

BEFORE INDEPENDENT HEARING COMMISSIONERS

AT HAMILTON

IN THE MATTER

of the Resource Management Act 1991

AND

IN THE MATTER

of the hearing of submissions on Proposed Plan
Change 1 to the Waikato Regional Plan

**STATEMENT OF PRIMARY EVIDENCE OF BRIGID BUCKLEY FOR
FONTERRA CO-OPERATIVE GROUP LTD (SUBMITTER 74057)**

BLOCK 2 HEARINGS

CORPORATE

3 MAY 2019

RICHMOND
CHAMBERS

Counsel Instructed
B J Matheson
Richmond Chambers
PO Box 1008
Shortland Street
Auckland 1140

1. EXECUTIVE SUMMARY

- 1.1 My name is Brigid Buckley.
- 1.2 My corporate evidence provides an overview of Fonterra Co-operative Group Limited's (**Fonterra**) manufacturing interests in the Waikato and Waipā River catchments (together, **Catchment**), being Te Rapa, Te Awamutu, Hautapu, Lichfield and Reporoa, and in particular, their associated wastewater discharges to land and water.
- 1.3 Fonterra acknowledges the work that Waikato Regional Council (**Regional Council**), and the Collaborative Stakeholder Group (**CSG**) have undertaken in the lead up to the notification of Plan Change 1 (**PC 1**).
- 1.4 Fonterra understands, acknowledges, and actively supports the aspirations stated in the Te Ture Whaimana o Te Awa o Waikato/Vision and Strategy for the Waikato River (**V&S**) which sets the direction for making both the Waikato and Waipa Rivers suitable for swimming and food gathering along their entire length. We appreciate that all resource users within the catchment will need to play their part in order to achieve the objectives of the V&S, including point source dischargers. PC 1 provides the regulatory framework for implementing the first stage of this journey towards restoration and protection.
- 1.5 Fonterra strongly supports the introduction of Policies 10 to 13 in PC 1 which provide specific policy direction on the future management of point source discharges in the Catchment. In this respect, Fonterra considers that all of its manufacturing process wastewater discharges to water, and to land via irrigation, are point source discharges.

2. INTRODUCTION

- 2.1 My full name is Brigid Buckley.
- 2.2 I am the National Policy Manager for Fonterra's Global Operations which oversees the manufacturing of raw milk collected from the company's farmer suppliers into finished product for distribution both in New Zealand and overseas.

2.3 In this role I manage and coordinate Fonterra's involvement in resource management and strategic growth policy and plan development processes that affect its 25 New Zealand-based manufacturing sites. I also manage a number of consenting processes, including those (amongst others) that seek to re-consent existing discharges of contaminants (wastewater and stormwater) to land, water and the coastal environment in the Northland, Waikato, Taranaki and Manawatu regions. My other more minor role functions include setting and implementing sustainable packaging targets for Global Operations, and advising on resource management-related matters in property acquisition and divestment processes.

2.4 I have held this role for five-and-a-half years. Prior to this I worked at DairyNZ Limited primarily managing their on-farm nutrient management programme as well as those programmes targeted at the implementation of environmental regulations.

2.5 I hold a Bachelor of Environmental Management and a Post-graduate Diploma from Lincoln University, and I am currently studying towards an Executive Masters of Business Administration at Massey University. Through my career I have also completed a number of short courses including both of the Fertiliser and Lime Research Centre's Sustainable Nutrient Management courses.

2.6 I am familiar with both PC 1 and Variation 1 to the Waikato Regional Plan (**Regional Plan**). I was involved in the Industrial Sub-Group which provided input into, and feedback on, the point source policy framework proposed by the CSG during the development of PC 1. I was also involved in the preparation of Fonterra's submissions and further submissions on PC 1. I am authorised by Fonterra to provide this statement on its behalf as a representative from its manufacturing operations.

2.7 I am familiar with Fonterra's manufacturing operations in the Catchment, which include its Te Rapa, Te Awamutu, Hautapu, Reporoa and Lichfield sites.

3. SCOPE OF EVIDENCE

3.1 My evidence focuses on Fonterra's interest in PC 1 as it relates to the manufacturing operations undertaken within the Waikato Catchment.

Fonterra is providing separate evidence via my colleague **Mr Richard Allen** regarding the dairy farming activities of its supplier shareholders in this hearings process.

3.2 In my statement, I will provide a description of Fonterra's manufacturing operations in the Waikato catchment, focusing on those point source discharges that are within the scope of PC 1.

4. **FONTERRA'S MANUFACTURING OPERATIONS IN THE WAIKATO AND WAIPA RIVER CATCHMENTS**

4.1 Fonterra owns and operates five manufacturing sites with the Catchment, being Te Rapa, Te Awamutu, Hautapu, Lichfield and Reporoa. The location of these sites in the Catchment is provided in **Figure 1**. An overview of each manufacturing site's key features is provided in **Table 1**.

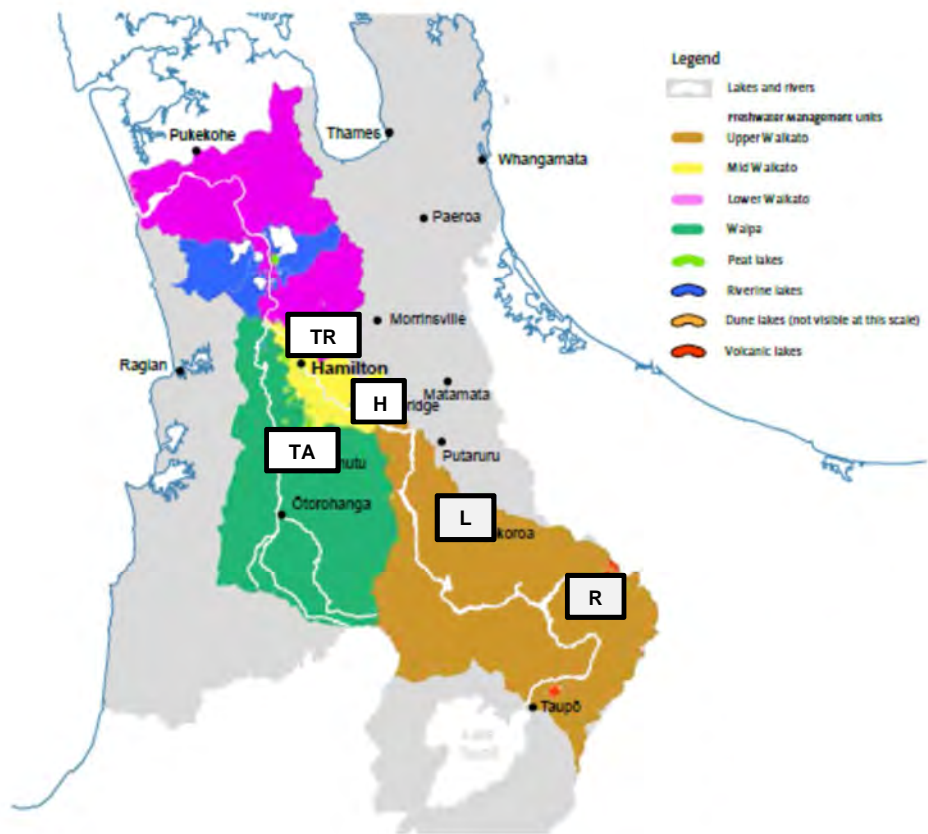


Figure 1 Location of Fonterra’s manufacturing sites in the Waikato and Waipa River Catchment (TR – Te Rapa, TA – Te Awamutu, H – Hautapu, L – Lichfield, and R – Reporoa)

Table 1 Key features of Fonterra’s Te Rapa, Te Awamutu, Hautapu, Lichfield and Reporoa sites

| Site | FTE | Products | Freshwater Management Unit |
|------------|-----|--|----------------------------|
| Te Rapa | 500 | Milk powder Cream products | Lower Waikato |
| Te Awamutu | 260 | Milk powder | Waipa |
| Hautapu | 300 | Cheese Casein Milk protein concentrate Whey protein concentrate Hydrosolates | Mid Waikato |
| Lichfield | 215 | Milk powder Cheese Whey protein isolates Whey protein concentrates | Upper Waikato |
| Reporoa | 190 | Mineral acid casein Total milk protein Lactalbumin Ethanol | Upper Waikato |

4.2 Around 1,450 people are directly employed in manufacturing activities by Fonterra across these sites. The replacement value of Fonterra’s Waikato River catchment manufacturing assets is around \$4 billion. Fonterra’s manufacturing activities are, therefore, a significant contributor to the local and wider regional economies.

5. POINT SOURCE DISCHARGES ASSOCIATED WITH FONTERRA’S MANUFACTURING OPERATIONS IN THE WAIKATO RIVER CATCHMENT

5.1 Point source discharges to land and water from Fonterra’s manufacturing operations within the Catchment that are subject to the provisions of PC 1 can include:

- (a) **Process wastewater:** Wastewater generated in the manufacturing process including plant rinses and clean-in-process (**CIP**) system, floor drains, dairy product residues, and tanker CIP.
- (b) **Evaporator condensate and reverse osmosis (RO) permeates:** Evaporator condensate is the “water” evaporated from milk during the process of producing milk powder (concentration). RO permeate is the water that passes through the RO membranes used to concentrate lactose. These are “cleaner” streams and require less treatment than process wastewater. They will sometimes be combined with stormwater and discharged to the environment (i.e. Te Rapa). In some instances, evaporator condensate is recovered, and treated to be re-used in the manufacturing process.
- (c) **Wastewater treatment plant (WWTP) solids:** These solids are generated as the result of a wastewater treatment plant process, and generally have a higher solids component than dairy liquids. They include biomass / waste activated sludge (from biological treatment), and dissolved air flotation (**DAF**) sludges (from DAF treatment).
- (d) **Dairy liquids:** These streams are by-products resulting from milk processing. They generally have a lower solids component than WWTP solids (i.e. whey).
- (e) **Domestic sewage:** This is sewage generated from on-site amenities such as toilets, and kitchen areas. Treatment can be either via an on-site system or a connection to a council system.

5.2 The treatment method(s) used for each of these wastewater streams varies across the five Waikato catchment-based manufacturing sites as shown in **Table 2** below.

Table 2: Overview of key wastewater treatment processes and associated consents for Fonterra’s five Waikato catchment-based sites

| | Te Rapa | Te Awamutu | Hautapu | Lichfield | Reporoa |
|---|--|---------------------------------------|---|---|------------------------------------|
| Process wastewater: Treatment | DAF (2) Biological | Biological | DAF Biological (SBR) Irrigation | DAF Biological Irrigation | Irrigation |
| Process wastewater: Discharge consent type | Discharge to water (Waikato River) | Discharge to water (Mangapiko Stream) | Discharge to land | Discharge to land | Discharge to land |
| Evaporator condensate | Mixed with stormwater, and discharged with wastewater to the Waikato River | Discharge to water (Mangapiko Stream) | Discharge to water (Waikato River) RC 961133 – Expires Jan 2019 ¹ | Re-use (RO) and/or discharge to land | N/A |
| WWTP solids | MyNoke (worm farm) Composting Land-spreading (DairyFert ²) | Treated via the Te Rapa site process | Land-spreading (DairyFert) | Land-spreading (irrigation with WW) MyNoke (worm farm) | N/A |
| Dairy liquids | Land-spreading (DairyFert) | Land-spreading (DairyFert) | Land-spreading (DairyFert) Irrigation (Fonterra-land and 3PF) | Land-spreading (DairyFert) | Land-spreading (CTL ³) |
| Domestic sewage | Council system | Council system | On-site system | On-site system | On-site system |

5.3 All the wastewater discharges in **Table 2** will be impacted by the new provisions in PC 1.

¹ New consent application was lodged with Waikato Regional Council in mid-2018.

² DairyFert Limited is a Fonterra-owned company.

³ CTL is a privately-owned spreading company currently contracted to spread dairy liquids generated from the Reporoa site.

5.4 Each of the five Fonterra manufacturing sites operates within the ambit of a number of resource consents including those that authorise the discharge of contaminants to land and water. Of these resource consents, those relating to the discharge of wastewater, wastewater by-products, condensate, truck wash water, and sewage are relevant. The key resource consents, and their expiry dates, are also provided in **Table 2** above.

5.5 An overview of the key and relevant consents held at each of the five sites along with their expiry dates are provided in **Table 3** below.

Table 3: Key resource consents held by the five Fonterra manufacturing sites in the Catchment

| Site | Term | Consent |
|------------|---------------------------|--|
| Te Rapa | September 2017 | Discharge wastewater, cooling water and stormwater to water |
| Lichfield | April 2021 | Dairy factory wastewater to land (third-party: Henderson and Wood) |
| | January 2040 | Discharge wastewater, biomass and dairy solids to land |
| | January 2040 | Discharge to low strength wastewater via a wetland to land |
| | January 2040 | Discharge treated domestic sewage to land |
| Hautapu | July 2024 | Discharge dairy wastewater to land (Buxton) |
| | April 2035 | Discharge wastewater to land via irrigation (Satellite farms) |
| | August 2033 | Discharge treated sewage to land |
| | January 2019 ⁴ | Discharge wastewater the Waikato River |
| | January 2019 ⁵ | Discharge wastewater to land (Bardowie and Bruntwood) |
| Te Awamutu | April 2054 | Discharge treated wastewater to the Mangapiko Stream |
| Reporoa | September 2019 | Discharge wastewater to land |

⁴ New consent application was lodged with Waikato Regional Council in mid-2018.

⁵ New consent application was lodged with Waikato Regional Council in mid-2018.

| Site | Term | Consent |
|-----------|---------------|---|
| | July 2027 | Discharge treated sewage to land |
| DairyFert | December 2034 | Discharge dairy liquids to land in the Waikato region |
| | October 2022 | Discharge dairy liquids to land (Walsh at Lichfield) |
| | October 2033 | Discharge dairy liquids to land (Pinedale at Lichfield) |

Improvements in discharge quality from Fonterra’s manufacturing sites

5.6 As noted in **Table 3** above, a number of consents authorising wastewater discharges at Fonterra’s Waikato Catchment-based sites have recently been, or are currently being, re-consented. Through these processes, Fonterra has proposed (or is proposing) significant improvements to its wastewater treatment plant processes to reduce nitrogen and phosphorus loads. The following sections outline the improvements made at Fonterra’s Te Rapa and Te Awamutu sites, and an overview of what is being proposed through the Hautapu and Reporoa re-consenting processes.

Te Rapa site

5.7 Fonterra’s Te Rapa site’s wastewater discharge consent expired in September 2017, and a new consent application is currently being processed by the Regional Council.

5.8 Since the previous resource consent was granted, Fonterra has significantly reduced for nitrogen loads from the Te Rapa site (refer to **Figures 2A and 2B**), whilst phosphorus loads have remained relatively stable across the site over the same period⁶. The reasons for this are discussed further in section 6 below and in Mr Neale’s evidence.

⁶ The data used to develop the graphs in Figures 2A, 2B, 3A and 3B was obtained from compliance monitoring reports associated with the sites, and submitted to Waikato Regional Council as part of the respective conditions of the consents.

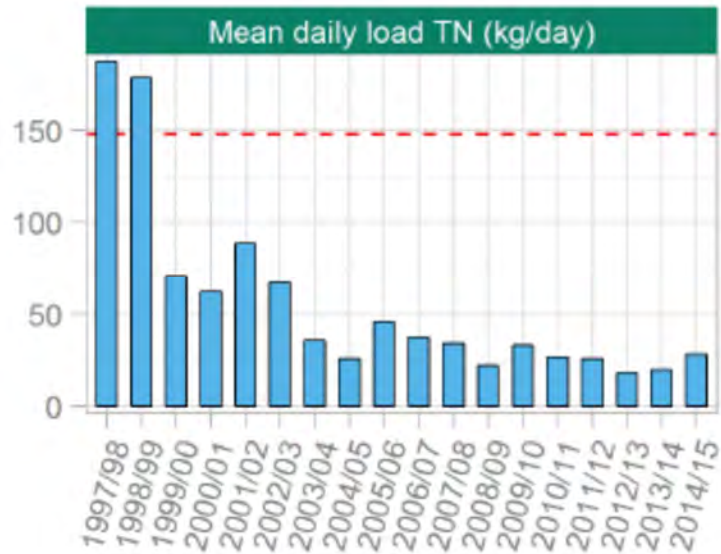


Figure 2A Nitrogen (TN) contaminant load reductions at Te Rapa since 1997

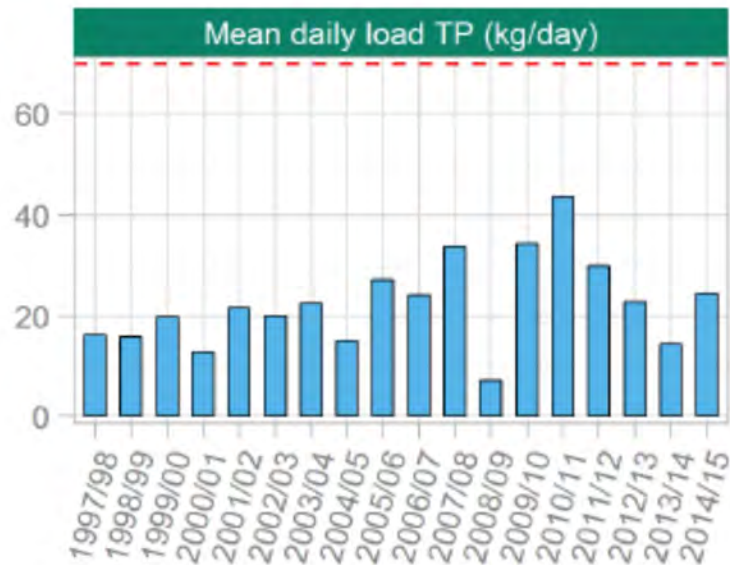


Figure 2B Phosphorus (TP) contaminant load reductions at Te Rapa since 1997

5.9 The new consent application, which is currently being processed, proposes additional treatment of the site's wastewater to further reduce nutrient and bacterial loads.

Te Awamutu site improvements

5.10 The Te Awamutu site has just been granted a new wastewater discharge consent. Since the previous resource consent was granted, Fonterra has reduced the nitrogen load from its Te Awamutu site to the Waikato River (refer to **Figure 3A** and **3B**). Similar to the Te Rapa site, the phosphorus load has remained relatively stable across the site over the same period. The reasons for this are discussed further in section 6 below and in Mr Neale's evidence.

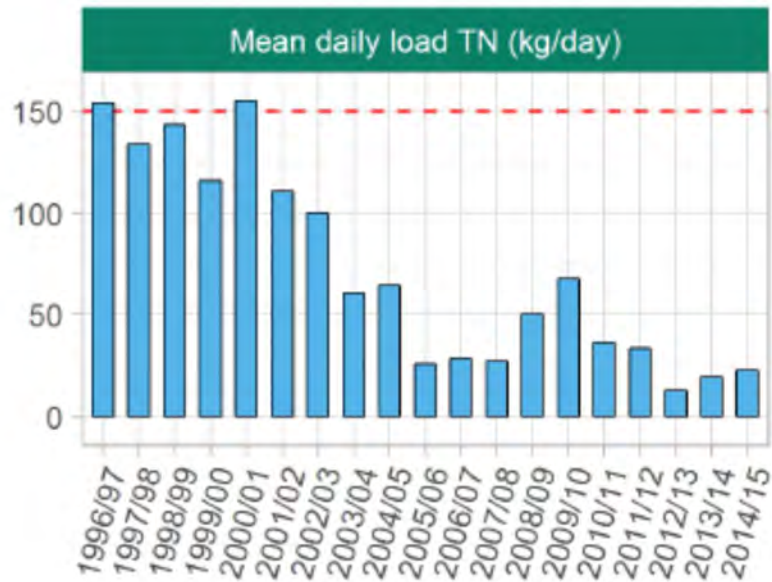


Figure 3A Nitrogen (TN) contaminant load reductions at Te Awamutu since 1997

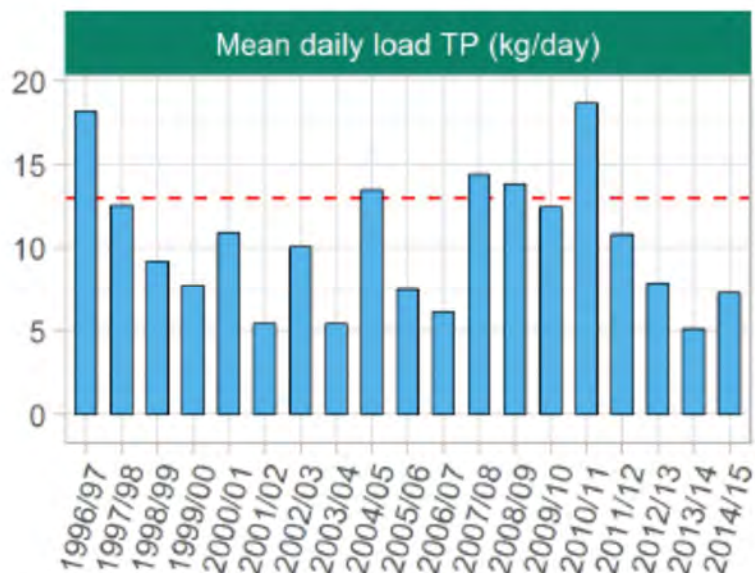


Figure 3B Phosphorus (TP) contaminant load reductions at Te Awamutu since 1997

- 5.11 The Te Awamutu site has recently been granted a new resource consent from the Regional Council to discharge process wastewater to water (RC 105421). This consent has a 35 year term.
- 5.12 This recently granted consent includes provision for additional treatment of the Te Awamutu site's wastewater which will result in further reductions of nutrients and bacterial loads to the Catchment. There is also a condition in this resource consent that requires Fonterra to undertake a review of the best practicable option to achieve reductions in nutrients and bacterial loads, and provide Regional Council with a report detailing the outcomes of this report in 2038 and 2052.⁷

Re-consenting of the Hautapu and Reporoa sites

- 5.13 Both the Hautapu and Reporoa wastewater discharge consents are currently being renewed, with the Hautapu application lodged with Regional Council in mid-2018, and with the Reporoa consent application to be lodged in the coming weeks.

⁷ Condition 25 of Resource Consent APP137799.01 to discharge treated process wastewater, condensate, cooling water, and other wastewater associated with the manufacture of dairy products at the Te Awamutu site and storm water to the Mangapiko Stream and associated seepage into land and into groundwater.

- 5.14 The consent applications include a full assessment of the treatment options that have been / will be undertaken as part of a best practical option assessment. For these two sites, and under the PC 1 policy framework, additional treatment of wastewater prior to its discharge will be proposed to reduce nutrient and bacterial loads.

Lichfield consents

- 5.15 The Lichfield site's wastewater discharges to land were re-consented in 2014. At this time, a biological WWTP was installed, and the land irrigation area was expanded to reduce the site's overall nutrient and bacterial loads.

6. HISTORY OF CONSENTING FOCUSED ON N

- 6.1 As illustrated in **Figures 2B** and **3B** above, TP loads from the Te Rapa and Te Awamutu sites have remained relatively constant over the last 20 years when compared with reductions made in TN.

- 6.2 This has been largely driven via a policy framework that has focused greater attention on TN as further alluded to in Mr Neale's evidence. As a consequence of this direction, Fonterra made a number of changes to its operations. We have a good understanding of how to control nitrogen in our wastewater. With phosphorus becoming an emerging nutrient of concern that we are now seeking to address this through aspects such as alum dosing (existing WWTPs) and enhanced biological phosphorus removal (**EBPR**) where new WWTP are proposed to be built.

7. MĀTAURANGA MĀORI

- 7.1 Fonterra supports the use of both Mātauranga Māori and western science methods in the preparation of resource consent applications to determine the potential impacts of its manufacturing-related discharges to land and water.

- 7.2 Through the re-consenting of its manufacturing activities, and in particular those that involve the discharge of contaminants to land and water, Fonterra has been working with local iwi to assess the potential effects of these using Mātauranga Māori methodologies.

7.3 This has included incorporating these methodologies into the technical assessments, and consent conditions. For example, a condition of consent for the Lichfield sites required Fonterra to prepare an Ecological Monitoring Plan for the Ngutuwera and Pokaiwhenua Streams using both mātauranga Māori and western scientific methods, and submit this to Regional Council, at five-yearly intervals over the life of the consent. The methodology is determined in consultation with the Raukawa Charitable Trust.⁸ Similar conditions are provided in the recent Te Awamutu consent.⁹

Brigid Buckley

3 May 2019

⁸ Condition 25 of Consent AUTH132861.03.01 – Dishcharge wastewater excess biomass solids and dairy liquids to land (Lichfield).

⁹ Conditions 15 and 16 of Consent AUTH132861.03.01 – Dishcharge wastewater excess biomass solids and dairy liquids to land (Lichfield).