multiple corporate-owned farms.
- 1.3. I have a Bachelor of Agriculture Degree in Farm Management and Rural Valuation from Massey University. I was formerly a Massey Scholar and a Nuffield Scholar and I am currently a member of the New Zealand Institute of Directors. I was awarded the title of South Island Farmer of the Year in 2012 and I am a finalist for the 2013 Dairy Woman of the Year title.

- 1.4. I have read the Environment Court’s Code of Conduct for Expert Witnesses and agree to abide by its provisions. I have complied with these in preparing my evidence. This evidence is within my sphere of expertise and experience.

Synlait Farms Ltd

- 2.1 Synlait Farms owns 13 dairy farms in central Canterbury, with a total land holding of 3,942 effective farming hectares and 12,970 cows. In the 2011/2012 season Synlait Farms produced 5.3 million kilograms of milk solids. This means that Synlait Farms is one of the largest dairy farming operations in New Zealand.
- 2.2 Synlait Farms estimate that there is currently \$13.8 billion invested in Canterbury dairy farms with an average size of 219 ha and an average value of around \$8 million per farm.
- 2.3 Historically, Synlait Farms converted around 4,000 hectares of dryland pasture to dairy farming and purchased over 800 hectares of existing dairy farms.
- 2.4 The core philosophy around Synlait’s farm management is to do the basics very well. Synlait Farms aims to maintain high quality infrastructure and to invest in industry leading systems and processes to ensure that the highest quality environmental footprint is achieved in a practical and economic manner.
- 2.5 Synlait Farms is concerned that the proposed Canterbury Land and Water Regional Plan (“the Proposed Plan”) should adopt the best practicable options. This requires that the proposed policies and rules are best practice **and** achievable, which in turn requires that the underlying science provides support for the policies and rules.

Proposed Canterbury Land and Water Regional Plan

- 3.1 The s.42A report proposes a new objective which states: “*Water is recognised as an enabler of the economic and social wellbeing of the region.*” Synlait Farms had proposed “*Water is a key contributor to the social and economic prosperity in Canterbury and efficient use and access is enhanced.*”

- 3.2 The Objectives in the Proposed Plan do not use the terms efficient or effective, or their grammatical variations once, despite efficiency and effectiveness being corner-stone principles of the CWMS.
- 3.3 The s.42A staff report proposes that efficiency should be applied to water storage and distribution (3.7) water abstraction (3.8) and “*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.*” (3.16).
- 3.4 There are no requirements as to efficient **access** to water in the proposed Objectives in either the Proposed Plan or the recommendations of the s42A report. Access to water has been, and will continue to be, one of the key drivers of the social and economic development of Canterbury.
- 3.5 It is the objectives that inform the ZIPs, not the policies or rules which are default provisions until a ZIP is determined or a reserve provision if the matter is not covered by the ZIP. Therefore the objectives in the Proposed Plan are paramount in determining ZIP outcomes.
- 3.6 The s32 report correctly observes that access to water relies on resource consents and regional plans to enable access to water resources. In determining any allocation of water, it is essential that the allocation is determined by “the efficient use and development of natural and physical resources” as required by s7(b) RMA. While there is a Policy section entitled “Efficient Use of Water” (policies 4.66 – 4.70), there is no over-arching objective to support these policies.
- 3.7 Objective 3.5 provides that “*Outstanding fresh water bodies and hāpua and their margins are maintained in their existing state or restored where degraded.*” The definition of “outstanding freshwater bodies” includes hāpua, natural wetlands, natural state waterbodies and high naturalness waterbodies listed in Sections 6-15 of this Plan and waterbodies subject to Water Conservation Orders.” The WCO for Te Waihora recognises its habitat for wildlife and its significance to Ngāi Tahu; the ZIP for Selwyn-Te Waihora aims for a priority outcome whereby it is a “healthy ecosystem”.

However it may not be possible to efficiently or effectively restore degraded water bodies. For example, work on Lake Ellesmere/ Te Waihora suggests that it may be impossible to restore the health of that Lake. This is discussed in the evidence of Dr McCabe.

- 3.8 It may be preferable to have specific objectives in relation to waterbodies such as WCO's, including their statutory objectives which define their outstanding features. For example this will ensure management of their specific outstanding features which in relation to Te Waihora are defined by the WCO as:
- (a) habitat for wildlife, indigenous wetland vegetation and fish; and
 - (b) significance in accordance with tikanga Maori in respect of Ngāi Tahu history, mahinga kai and customary fisheries.
- 3.9 The thrust of my evidence is to support the evolution of efficient, economic and practicable farming environmental policies.

The Strategic Policies.

- 4.1 Policy 4.1 requires that all lakes, rivers and aquifers within a catchment, absent a sub-regional plan, "will meet the outcomes set out in Table 1."
- 4.2 As set out in the evidence of Shirley Ann Hayward for Fonterra at her paragraphs 4.10 to 4.16, the numeric values in Tables 1a-1c are not realistic. It is suggested by Ms Hayward that within this Table, the headings should reflect that the suggested outcomes should be applied in terms of overall condition or averages within zones. In the evidence of Dr McCabe, the scientific rationality of these numeric values in terms of achieving the stated objectives of the Proposed Plan, is called into question.
- 4.3 These scientific analyses would require that either Policy 4.1 is re-written to reflect that the numerical values are not applicable in every situation or more optimally, that water resources shall be maintained in their existing state until water quality outcomes are collaboratively established at the sub-regional level by reference to the relevant achievable values within the zones.

Policy 4.9

4.4 There is currently no definition of industrial or trade waste and Schedule 8, Industry Derived Nitrogen Discharges, is blank. In any event, Schedule 8 which is to be developed to “*articulate industry developed good-practice*” is said to be built upon the Report “*Estimating nitrate-nitrogen leaching rates under rural land uses in Canterbury*”. This report is limited to the effects of leaching for various farming activities including pastoral, arable, horticultural and silvicultural. The report is silent on processing activities and other non-farming industries which may leach nitrogen such as meat processing effluent disposal, land disposal of municipal sewage and dairy processing wastewater disposal.

Milk condensate

4.5 Policy 4.9 - Discharge of Contaminants to Land or to Water- provides:

There are no direct discharges to surface waterbodies or groundwater of:

- (a) untreated sewage, wastewater or bio-solids;*
- (b) solid or hazardous waste or solid animal waste;*
- (c) animal effluent from an effluent storage facility or a stock holding area;*
- (d) organic waste or leachate from storage of organic material; and*
- (e) untreated industrial or trade waste.*

4.6 Milk condensate is the water removed from the milk when it is dried. The definition of untreated industrial or trade waste includes milk condensate. Milk condensate generally contains less nitrogen than the underlying groundwater to which it is discharged, the total nitrogen concentration being typically about 20% of the drinking water standard. Discharge to groundwater is more effective and efficient than to land where N leaching may occur. The chemical composition of milk condensate is discussed in the evidence of Dr McCabe.

4.7 Policy 4.9 does not currently permit the discharge of milk condensate directly into groundwater. Synlait currently has a consent to discharge untreated cooling water and condensate over 608 ha and onto/into the ground at a high rate disposal area (consent CRC084322.1).

4.8 The s42A report ignores the Synlait submission requesting the addition of a specific exclusion of milk condensate as an untreated industrial and trade waste so that (e)

above would read: “untreated industrial or trade waste, *excluding milk condensate.*” Its inclusion could lead to better and more cost effective environmental outcomes.

4.9 Similarly there is no definition of “farming activity”, so it is unclear as to whether industrial processing of the by-products of a “farming activity” is included in the relevant rules. In any event, the focus on the specific practice – farming- would ignore all other industrial activities. Nitrite is sometimes used as a corrosion inhibitor in industrial process water and tanwater from leather tanneries contains elevated nitrogen levels.

4.10 These same issues as to limiting the focus to farming and not to the effects of any trade, industrial or farming practice can be directed towards policies:

Policy	
4.30	the loss of nitrogen to water from any change in farming activities
4.31	Minimise the loss of nitrogen to water from any change in farming activities
4.33	The loss of nitrogen to water from any change in farming activities
4.34	To minimise the loss of water from any change in farming activities

4.11 The same focus on “farming” as an activity, rather than management of nutrients (limited in this Proposed Plan to mainly Nitrogen) is contained in the section of the Rules entitled “Farming” which would be better titled “Nutrient Discharges” and focus on all nutrient discharges, not simply limiting its discussion to nitrogen.

4.12 Generally in managing on-farm nutrient discharges, mitigation measures for phosphorus, sodium, sediment and microbial inputs, is quite different from managing nitrogen discharges. Unless the focus is retained on effects of activities rather than one nutrient linked, but not exclusively to one activity, farming, the management of nutrient inputs to land and water, is likely to be unduly skewed.

5. Farming Issues - Rule 5.40 and Schedule 7

- 5.1 Farm Environment Plans can be extremely beneficial if audited by Farm Environmental Auditors who have both theoretical understanding of farm systems (Part 1 of the definition of Farm Environment Plan Auditor) **and** 5 years practical experience (Part 2 of that definition). The current definition does not require both. It is essential that auditors have both a theoretical understanding **and** a practical on-farm understanding of irrigation, pasture and grazing management and stockmanship as these all impact the nutrient outcome. These matters are not explicitly covered in the Introduction and Advanced Sustainable Management Course.
- 5.2 Synlait has considerable experience in the implementation of Farm Environment Plans which are required of the suppliers of Synlait Milk Ltd and is generally supportive of their more wide-spread application. However, it has taken over 4 years to develop the general plans and another 3 years to apply and refine the plans to their specific locations and farming practices. Synlait wishes to protect its investment in its farm environmental initiatives. Synlait would also like to see that Schedule 7 contains a clear outline of minimum standards and frequency of review and amendment. For example, the recent publicity over the inclusion of trace amounts of DCD, the nitrogen inhibitor, requires that such amendments can be made and notified virtually instantaneously.
- 5.3 The implementation of these plans within 5 years will be challenging. To assist in the process, minimum standards for these Plans, review criteria and adaptation guidelines would be of benefit, informed by industry knowledge and practice in their implementation.

Rules 5.42 to 5.45 and definition of change or changed.

- 5.4 Where land use is “changed”, which by definition means a resource consent to use or an increase in the volume of water used for irrigation or an increase in more than 10% in the loss of nitrogen compared with the period between 1 July 2011 and 30 June 2013, farming is a permitted activity up to 2017, under rule 5.42, if certain conditions are met.

- 5.5 It is not evident why the baseline of 2 years of data is chosen, when there is a 4 year period between June 2013 and June 2017 that could provide a more effective baseline than the 2 years specified in the definition of “changed”. If data is not available for the period 1 July 2011 to 30 June 2013, there needs to be an alternative method to establish a baseline.
- 5.6 Condition 1 of Rule 5.42 requires inter alia that “ *the land is subject to conditions that specify the maximum amount of nitrogen that may be leached*” Again limiting the focus to nitrogen, may not have the intended environmental effect.
- 5.7 Condition 3, requires the use of OVERSEERTM to “calculate” the annual amount of nitrogen loss from the land. While OVERSEERTM is a very useful tool in preparing farm budgets, the “calculations” of nitrogen loss are not precise. Once Synlait has its full groundwater monitoring network in place, actual data would be preferable to what are effectively estimations using OVERSEERTM.
- 5.8 Rules 5.43 – 5.45 rely on Planning Maps to determine zone boundaries and water classification. The boundaries appear to be quite arbitrary and unrefined in terms of possible water flow paths and receiving water ecology. It would be preferable if the Planning Maps classification process was subject to examination and revision by a panel of suitably qualified independent experts. At the very least, this could provide more catchment specific information to the Zone Committees and the ZIPs. Much of the site-specific technical and expert information provided by Synlait Farms and Synlait Milk during resource consent processes, does not often find its way into such determinations and the opportunity to provide and discuss the information would be appreciated.
- 5.9 Rule 5.82 requires in condition 4 in relation to water takes from groundwater for the purposes of carrying out bore development or pumping tests and the associated use and discharge of that water, that where and when the water is discharged, the rate of flow in the river or artificial watercourse is at least five times the rate of flow of the discharge. The harm that this rule intends to address is whether the discharge floods downstream land. If the flow is to an artificial watercourse, with the written approval

of the owner and if the discharge does not cause flooding downstream, there is no harm.

- 5.10 The taking of water from a waterbody and the discharge to the same waterbody is limited in Rule 5.99, condition 3, to a maximum distance from the point of take to the point of discharge is not more than 250 m as a restricted discretionary activity. If this condition is not met, then under Rule 5.100, the activity is non-complying. There are examples such as Early's diversion race (Rakaia River) which runs for several kilometres before returning water to the Rakaia, and supplies water for irrigators and Selwyn District Council. An addition of discretionary status if condition 3 is not met, is a matter of practicality.
- 5.11 Rule 5.104 prohibits the taking of groundwater when the allocation zone within the ZIPs is exceeded; this relies on good science behind the groundwater allocation zone. It appears the allocation figures have been taken directly from the NRRP. If this is the case, it should be noted that these figures have been overturned on numerous occasions on appeal to the Environment Court and by ECan appointed commissioners in relation to applications by Synlait. In Report R12/18, the author, Barry Loe, suggests that the database requires amendment and audit. Not only do allocation limits need to be more robust, the allocation limits need to reflect the dynamic nature of the resource due to such things as land based recharge from increased irrigation and decadal climate changes.
- 5.12 Rule 5.107, condition 5 provides that permanent or temporary transfers of groundwater in a fully allocated zone require surrender of a percentage of water, unless the transfer is to an irrigation scheme with a storage component. In particular the transfer of surface water from down-plains to up-plains should not require surrender as it is a more effective use of water as a replacement for deep groundwater at the top of the plains. The inclusion of temporary transfer of water, subdividing the water to subdivided sites as part of title subdivision and the site to site transfer within a groundwater allocation zone, particularly where there is common ownership, is difficult to justify. This rule is likely to effectively prevent all transfers and to make water-banking more common.

Juliet Maclean

Dated: 4 February 2013