

# Fonterra Whareroa

## Monitoring Programme

### Annual Report

#### 2021-2022

Technical Report 2022-41



Working with people | caring for Taranaki

Taranaki Regional Council  
Private Bag 713  
Stratford

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March 2023

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## Executive summary

Fonterra Co-operative Group Ltd (Fonterra) operates a dairy processing complex located on Whareroa Road at Hawera, between the Tangahoe catchment and another small unnamed catchment. Fonterra holds a total of 18 resource consents related to activities undertaken at the Whareroa site to allow for the abstraction of water from the Tawhiti Stream and Tangahoe River; the discharge of river silt and sand back to those two streams; the discharge of stormwater to unnamed tributaries of the Tawhiti Stream, the Tangahoe River and an unnamed coastal stream; the discharge of stormwater and sediment to land; the discharge of dairy factory wastewater to the Tasman Sea; the discharge of laboratory waste and unprocessable wastes to waste pits; the discharge of dairy liquids to land; and the discharge of emissions to air.

This report for the period July 2021 to June 2022 describes the monitoring programme implemented by the Taranaki Regional Council (the Council) to assess Fonterra's environmental and consent compliance performance during the period under review. The report also details the results of the monitoring undertaken and assesses the environmental effects of the Company's activities.

**During the monitoring period, Fonterra demonstrated levels of environmental and administrative performance that required improvement.**

The Council's monitoring programme for the year under review included ten scheduled site inspections; two composite samples from the outfall discharge for inter-laboratory comparison; 30 samples of stormwater pond discharges collected for physicochemical analysis; 11 grab samples of the outfall discharge for physicochemical and microbiological analysis; two biomonitoring surveys downstream of the stormwater pond discharge points; one intertidal survey; 30 deposition gauging samples; four nitrogen oxide (NO<sub>x</sub>) samples and two periods of fine airborne particulate (PM<sub>10</sub>) monitoring in relation to air emissions, and auditing of monitoring data collected by Fonterra.

The site was generally maintained in a satisfactory condition, with no significant issues noted during inspections. Routine monitoring found, under normal plant operation, that the activities at the site were not having any significant adverse impacts on the receiving environment.

Three incidents occurred during the year which required investigation by Council. The sump at the mixing chamber where flows from Fonterra and the STDC Hawera WWTP meet overflowed into the nearby tributary on two occasions in late 2021. Although no significant adverse effects were noted in the stream on either occasion, an abatement notice was issued following the second overflow and Fonterra undertook works to prevent further overflows and contain them if they did occur. A third incident involved the discharge of a small amount of DAF sludge solids. The majority of the spill was contained and Fonterra's explanation (14-day letter) was accepted without further action.

Fonterra have not met the deadlines for a number of reports as stipulated in the associated resource consents. Enforcement action may be required to ensure these reports are submitted as agreed upon by Fonterra during the consenting process.

During the year, Fonterra demonstrated levels of environmental performance and administrative performance that both required improvement as defined in Appendix II.

For reference, in the 2021-2022 year, consent holders were found to achieve a high level of environmental performance and compliance for 88% of the consents monitored through the Taranaki tailored monitoring programmes, while for another 10% of the consents, a good level of environmental performance and compliance was achieved.

In terms of overall environmental and compliance performance by the consent holder over the last several years, this report shows that the consent holder's performance remains at a level that requires improvement.

This report includes recommendations for the 2022-2023 year, including a recommendation relating to an optional review of consent 9908-1 in June 2023.

## Table of contents

	Page
1	Introduction
1.1	Compliance monitoring programme reports and the Resource Management Act 1991
1.1.1	Introduction
1.1.2	Structure of this report
1.1.3	The Resource Management Act 1991 and monitoring
1.1.4	Evaluation of environmental performance
1.2	Process description
1.3	Resource consents
1.4	Monitoring programme
1.4.1	Introduction
1.4.2	Programme liaison and management
1.4.3	Site inspections
1.4.4	Discharge sampling
1.4.4.1	Water
1.4.4.2	Air
1.4.5	Freshwater ecological surveys
1.4.6	Marine ecological surveys
1.4.7	Review of Fonterra monitoring data
2	Results
2.1	Water
2.1.1	Inspections
2.1.2	Water abstraction
2.1.2.1	Fish surveys and macroinvertebrate monitoring
2.1.3	Stormwater
2.1.3.1	Discharge monitoring
2.1.3.2	Freshwater biological inspections (spring survey)
2.1.3.3	Freshwater biomonitoring (summer survey)
2.1.4	Wastewater
2.1.4.1	Discharge composite samples
2.1.4.2	Discharge grab samples
2.1.4.3	Discharge inter-laboratory comparisons
2.1.4.4	Marine ecological surveys

2.2	Air	27
2.2.1	Inspections	27
2.2.2	Emission source analysis	27
2.2.3	Deposition gauging	28
2.2.4	Inhalable particulate (PM <sub>10</sub> ) monitoring	30
2.2.5	Nitrogen oxide (NO <sub>x</sub> ) monitoring	31
2.3	Incidents, investigations, and interventions	33
3	Discussion	35
3.1	Discussion of site performance	35
3.1.1	Inspections	35
3.1.2	Wastewater treatment plant - Dissolved Air Floatation (DAF) unit	35
3.1.3	Provision of data and reports	35
3.1.4	Monitoring and management plans	36
3.1.5	Financial contributions and the Environmental Enhancement Fund	37
3.2	Environmental effects of exercise of consents	37
3.2.1	Abstractions	37
3.2.2	Stormwater	37
3.2.3	Wastewater	38
3.2.4	Air discharges	39
3.3	Evaluation of performance	39
3.3.1	Water abstraction	39
3.3.2	Water discharges	41
3.3.3	Coastal permits	46
3.3.4	Air discharges	46
3.3.5	Discharges of waste to land	52
3.3.6	Land use permits	55
3.4	Recommendations from the 2020-2021 Annual Report	57
3.5	Alterations to monitoring programmes for 2022-2023	58
3.6	Exercise of optional review of consent	58
4	Recommendations	59
	Glossary of common terms and abbreviations	60
	Bibliography and references	62
	Appendix I Resource consents held by Fonterra	

Appendix II Categories used to evaluate environmental and administrative performance

Appendix III Fonterra Whareroa water abstraction: Hydrographs and summary statistics 2022-2023

Appendix IV Fonterra Whareroa wastewater constituent mass loads (Annual estimates 2010-2022)

## List of tables

Table 1	Product manufactured at Fonterra annually	2
Table 2	Summary of resource consents held by Fonterra for the Whareroa site	5
Table 3	Summary of abstraction rate data for 2021-2022	10
Table 4	Limits for stormwater composition for each parameter (consents 3902, 3907, 4133)	12
Table 5	Sample results for the stormwater discharge to an unnamed tributary of the Tawhiti Stream	13
Table 6	Sample results for the stormwater discharge to an unnamed tributary of the Tangahoe River	14
Table 7	Sample results for the stormwater discharge to an unnamed coastal stream	15
Table 8	Summary of wastewater volume data for 2021-2022	19
Table 9	Summary of daily wastewater discharge composition data (2021-2022)	22
Table 10	Summary of estimated annual total masses and average concentrations of wastewater discharge constituents over the past five monitoring years, for the 11-month dairy season (July-May)	23
Table 11	Results of wastewater grab sample analyses for 2021-2022	24
Table 12	Inter-laboratory comparisons performed on 24 hour composite wastewater samples (2021-2022)	25
Table 13	Emission source analysis results for 2021-2022 (special condition 7)	27
Table 14	Emission source analysis results for 2021-2022 (special condition 8)	27
Table 15	Total deposited milk powder values (mg/m <sup>2</sup> /day) for each monitoring site during 2021	29
Table 16	Daily mean of PM10 results during four days' monitoring at Whareroa dairy complex	30
Table 17	NO <sub>x</sub> levels and theoretical 1 hour and 24 hour maximums for each air monitoring site at Fonterra (2021-2022)	32
Table 18	Incidents, investigations, and interventions summary table	33
Table 19	Wastewater discharge compliance history 2016-2021	38
Table 20	Summary of performance for Consent 0047-4.1	39
Table 21	Summary of performance for Consent 1450-3.1	41
Table 22	Summary of performance for Consent 3902-3.0	43
Table 23	Summary of performance for Consent 3907-3.0	43
Table 24	Summary of performance for Consent 4133-3.1	44
Table 25	Summary of performance for Consent 4927-2.0	45
Table 26	Summary of performance for Consent 5148-2.0	45

Table 27	Summary of performance for Consent 5013-2.0	46
Table 28	Summary of performance for Consent 4103-2.3	46
Table 29	Summary of performance for Consent 5044-2.0	47
Table 30	Summary of performance for Consent 6257-1.1	48
Table 31	Summary of performance for Consent 6273-1.1	50
Table 32	Summary of performance for Consent 7465-1.0	51
Table 33	Summary of performance for Consent 4406-2.0	52
Table 34	Summary of performance for Consent 5036-2.0	53
Table 35	Summary of performance for Consent 9908-1.0	54
Table 36	Summary of performance for Consent 10208-1.0	55
Table 37	Evaluation of overall environmental performance over time	57

## List of figures

Figure 1	Approximate stormwater catchments at the Whareroa site	11
Figure 2	Spring biomonitoring sites with taxa number, MCI scores and SQMCI scores for each site	17
Figure 3	Summer biomonitoring sites with taxa number, MCI scores and SQMCI scores for each site	18
Figure 4	Daily volumes of wastewater discharged through the ocean outfall	20
Figure 5	Daily, average concentrations of suspended solids in wastewater discharge, based on 24 hour time-proportioned composite samples	21
Figure 6	Daily, average concentrations of fats in wastewater discharge, based on 24 hour time-proportioned composite samples	21
Figure 7	Daily, average COD in wastewater discharge, based on 24 hour time-proportioned composite samples	22
Figure 8	Map of sampling sites in relation to the outfall	25
Figure 9	Mean number of species per quadrat for summer surveys (1986-2022)	26
Figure 10	Mean Shannon-Weiner Indices per quadrat for summer surveys (1986-2022)	26
Figure 11	Location of air deposition sites	28
Figure 12	Milk powder fallout at air deposition sites surrounding Whareroa (September to December 2021)	29
Figure 13	PM <sub>10</sub> concentrations (µg/m <sup>3</sup> ) at the Whareroa dairy complex	30
Figure 14	NO <sub>x</sub> sample site locations around the Fonterra plant	32
Figure 15	Average NO <sub>x</sub> levels at seven monitored industrial sites in southern Taranaki	33

## List of photos

Photo 1	The Fonterra Whareroa site	4
Photo 2	Tangahoe River intake structure	9
Photo 3	The weir and fish pass on the Tawhiti Stream	11
Photo 4	Southern stormwater pond following upgrade (surrounded by native riparian plantings)	12

# 1 Introduction

## 1.1 Compliance monitoring programme reports and the Resource Management Act 1991

### 1.1.1 Introduction

This report is for the period July 2021 to June 2022 by the Taranaki Regional Council (the Council) on the monitoring programme associated with resource consents held by Fonterra Co-operative Group Ltd (Fonterra). Fonterra operates a dairy processing complex situated on Whareroa Road at Hawera.

The report includes the results and findings of the monitoring programme implemented by the Council in respect of the consents held by Fonterra that relate to abstractions and discharges of water within the Tangahoe and Tawhiti catchments and discharges to the Tasman Sea. This report also covers the air discharge permits held by Fonterra to cover emissions to air from the site. This report is the 29<sup>th</sup> annual report to be prepared by the Council to cover Fonterra's air, land and water discharges and their effects.

### 1.1.2 Structure of this report

**Section 1** of this report is a background section. It sets out general information about:

- consent compliance monitoring under the *Resource Management Act 1991* (RMA) and the Council's obligations;
- the Council's approach to monitoring sites through annual programmes;
- the resource consents held by Fonterra relating to activities on and around the Whareroa site;
- the nature of the monitoring programme in place for the period under review; and
- a description of the activities and operations conducted at the Fonterra site.

**Section 2** presents the results of monitoring during the period under review, including scientific and technical data.

**Section 3** discusses the results, their interpretations, and their significance for the environment.

**Section 4** presents recommendations to be implemented in the 2022-2023 monitoring year.

A glossary of common abbreviations and scientific terms, and a bibliography, are presented at the end of the report.

### 1.1.3 The Resource Management Act 1991 and monitoring

The RMA primarily addresses environmental 'effects' which are defined as positive or adverse, temporary or permanent, past, present or future, or cumulative. Effects may arise in relation to:

- a. the neighbourhood or the wider community around an activity, and may include cultural and social-economic effects;
- b. physical effects on the locality, including landscape, amenity and visual effects;
- c. ecosystems, including effects on plants, animals, or habitats, whether aquatic or terrestrial;
- d. natural and physical resources having special significance (for example recreational, cultural, or aesthetic); and
- e. risks to the neighbourhood or environment.

In drafting and reviewing conditions on discharge permits, and in implementing monitoring programmes, the Council is recognising the comprehensive meaning of 'effects' in as much as is appropriate for each

activity. Monitoring programmes are not only based on existing permit conditions, but also on the obligations of the RMA to assess the effects of the exercise of consents. In accordance with Section 35 of the RMA, the Council undertakes compliance monitoring for consents and rules in regional plans, and maintains an overview of the performance of resource users and consent holders. Compliance monitoring, including both activity and impact monitoring, enables the Council to continually re-evaluate its approach and that of consent holders to resource management and, ultimately, through the refinement of methods and considered responsible resource utilisation, to move closer to achieving sustainable development of the region's resources.

### 1.1.4 Evaluation of environmental performance

Besides discussing the various details of the performance and extent of compliance by the consent holders, this report also assigns a rating as to each Company's environmental and administrative performance during the period under review. The rating categories are high, good, improvement required and poor for both environmental and administrative performance. The interpretations for these ratings are found in Appendix II.

For reference, in the 2021-2022 year, consent holders were found to achieve a high level of environmental performance and compliance for 88% of the consents monitored through the Taranaki tailored monitoring programmes, while for another 10% of the consents, a good level of environmental performance and compliance was achieved.<sup>1</sup>

## 1.2 Process description

The Whareroa dairy factory was established in 1972 and is currently operated by Fonterra. The site processes up to 14 million litres of milk a day and produces the largest volume of dairy ingredients from a single factory worldwide. Annually, the factory produces about 428,000 tonnes of milk powder, cheese, cream, protein and lactic casein ingredients (Table 1).

**Table 1 Product manufactured at Fonterra annually**

Generic product	Metric tonnes/season
Whole & skim milk powders	200,000
Cheese products	95,000
Cream products	88,000
Protein products	35,000
Lactic casein	10,000
Total	428,000

The Whareroa site covers approximately 25 ha and is situated on Whareroa Road, east of Hawera (Photo 1). The site includes five milk powder dryers, two cheese plants, a casein plant, a butter plant, a whey plant, a laboratory, a tanker depot, a co-generation plant, a water treatment plant, a rail siding and storage for finished product.

Significant expansion of the factory occurred during the 1996-1997 season. Kiwi Co-operative Dairies greatly increased its milk supply area through the acquisition of small dairy companies in the South Island and the Hawke's Bay and through a merger with the Tui Dairy Company in the Manawatu. Accordingly, the

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<sup>1</sup> The Council has used these compliance grading criteria for more than 18 years. They align closely with the 4 compliance grades in the MfE Best Practice Guidelines for Compliance, Monitoring and Enforcement, 2018

construction of a number of new plants, the upgrade of several existing plants, and improvements in waste treatment systems were undertaken during the 1996-1997 monitoring period.

Currently, the site obtains its water supply from two nearby surface waterways and supplements this with water derived from the milk process (i.e. condensate). Wastewater is discharged through a long marine outfall (1,845 m). Energy is mainly sourced from two on-site gas-fired co-generation plants, operated as a joint venture with Todd Energy Ltd. The 68 Mega Watt plants provide all the steam and electricity requirements for the site.

The consolidation of the dairy processing industry in Taranaki has led to a corresponding centralisation of discharges to both air and water. In 1981 there were 22 dairy processing sites in Taranaki and the resulting discharges to air and water and abstraction of water were dispersed throughout the region. Now the environmental effects are largely confined to the activities at the Whareroa site.

In the 2014-2015 season, a new distribution centre was constructed at the Whareroa site, almost doubling the site's total dry storage capacity to 70,000 tonnes. A new rail loop and siding were constructed to enable increased load out of product by rail. Together, these developments mean a reduction in freight movements by road and more movements by rail.

In the 2015-2016 season, a new chemical storage facility was installed at the tanker workshop, and a new water treatment plant was built (commissioned in August 2016). The plant enables Fonterra to produce water that meets drinking water standards while minimising the amount of water abstracted from the two rivers. The new plant uses less water for back-flushing the filters. The construction of two settling lagoons allows for the recycling of up to 10% of the back-flushing water through the treatment plant.

In the 2016-2017 season, a Reverse Osmosis Plant was installed in the Utilities Department. This system now treats evaporator condensate so that it can be used on site; reducing the amount of water that is abstracted from the rivers. Numerous improvements were made to plants to reduce losses and maximise yield of product which has led to a decrease in fat, COD and suspended solids in the wastewater, compared with previous years. Particulate meters were installed in the dryer exhaust stacks of the Powder-2 and Whey Products powder plants; enabling real-time monitoring of the quality of the air emissions, providing assurance that emissions control measures are working correctly.

Several projects were completed during the 2017-2018 period. These projects were driven by internal targets for reducing energy use, water use and waste volumes, whilst increasing product yield. In the Casein plant, a curd "wash water" recovery project was completed which has significantly reduced the protein, fat and lactose in the plant wastewater. Condensate recovery was recommissioned in Powder 2; diverting water for use in other plants, rather than going to wastewater. Development began on the in-line stormwater monitoring and diversion system. Energy and water use was reduced in the Milk Treatment department by reducing the rinse times during CIPs (clean in place). The wastewater loss monitoring and loss reduction programs continued with increased focus in the 2017-2018 season. Losses were reported at daily management meetings, while water and energy usage is reported on a weekly basis.



Photo 1 The Fonterra Whareroa site

In the 2018-2019, the Whareroa Stormwater Project (WSP) was completed and fully operational midway through the year. The WSP is a comprehensive stormwater monitoring and containment scheme which continuously monitors stormwater quality, alerts staff to potential stormwater contamination events in real time and automatically diverts any contaminated stormwater to newly constructed contingency ponds. The project involved the installation of inline monitoring in the five main stormwater sumps. These instruments continuously analyse the stormwater for turbidity, pH and conductivity. Any stormwater that exceeds set trigger levels for these parameters is automatically diverted to one of three stormwater contingency ponds, intended to prevent non-compliant stormwater from discharging to waterways. At the same time, the system alerts staff on site that a stormwater event has occurred. This was a significant capital investment to protect the local waterways and reduce the risk of non-compliance. Particulate meters were also installed on the three Powder 3 drier exhausts stacks during 2018-2019. These meters now provide a real time indication of the particulate concentration being emitted from the stacks. The plant has trigger limits in place which drive actions to be taken when the levels increase. This information has helped the plant better understand the effects that various plant operating conditions can have on emissions concentrations. Solid waste reduction targets have been set for the site.

The key sustainability objectives and targets at the Whareroa site in the 2019-2020 season were to reduce water use, reduce energy use and reduce waste to landfill. Equipment was installed in the 2018-2019 season to enable the factory to reuse water from the processing plants in the boiler and cooling towers. During the 2019-2020 season these changes reduced water usage by more than 250 million litres and Fonterra estimate this could improve to 300 million litres as the system is optimised. Progress was made on five energy reduction projects during 2019-2020. Once complete it is estimated that these projects will reduce energy consumption by approximately 149,000 GJ per year; the equivalent to powering almost 6,000 New Zealand households for a year. The Whareroa site implemented a number of recycling and composting initiatives during the year. The biggest improvement was achieved by working with a Whanganui based composting company to compost food waste from the staff canteen and site laboratory. In the six months since establishing this connection, over 33 tonnes of food waste has been diverted from landfill to composting.

Further plant upgrades were undertaken in the 2020-2021 season, as discussed in Section 2.1.

### 1.3 Resource consents

Fonterra holds 18 resource consents the details of which are summarised in the table below. Summaries of the conditions attached to each permit are set out in Section 3 of this report.

A summary of the various consent types issued by the Council is included in Appendix I, as are copies of all permits held by Fonterra during the period under review.

**Table 2 Summary of resource consents held by Fonterra for the Whareroa site**

Consent number	Purpose	Granted	Review	Expires
<i>Water abstraction permit</i>				
<b>0047-4</b>	To take water from the Tawhiti Stream and the Tangahoe River for the purposes of processing and manufacturing dairy products, cleaning of plant, cooling, domestic use and for a co-generation plant	Nov 2017	June 2026	June 2052
<i>Water discharge permits</i>				
<b>1450-3</b>	To discharge all wastewater from dairy factory processes and associated processes undertaken at the Whareroa dairy processing site through a marine outfall into the Tasman Sea	Nov 2017	June 2026	June 2052
<b>3902-3</b>	To discharge stormwater from the Whareroa milk processing site into an unnamed tributary of the Tangahoe River	Feb 2014	-	June 2028
<b>3907-3</b>	To discharge stormwater, back flushing from the sand filters and intermittent discharges of treated water from a reservoir, from the Whareroa milk processing site into an unnamed tributary of the Tawhiti Stream	Feb 2014	-	June 2028
<b>4133-3.1</b>	To discharge stormwater, backwash and treated process water from the Whareroa milk processing site and the Water Treatment Plant into Unnamed Stream 18	Jan 2016	-	June 2028
<b>4927-2</b>	To discharge river silt and sand from mechanical pre-filtering of river water during abstraction of water, by returning it into the Tawhiti Stream	Nov 2017	June 2024	June 2052
<b>5148-2</b>	To discharge river silt and sand from mechanical pre-filtering of river water during abstraction of water, by returning it into the Tangahoe River	Nov 2017	June 2024	June 2052
<i>Air discharge permit</i>				
<b>4103-2.3</b>	To discharge emissions into the air from the manufacture and processing of milk products and associated processes	Jul 2018	-	June 2025
<b>5044-2</b>	To discharge emissions into the air from the disposal of laboratory wastes, and stormwater and sump cleanings onto and into land	Feb 2004	-	June 2022
<b>6257-1.1</b>	To discharge emissions into the air from dual fuel boilers (gas or coal) with a maximum energy output of 250 MW together with associated processes	June 2015	June 2028	June 2034

Consent number	Purpose	Granted	Review	Expires
<b>6273-1.1</b>	To discharge emissions into the air from 'Cogen-I' and 'Cogen-II' co-generation energy generating plants with an energy output of 70 MW together with associated processes	Oct 2018	-	June 2025
<b>7465-1</b>	To discharge emissions into the air from the combustion of waste wood packaging	Mar 2009	-	June 2028
<i>Discharges of waste to land</i>				
<b>4406-2</b>	To discharge laboratory wastes onto and into land	Feb 2004	-	June 2022
<b>5036-2</b>	To discharge waste material from stormwater sumps and road sump and unprocessable dairy factory wastes onto and into land	Dec 2012	-	June 2022
<b>9908-1</b>	To discharge dairy liquids onto land and the associated emissions to air, in various locations throughout the Taranaki region	June 2014	June 2023	June 2034
<i>Land use permits</i>				
<b>10208-1</b>	To construct, place and use a water intake structure in the bed of the Tangahoe River for industrial water supply purposes, including associated discharge of construction stormwater from the site	Feb 2016	June 2028	June 2034
<b>5845-1</b>	To remove, reconstruct, erect, place and maintain a dam structure and associated fish pass on the Tawhiti Stream for water intake purposes	July 2001	-	June 2015*
<i>Coastal permits</i>				
<b>5013-2</b>	To occupy the Coastal Marine Area with and carry out routine maintenance on: <ul style="list-style-type: none"> <li>• a marine outfall pipeline and diffuser structure approximately 1845 m long; and</li> <li>• a rock wall approximately 100 m long for the protection of the outfall, stream diversion pipelines and associated structures</li> </ul>	Nov 2017	June 2026	June 2052

\* This consent expired in June 2015 as it was wrongly classified as a permitted activity. Fonterra are currently working on a consent renewal application.

## 1.4 Monitoring programme

### 1.4.1 Introduction

Section 35 of the RMA sets obligations upon the Council to gather information, monitor and conduct research on the exercise of resource consents within the Taranaki region. The Council is also required to assess the effects arising from the exercising of these consents and report upon them.

The Council may therefore make and record measurements of physical and chemical parameters, take samples for analysis, carry out surveys and inspections, conduct investigations and seek information from consent holders.

The monitoring programme for the Whareroa site consisted of six primary components.

## 1.4.2 Programme liaison and management

There is generally a significant investment of time and resources by the Council in:

- ongoing liaison with resource consent holders over consent conditions and their interpretation and application;
- discussion over monitoring requirements;
- preparation for any consent reviews, renewals or new consent applications;
- advice on the Council's environmental management strategies and content of regional plans; and
- consultation on associated matters.

## 1.4.3 Site inspections

The Whareroa site was visited ten times during the monitoring period. With regard to consents for the abstraction of or discharge to water, the main points of interest were plant processes with potential or actual discharges to receiving watercourses, including contaminated stormwater and process wastewaters. Air inspections focused on plant processes with associated actual and potential emission sources and characteristics, including potential odour, dust, noxious or offensive emissions. Sources of data being collected by the Company were identified and accessed, so that performance in respect of operation, internal monitoring, and supervision could be reviewed by the Council. The neighbourhood was surveyed for environmental effects.

## 1.4.4 Discharge sampling

### 1.4.4.1 Water

The stormwater discharge was sampled on ten occasions (from three points) and the samples analysed for alkalinity, COD, biological oxygen demand (BOD and filtered carbonaceous BOD), conductivity, pH, free and total chlorine, oil and grease and suspended solids.

The outfall discharge was sampled on ten occasions and analysed for *E. coli* and enterococci, oil and grease, suspended solids, COD, pH and conductivity.

Inter-laboratory comparisons of a 24 hour time-proportional sample were carried out on two occasions and analysed for conductivity, pH, fats, COD, alkalinity, BOD, suspended solids, nitrogen, phosphorus, faecal coliforms and turbidity.

### 1.4.4.2 Air

The Council undertook sampling of both the emissions from the site and the ambient air quality in the areas surrounding the site.

Deposition gauges were placed at five selected sites in the vicinity of the factory on six occasions. The samples collected were analysed for total deposited milk powder.

A 'DustTrak' monitor was deployed on two occasions in the vicinity of the site in order to monitor levels of inhalable particulates (PM<sub>10</sub>).

Monitoring of ambient nitrogen oxide (NO<sub>x</sub>) levels at the site was conducted on two occasions using passive absorption discs at four sampling sites.

## 1.4.5 Freshwater ecological surveys

A three site biomonitoring survey was undertaken during spring in an unnamed tributary of the Tangahoe River, while a summer biomonitoring survey was undertaken at six sites in tributaries of the Tawhiti Stream

(two sites), Tangahoe River (three sites) and an unnamed coastal stream (one site), to assess whether stormwater discharges had had any adverse effects on the macroinvertebrate communities of these streams. Samples were processed to provide number of taxa (richness), MCI and SQMCI<sub>s</sub> scores for each site. They were also checked for heterotrophic growths.

A fish survey is undertaken in the Tawhiti Stream every three years in order to assess if the intake, fish pass, or discharge of sediment undertaken in relation to the Fonterra Whareroa water abstraction have had any impact on the fish communities of the Tawhiti Stream. This survey was carried out in the 2016-2017 monitoring year and was due to be undertaken in 2019-2020. However, this survey was postponed until the 2020-2021 monitoring year instead. A survey will next be undertaken during 2023-2024.

#### 1.4.6 Marine ecological surveys

A marine ecological survey was performed on one occasion at four sites on the coast surrounding the marine outfall to determine whether the discharge of wastewater through the outfall has had a detrimental effect upon the intertidal marine communities.

#### 1.4.7 Review of Fonterra monitoring data

Fonterra routinely monitors the wastewater discharge for a number of physical, chemical and biochemical parameters. Results are forwarded to the Council along with data relating to water abstractions from the Tangahoe catchment.

Fonterra's independent consultants, Verum Group, carried out powder emission measurements on drier exhaust stacks between December 2021 and February 2022. The Council undertook a review of all data upon receipt.

## 2 Results

### 2.1 Water

#### 2.1.1 Inspections

Routine site inspections were conducted on a monthly basis throughout the 2021-2022 dairy season. A total of ten site inspections were undertaken between August 2021 and June 2022, with each visit including an assessment of stormwater catchments, chemical storage, truck wash areas, and general site maintenance and management. The three stormwater discharges and the wastewater discharge to the Tasman Sea were also inspected and sampled during the visits.

Overall, site management was found to be good throughout the monitoring period. Based on the inspections that were undertaken, the site was largely compliant with consent conditions.

#### 2.1.2 Water abstraction

Fonterra holds resource consent 0047-4, which authorizes a daily abstraction of up to 30,000 m<sup>3</sup>/day of water from two locations in the Tangahoe catchment; including the Tawhiti Stream and the Tangahoe River. The exercise of this consent is monitored by both Fonterra and the Council.

Fonterra continuously measures abstraction rates for both intakes and daily abstraction rate data has been supplied on a monthly basis to the Council for review. Instantaneous abstraction data is also telemetered to the Council's database.



Photo 2 Tangahoe River intake structure

The Council maintains telemetered hydrological recorders in the Tawhiti Stream and Tangahoe Rivers, downstream of the abstraction points, to monitor compliance with flow restrictions on consent 0047-4.

#### Abstraction limits

Condition 1 states that the total amount of water abstracted from the Tawhiti and Tangahoe locations over 24 hours (from 06:00 to 06:00) must not exceed 30,000 m<sup>3</sup>. A summary of the abstraction data provided by Fonterra is presented in Table 3. Compliance with the maximum daily abstraction volume has been determined in terms of number of days that limits were breached. Fonterra was found to be compliant with these conditions for the duration of the monitoring period. The maximum daily abstraction from the Tawhiti Stream was 18,875 m<sup>3</sup> which occurred on 5 October 2021. The maximum daily abstraction from the Tangahoe River was 24,345 m<sup>3</sup> which occurred on 17 January 2022. The maximum combined daily abstraction from both locations was 24,734 m<sup>3</sup> on 21 September 2021.

Table 3 Summary of abstraction rate data for 2021-2022

Month	Tawhiti Stream			Tangahoe River			Total abstraction		
	Mean m <sup>3</sup> /day	Max m <sup>3</sup> /day	Breach days	Mean m <sup>3</sup> /day	Max m <sup>3</sup> /day	Breach days	Mean m <sup>3</sup> /day	Max m <sup>3</sup> /day	Breach days
July	100	1,953	0	6,938	12,985	0	7,039	13,008	0
August	2,739	10,800	0	12,795	17,560	0	15,534	17,560	0
September	7,367	11,633	0	12,563	20,056	0	19,929	24,734	0
October	5,442	18,875	0	15,297	23,004	0	20,739	23,004	0
November	0	0	0	20,135	22,455	0	20,135	22,455	0
December	4,293	16,545	0	15,488	23,860	0	19,781	23,860	0
January	347	9,601	0	19,676	24,345	0	20,023	24,345	0
February	6,299	16,648	0	11,197	16,648	0	17,495	21,807	0
March	1,568	9,390	0	16,280	19,418	0	17,847	20,900	0
April	1,699	13,747	0	16,711	20,784	0	18,410	21,894	0
May	0	0	0	13,724	20,260	0	13,724	20,260	0
June	0	0	0	3,304	7,508	0	3,304	7,508	0

Condition 2 states that when the flow in the Tawhiti Stream is less than 800 L/s, the rate of taking from the Tawhiti Stream shall not exceed 184 L/s, unless the turbidity of the Tangahoe River at the take site is greater than 850 NTU, and then the rate shall not exceed 347 L/s.

In 2021-2022, the Tawhiti abstraction rate did not exceed 184 L/s at any time that the stream flow rate was less than 800 L/s. The Tawhiti Stream flow and abstraction rate are presented in Appendix II.

#### Minimum flows

Condition 3 states that no abstraction shall occur when the flow immediately downstream of the Tangahoe River take site is less than 450 L/s (though this can be as low as 273 L/s during an 'emergency period' of up to 48 hours under Condition 5). Additionally, for 21 days of the monitoring year, Fonterra are able to continue abstracting from the Tangahoe when the flow is between 300 and 450 L/s under Condition 4. The minimum flow was maintained above 450 L/s during 2021-2022 (Appendix II). The minimum flow recorded during the year was 915 L/s on 5 March 2022.

Condition 3 also states that no abstraction shall occur when the flow in the Tawhiti Stream is less than 240 L/s (though this can be as low as 50 L/s during an 'emergency period' of up to 48 hours under Condition 5). Flow in the Tawhiti Stream flow did not drop below 240 L/s during 2021-2022. The minimum recorded flow was 350 L/s on 31 January 2022 (Appendix III).

#### 2.1.2.1 Fish surveys and macroinvertebrate monitoring

Fish surveys are undertaken in the Tawhiti Stream and Tangahoe River to assess if there are any adverse effects from the Fonterra Whareroa water abstraction, and backwash activities, including passage of fish. In conjunction with the fish surveys, macroinvertebrate surveys are carried out to assess any potential impacts the consented water abstraction and discharges may have had on the macroinvertebrate communities of this stream. The surveys are carried out triennially, with the next surveys scheduled in the 2023-2024 monitoring period.



Photo 3 The weir and fish pass on the Tawhiti Stream

### 2.1.3 Stormwater



There are three stormwater catchments covering the Whareroa site. The northern catchment drains to an unnamed tributary of the Tawhiti Stream (consent 3907), the eastern catchment drains to an unnamed tributary of the Tangahoe River (consent 3902), while the southern catchment drains to an unnamed coastal stream (consent 4133). The discharge to the unnamed tributary of the Tawhiti Stream can also include intermittent discharges of back flushing from sand filters and chlorinated water from the water reservoir. The approximate stormwater catchment areas at the Whareroa site are shown in Figure 1.

Figure 1 Approximate stormwater catchments at the Whareroa site

There is a detention pond system in place for each of the three stormwater catchments (Photo 4). These ponds are designed to contain any spillage that occurs on the site, attenuate storm flows and provide rudimentary treatment of site stormwater.



Photo 4 Southern stormwater pond following upgrade (surrounded by native riparian plantings)

Midway through the 2018-2019 season, the Whareroa Stormwater Project (WSP) was completed and became fully operational. The WSP is a comprehensive stormwater monitoring and containment scheme which continuously monitors stormwater quality, alerts staff to potential stormwater contamination events in real time and automatically diverts any contaminated stormwater away from the detention ponds and into newly constructed contingency ponds. The project involved the installation of in-line monitoring in the five main stormwater sumps. These instruments continuously analyse the stormwater for turbidity, pH and conductivity. Any stormwater that exceeds set trigger levels for these parameters is automatically diverted to one of three stormwater contingency ponds, preventing non-compliant stormwater from discharging to waterways. At the same time, the system alerts staff on site that a stormwater event has occurred.

During the 2021-2022 reporting period, the monitoring of stormwater discharges consisted of two components; the collection of stormwater discharge samples, and freshwater macroinvertebrate surveys in spring (three sites in an unnamed tributary of the Tangahoe River), and summer (two sites in an unnamed tributary of the Tawhiti stream, three sites in an unnamed tributary of the Tangahoe River, and one site in an unnamed coastal stream).

### 2.1.3.1 Discharge monitoring

Discharge samples were collected during each site inspection. The samples were analysed for temperature, conductivity, pH, alkalinity, oil and grease, total residual chlorine, free chlorine, suspended solids, turbidity, chemical oxygen demand (COD), biochemical oxygen demand (BOD) and filtered carbonaceous biochemical oxygen demand (BODCF). Parameters, with associated consent limits, are listed in Table 4.

Table 4 Limits for stormwater composition for each parameter (consents 3902, 3907, 4133)

Parameter	Units	Consent limit*		
		3902	3907	4133
Temperature	°C	25	25	25
Oil and grease	g/m <sup>3</sup>	5	5	5
Total residual chlorine	g/m <sup>3</sup>	0.2	0.2	0.2

Parameter	Units	Consent limit*		
		3902	3907	4133
pH	pH	6.0-9.0	6.0-9.0	6.0-9.0
Suspended solids	g/m <sup>3</sup>	30	30	100
BOD	g/m <sup>3</sup>	10	10	10
BODCF	g/m <sup>3</sup>	2.0	2.0	2.0

\* Consent limits apply to eight out of ten consecutive samples over the course of an annual monitoring period

### Tributary of Tawhiti Stream

Samples of the discharge to the Tawhiti tributary are taken at the outlet of the three-pond system. Since the construction of the three-pond system, there has been a considerable decrease in the levels of BOD and suspended solids in the discharge, while temperature, conductivity and pH have remained constant. Oil and grease (O&G) and free chlorine levels have typically remained low since the site upgrade.

Sample results for the discharge to the Tawhiti tributary are presented in Table 5. A summary of previous results, since the installation of the three-pond system in 1998, is also included for comparison.

An elevated total chlorine concentration was detected on 18 January 2022 (0.24 g/m<sup>3</sup>). No other stormwater contaminants exceeded consent thresholds during the 2021-2022 monitoring year.

Overall, no single parameter exceeded the consent limit on three occasions or more, therefore, stormwater samples in this catchment were fully compliant during the year. The contaminants not assessed against consent limits were comparable with those from previous surveys.

**Table 5** Sample results for the stormwater discharge to an unnamed tributary of the Tawhiti Stream

Parameter	Alkalinity	BODCF	BOD	COD	Condy	O&G	pH	SS	Turb.	Temp.	Total Cl <sub>2</sub>	Free Cl <sub>2</sub>
Unit	g/m <sup>3</sup> CaCO <sub>3</sub>	g/m <sup>3</sup>	g/m <sup>3</sup>	g/m <sup>3</sup>	µS/cm @ 25°C	g/m <sup>3</sup>	pH	g/m <sup>3</sup>	FNU	°C	g/m <sup>3</sup>	g/m <sup>3</sup>
Summary statistics previous data (November 1998 to June 2021)												
Minimum	12.1	<1.0	<0.5	2.5	150	<0.5	6.9	<3	1.0	8.0	<0.07	<0.07
Maximum	157	19	21	210	408	25	9.9	660	350	22.5	0.3	0.3
Median	67	<0.1	1.1	10	299	<0.5	7.6	7	5.0	15.7	<0.1	<0.1
Number	166	106	179	175	176	171	175	173	135	173	173	172
2021-2022 monitoring results												
6 Aug 2021	54	< 1.0	< 0.8	7	212	< 5	6.8	< 3	4.2	12.2	<0.07	<0.07
16 Sep 2021	60	< 1.0	1.0	< 6	253	< 4	7.2	< 3	3.0	11.7	<0.07	<0.07
29 Oct 2021	75	< 1.0	1.7	8	290	< 4	7.2	6	3.8	17.5	0.12	<0.07
17 Nov 2021	49	< 1.0	< 0.8	6	197	< 4	7.0	< 3	1.4	-	0.15	0.1
20 Dec 2021	38	< 1.0	1.0	7	135	< 4	7.4	< 3	1.7	19.4	<0.07	<0.07
18 Jan 2022	69	1.0	1.2	8	270	< 4	7.6	8	2.2	20.5	<b>0.24</b>	0.11
16 Feb 2022	52	1.3	1.5	6	248	< 4	7.4	6	2.1	18.3	0.09	<0.07

Parameter	Alkalinity	BODCF	BOD	COD	Condy	O&G	pH	SS	Turb.	Temp.	Total Cl <sub>2</sub>	Free Cl <sub>2</sub>
Unit	g/m <sup>3</sup> CaCO <sub>3</sub>	g/m <sup>3</sup>	g/m <sup>3</sup>	g/m <sup>3</sup>	µS/cm @ 25°C	g/m <sup>3</sup>	pH	g/m <sup>3</sup>	FNU	°C	g/m <sup>3</sup>	g/m <sup>3</sup>
17 Mar 2022	73	< 1.0	1.6	14	294	< 4	7.6	12	2.3	16.4	<0.07	0.08
22 Apr 2022	36	< 1.0	0.6	< 6	160	4	7.3	6	4.2	16.8	<0.07	<0.07
30 May 2022	72	1.1	0.8	18	278	< 4	7.5	4	3.6	13.0	<0.07	<0.07
<b>Consent limit*</b>	-	<b>2.0</b>	<b>10</b>	-	-	<b>5</b>	<b>6.0 – 9.0</b>	<b>30</b>	-	<b>25</b>	<b>0.2</b>	-

Refer to glossary for an explanation of abbreviations

\* Consent limits apply to eight out of ten consecutive samples over the course of an annual monitoring period

### Tributary of Tangahoe River

Samples of the discharge to the Tangahoe tributary are taken at the outlet of the two-pond system. The characteristics of the discharge have changed since the construction of the ponds. On average, the temperature, conductivity, alkalinity, BOD and O&G values recorded have decreased, while the pH and chlorine values have increased.

Samples of the discharge to the Tangahoe tributary are presented in Table 6. A summary of previous results, since the installation of the two-pond system in 1996, is also included for comparison.

**Table 6** Sample results for the stormwater discharge to an unnamed tributary of the Tangahoe River

Parameter	Alkalinity	BODCF	BOD	COD	Condy	O&G	pH	SS	Turb.	Temp.	Total Cl <sub>2</sub>	Free Cl <sub>2</sub>
Unit	g/m <sup>3</sup> CaCO <sub>3</sub>	g/m <sup>3</sup>	g/m <sup>3</sup>	g/m <sup>3</sup>	µS/cm @ 25°C	g/m <sup>3</sup>	pH	g/m <sup>3</sup>	FNU	°C	g/m <sup>3</sup>	g/m <sup>3</sup>
<b>Summary statistics previous data (May 1996 to June 2021)</b>												
Minimum	28	<1.0	<0.8	<6	40	<4	6.8	<2	0.58	8.1	<0.07	<0.02
Maximum	235	3.6	93	220	644	26	9.8	130	48	23.5	0.5	0.4
Median	122	0.8	4.4	20	412	<0.5	7.9	9	4.9	16.4	<0.1	<0.1
Number	171	105	174	174	175	170	177	175	143	171	170	170
<b>2021-2022 monitoring results</b>												
6 Aug 2021	97	< 1.0	< 0.8	12	387	< 5	7.2	< 3	2.4	12.6	<0.07	<0.07
16 Sep 2021	140	< 1.0	7.3	26	446	8	7.3	12	5.3	12	0.08	<0.07
29 Oct 2021	156	1.2	7.7	26	457	< 4	7.8	11	9.1	18.3	0.16	0.13
17 Nov 2021	170	1.6	<b>11.4</b>	44	447	<b>240</b>	7.6	21	10.1	19.6	0.11	0.07
20 Dec 2021	126	1.0	2.4	16	392	< 4	7.4	5	4.2	19.6	0.13	0.09
18 Jan 2022	199	< 1.0	3.5	< 6	555	< 4	7.8	6	4.9	23	<b>0.28</b>	0.25
16 Feb 2022	106	< 1.0	2.3	15	465	< 4	7.2	6	1.94	18.7	0.14	<0.07
17 Mar 2022	166	< 1.0	1.1	16	495	< 4	7.6	< 3	1.5	18	0.10	0.09
22 Apr 2022	160	< 1.0	1.2	7	502	< 4	7.6	3	2.2	17.8	0.12	0.09
30 May 2022	134	< 1.0	3.0	12	489	< 4	7.4	<3	2.1	11.6	0.10	0.08

Parameter	Alkalinity	BODCF	BOD	COD	Condy	O&G	pH	SS	Turb.	Temp.	Total Cl <sub>2</sub>	Free Cl <sub>2</sub>
Unit	g/m <sup>3</sup> CaCO <sub>3</sub>	g/m <sup>3</sup>	g/m <sup>3</sup>	g/m <sup>3</sup>	µS/cm @ 25°C	g/m <sup>3</sup>	pH	g/m <sup>3</sup>	FNU	°C	g/m <sup>3</sup>	g/m <sup>3</sup>
<b>Consent limit*</b>	-	<b>2.0</b>	<b>10</b>	-	-	<b>5</b>	<b>6.0 – 9.0</b>	<b>30</b>	-	<b>25</b>	<b>0.2</b>	-

Refer to glossary for an explanation of abbreviations

\* Consent limits apply to eight out of ten consecutive samples over the course of an annual monitoring period

Total chlorine exceeded the consent limit once on 18 January 2022 (0.28 g/m<sup>3</sup>). BOD also exceeded the consent limit on one occasion, on 17 November 2021 (11.4 g/m<sup>3</sup>).

An extremely high result was obtained for oil and grease on 17 November 2021. At 240 g/m<sup>3</sup> this was well over the consent limit of 5 g/m<sup>3</sup> and also well above the previous maximum obtained for the site. Visually there was nothing unusual noted in the sample and there was no hydrocarbon sheen or odour.

Overall, consent compliance was maintained throughout the year, as no single parameter exceeded the consent limit on three occasions or more. The contaminants not assessed against consent limits were comparable with those from previous surveys.

#### Unnamed coastal stream

Samples of the discharge to the unnamed coastal stream are presented in Table 7. A summary of previous results, since November 1994, is also included for comparison.

**Table 7** Sample results for the stormwater discharge to an unnamed coastal stream

Parameter	Alkalinity	BODCF	BOD	COD	Cond.	O&G	pH	SS	Turb.	Temp.	Total Cl <sub>2</sub>	Free Cl <sub>2</sub>
Unit	g/m <sup>3</sup> CaCO <sub>3</sub>	g/m <sup>3</sup>	g/m <sup>3</sup>	g/m <sup>3</sup>	µS/cm @ 25°C	g/m <sup>3</sup>	pH	g/m <sup>3</sup>	FNU	°C	g/m <sup>3</sup>	g/m <sup>3</sup>
<b>Summary statistics previous data (November 1994 to June 2021)</b>												
Minimum	16	<1.0	<0.8	<3	39	<0.5	6.6	<2	0.82	7.7	<0.07	<0.07
Maximum	130	9.7	27	97	565	16	8.5	78	44	23.5	0.7	0.6
Median	71	<1.0	5.5	22	318	<0.5	7.4	13	6.0	15.7	<0.1	<0.1
Number	176	111	180	179	179	179	181	180	149	176	177	178
<b>2021-2022 monitoring results</b>												
6 Aug 2021	54	<1.0	1.7	10	247	<4	7.0	4	2.6	11.9	<0.07	<0.07
16 Sep 2021	56	1.1	2.0	14	266	<4	7.2	<3	2.0	11.1	<0.07	<0.07
29 Oct 2021	82	1.3	4.0	12	314	<4	7.1	6	3.3	17.7	0.08	<0.07
17 Nov 2021	46	<1.0	4.4	18	185	<4	6.9	7	3.7	18.6	0.10	<0.07
20 Dec 2021	62	1.5	2.6	10	254	<4	7.5	5	2.4	19.6	<0.07	0.09
18 Jan 2022	79	< 1.0	1.4	8	294	<4	7.7	4	1.63	21.5	0.18	0.1
16 Feb 2022	70	< 1.0	2.1	13	409	<4	7.3	19	6.4	18.9	0.08	<0.07
17 Mar 2022	93	< 1.0	1.7	20	394	<4	7.6	9	3.2	16.2	0.07	<0.07
22 Apr 2022	40	< 1.0	2.5	6	183	<4	7.1	12	5	17.3	<0.07	<0.07

Parameter	Alkalinity	BODCF	BOD	COD	Cond.	O&G	pH	SS	Turb.	Temp.	Total Cl <sub>2</sub>	Free Cl <sub>2</sub>
Unit	g/m <sup>3</sup> CaCO <sub>3</sub>	g/m <sup>3</sup>	g/m <sup>3</sup>	g/m <sup>3</sup>	µS/cm @ 25°C	g/m <sup>3</sup>	pH	g/m <sup>3</sup>	FNU	°C	g/m <sup>3</sup>	g/m <sup>3</sup>
30 May 2022	81	< 1.0	4.4	14	400	<4	7.1	21	10.7	11.2	<0.07	<0.07
<b>Consent limit*</b>	-	<b>2.0</b>	<b>10</b>	-	-	<b>5</b>	<b>6.0 – 9.0</b>	<b>100</b>	-	<b>25</b>	<b>0.2</b>	-

Refer to glossary for an explanation of abbreviations

\* Consent limits apply to eight out of ten consecutive samples over the course of an annual monitoring period

Stormwater samples were fully compliant during the year. The contaminants not assessed against consent limits were comparable with those from previous surveys.

### 2.1.3.2 Freshwater biological inspections (spring survey)

Streambed macroinvertebrates were collected from three sites in an unnamed tributary of the Tangahoe River in October 2021 to investigate the effects of the Fonterra Whareroa dairy factory stormwater discharge on macroinvertebrate health. Macroinvertebrates were identified and the number of different types of taxa counted (taxa richness), and Macroinvertebrate Community Index (MCI) and Semi-quantitative Macroinvertebrate Community Index (SQMCI) scores were calculated for each site (Figure 2).

Taxa richness was low to moderate in the unnamed tributary of the Tangahoe River and was either lower or similar to respective site medians at all three sites. Site 2 recorded an especially low taxa richness of just six taxa which was likely habitat related. The macroinvertebrate community at site 1 recorded 'fair' macroinvertebrate community health, while sites 2 and 3 recorded 'poor' health. The MCI score recorded at site 1 was the highest recorded for the site to date, and was higher than both the previous survey score and median for the site. MCI scores decreased by a significant 13 MCI units between sites 1 and 2, however increased slightly between sites 2 and 3, by 8 units. The MCI scores recorded at sites 1 and 3 were not significantly different to one another. SQMCI scores were not significantly different between the three sites surveyed and were all reflective of 'fair' macroinvertebrate community health. All three sites recorded SQMCI scores significantly higher than their respective site medians. These results suggest there were no recent significant adverse effects from the stormwater pond discharge on the 'health' of the macroinvertebrate communities of the unnamed tributary of the Tangahoe River.

Overall, the results of the survey indicated that stormwater discharges from the factory had not had any recent significant detrimental effects upon the streambed macroinvertebrate communities. The lowered taxa richness and slightly lowered MCI at site 2 can be attributed to the limited habitat at this site, rather than to any effects from the discharge.

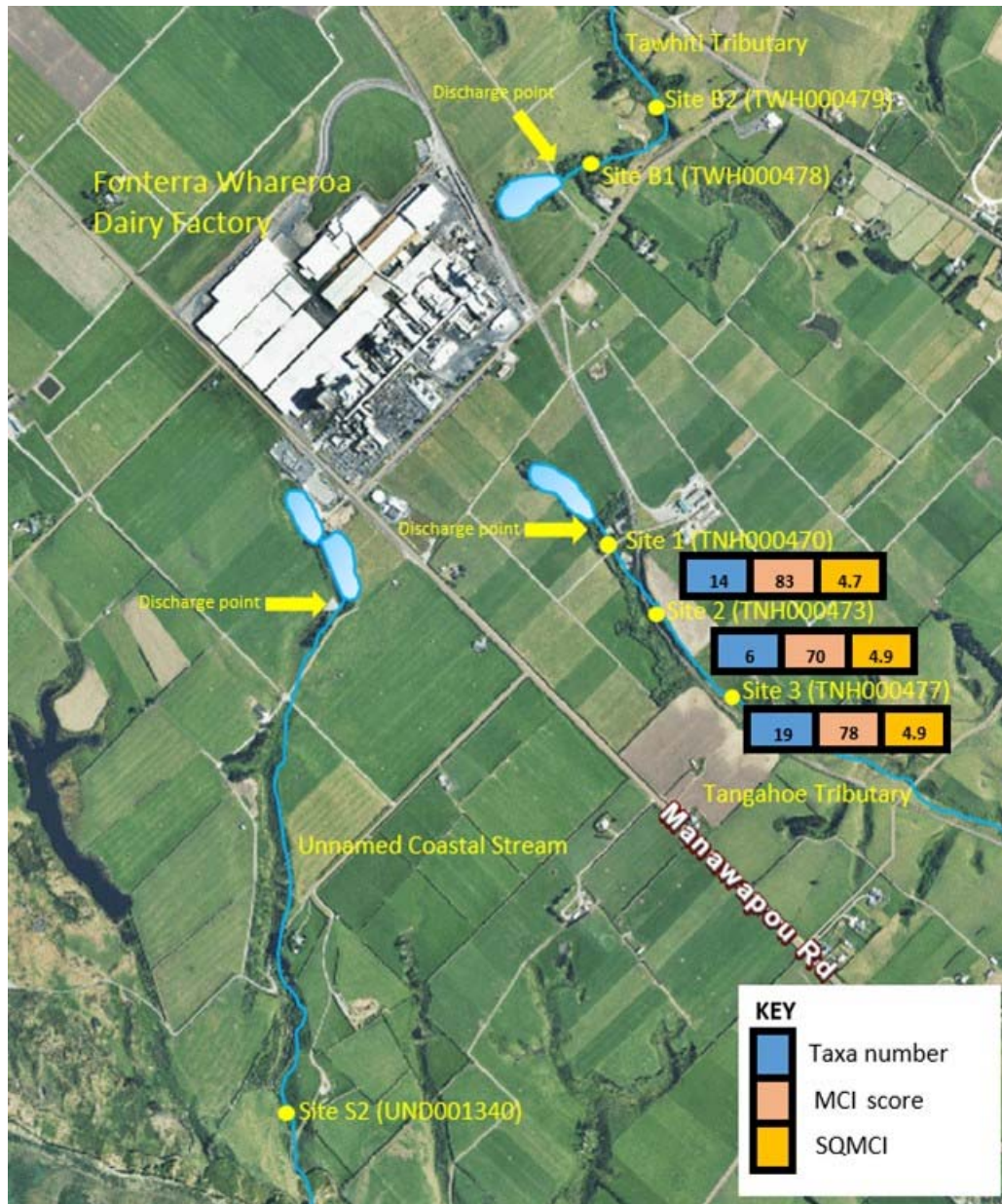


Figure 2 Spring biomonitoring sites with taxa number, MCI scores and SQMCI scores for each site

### 2.1.3.3 Freshwater biomonitoring (summer survey)

Streambed macroinvertebrates were collected from six sites in tributaries of the Tawhiti Stream (two sites), Tangahoe River (three sites) and an unnamed coastal stream (one site) in March 2022, to investigate the effects of the Fonterra Whareroa dairy factory stormwater discharge on macroinvertebrate health. Macroinvertebrates were identified and the number of different types of taxa counted (taxa richness), and MCI and SQMCI scores were calculated for each site (Figure 3).

Taxa richness in the unnamed tributary of the Tawhiti Stream was moderate, with both sites recording equal numbers of taxa. MCI scores indicated 'poor' macroinvertebrate community health at sites B1 and B2. Both sites recorded MCI scores above site medians. Both the MCI and SQMCI scores were not significantly different between the two sites. SQMCI scores were either similar to or higher than respective site medians, with Site B1 recording the highest SQMCI score for the site to date. Overall, there was no evidence that discharges into the unnamed tributary of the Tawhiti Stream were causing detrimental impacts on the macroinvertebrate communities at site B1 or site B2.

Taxa richness was low in the unnamed tributary of the Tangahoe River. MCI scores were reflective of 'poor' macroinvertebrate community health at all three sites, with no significant differences in MCI scores recorded between sites. All three sites recorded MCI scores that were lower than both their site medians and previous survey scores. SQMCI scores increased in a downstream direction and were reflective of 'very poor', 'fair' and 'good' health at sites 1-3 respectively. The SQMCI scores recorded at sites 2 and 3 were similar to those recorded by the previous survey, although were significantly higher than site medians at both sites. The SQMCI score recorded at site 1 was significantly lower than those recorded at the two downstream sites and was significantly lower than both the previous survey score and median for the site. The lowered SQMCI score recorded at site 1, together with the presence of two abundant 'tolerant' taxa (oligochaete worms and *Chironomus* bloodworms), is suggestive of localised nutrient enrichment at this site.

The MCI score recorded at site S2 was reflective of 'poor' macroinvertebrate community health. This score was slightly higher than the median score for the site. A low taxa richness of nine was recorded, which was lower than both the median for the site and that recorded by the previous survey. The SQMCI score reflected 'fair' health and was not significantly different to the previous survey score or median for the site. The general improvement in the health of the macroinvertebrate community over the past ten to twelve years has been attributed to the fencing and planting of the stream in the vicinity of the site.

Overall, the results indicated that the Fonterra Whareroa dairy factory stormwater discharges had not significantly negatively affected macroinvertebrate communities of the unnamed tributary of the Tawhiti Stream or the unnamed coastal stream. However, results indicate that stormwater discharges from the factory have caused localised adverse effects on the macroinvertebrate communities of the unnamed tributary of the Tangahoe River at site 1, with no further effects detected further downstream at sites 2 or 3.

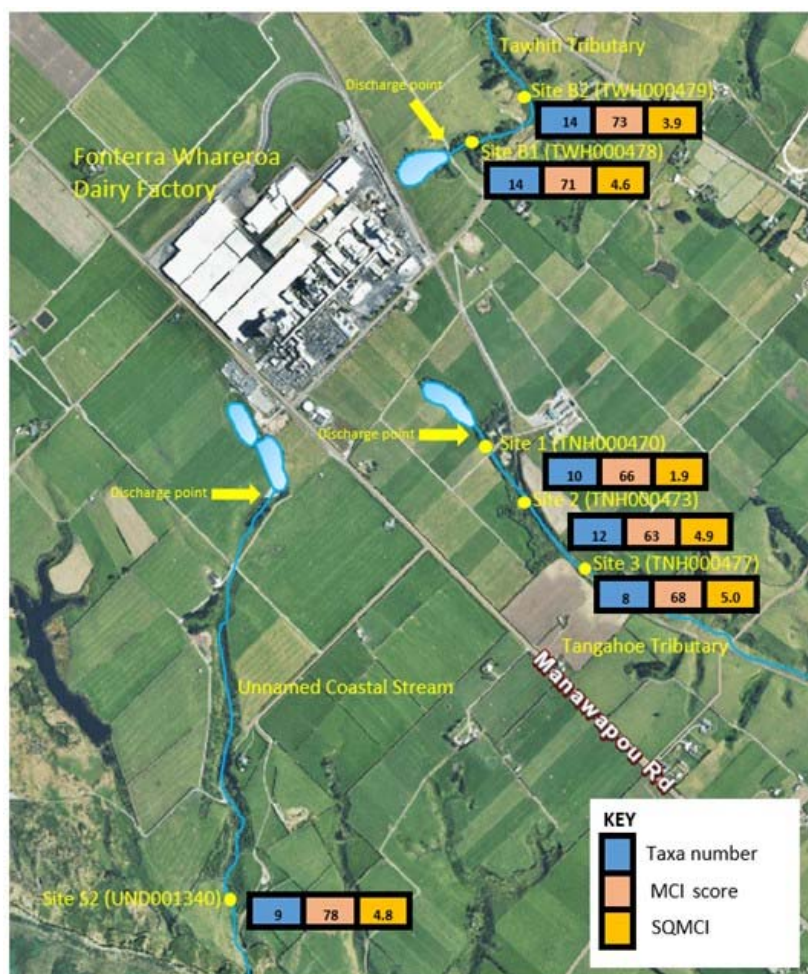


Figure 3 Summer biomonitoring sites with taxa number, MCI scores and SQMCI scores for each site

Copies of biomonitoring reports for this site are available from the Council upon request.

## 2.1.4 Wastewater

Since June 1997, wastewater from the Whareroa dairy complex has been discharged through a 1,845 m long marine outfall. Previously, the wastewater was discharged at the low water mark.

A discharge of up to 40,000 m<sup>3</sup>/day of dairy factory wastewater is provided for by consent 1450. Changes to the consent in September 2006 added specific limits on the concentrations of fats, suspended solids and COD. The consent also controls the environmental effects of the discharge by narrative standards placed on the effects of the discharge at the boundary of a mixing zone. No discharge of raw or treated milk, or milk products, cream, whey or whey permeate is allowed, except under emergency provisions defined in a contingency plan.

Over recent monitoring years, video surveillance has found that the new, long outfall is performing according to design. The effluent field that forms above the diffuser moves parallel to the coast, and has not been observed to impinge upon the shore under normal conditions.

Although occasional surface films form, there has been no evidence of accumulation of material on the seabed near the outfall.

### 2.1.4.1 Discharge composite samples

Fonterra forwards monitoring results to the Council monthly. These results include daily discharge volumes, as well as the concentrations of fats and suspended solids, COD, pH and mean daily temperature of the discharge. The chemical measurements are based on 24 hour time-proportioned composite samples. A summary of wastewater volume data for the period under review is provided in Table 8.

Table 8 Summary of wastewater volume data for 2021-2022

Month	Mean volume (m <sup>3</sup> /day)	Maximum volume (m <sup>3</sup> /day)	No. of non-compliance days (> 40,000 m <sup>3</sup> /day)
July	5,680	12,539	0
August	17,699	25,275	0
September	24,830	29,799	0
October	26,706	29,096	0
November	24,800	27,335	0
December	24,387	29,158	0
January	22,729	25,356	0
February	20,429	29,749	0
March	20,588	25,302	0
April	19,723	22,441	0
May	13,162	21,925	0
June	2,224	5,748	0

The highest maximum daily discharge volume was 29,799 m<sup>3</sup>, on 28 September 2021. The month with the highest average daily discharge volume was October (26,706 m<sup>3</sup>), coinciding with the period of highest processing throughput. As with the previous 11 monitoring periods, the maximum allowable discharge rate of 40,000 m<sup>3</sup>/day was not exceeded.

Daily discharge volumes for the 2021-2022 monitoring period are presented in Figure 4. The wastewater composition discharged through the outfall in terms of daily values for suspended solids, COD and fat concentrations, as supplied by Fonterra, is shown in Figures 4 to 7 and summarised in Table 9 and Table 10. The data shows Fonterra were compliant with the relevant consent limits for the duration of the monitoring period.

It should be noted that these data relate to 24 hour time-proportioned samples, and therefore represent daily average values. The Council analysed two 24 hour time-proportioned samples taken from the discharge of this wastewater and these results are presented in Section 2.2.4.3 (Table 12).

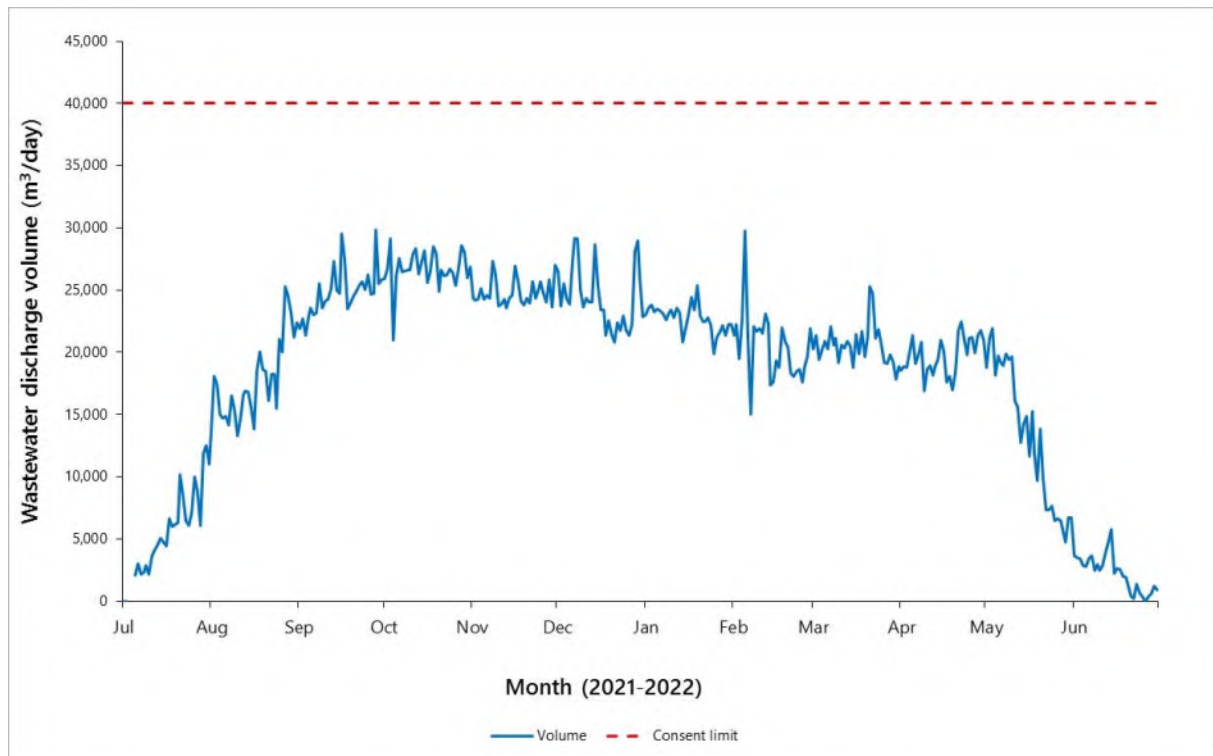


Figure 4 Daily volumes of wastewater discharged through the ocean outfall

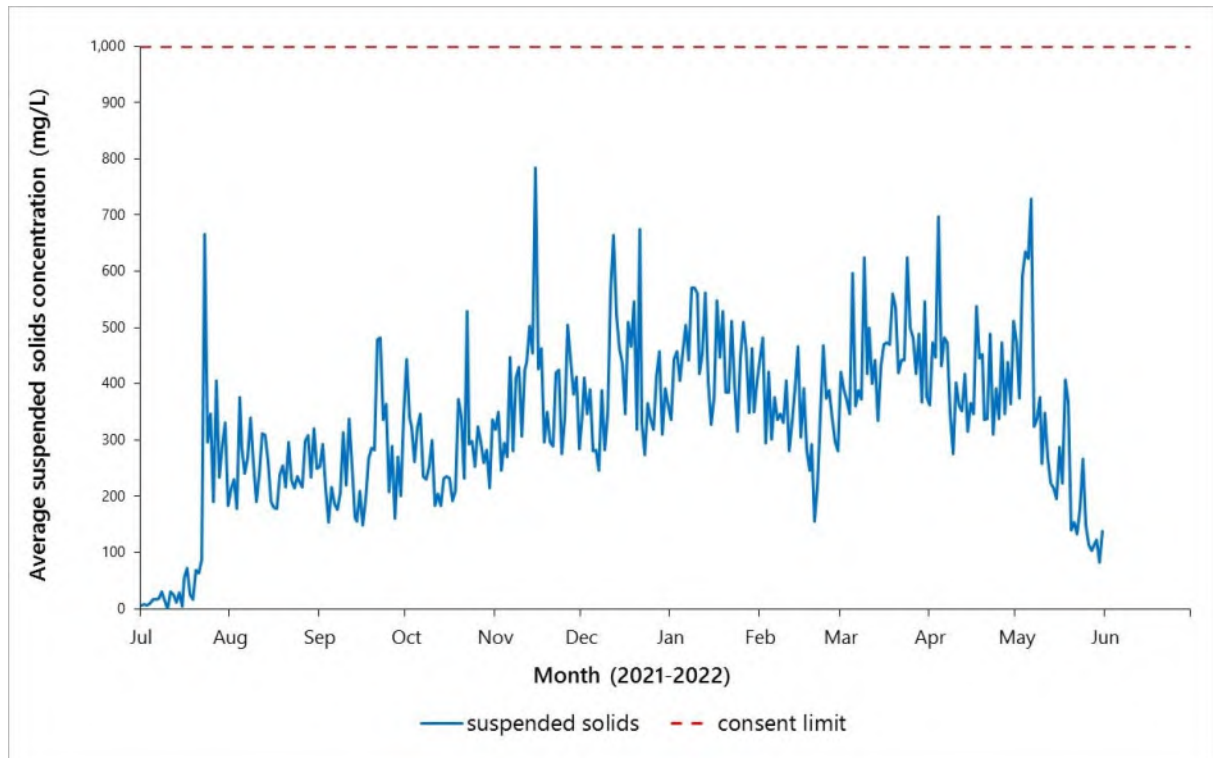


Figure 5 Daily, average concentrations of suspended solids in wastewater discharge, based on 24 hour time-proportioned composite samples

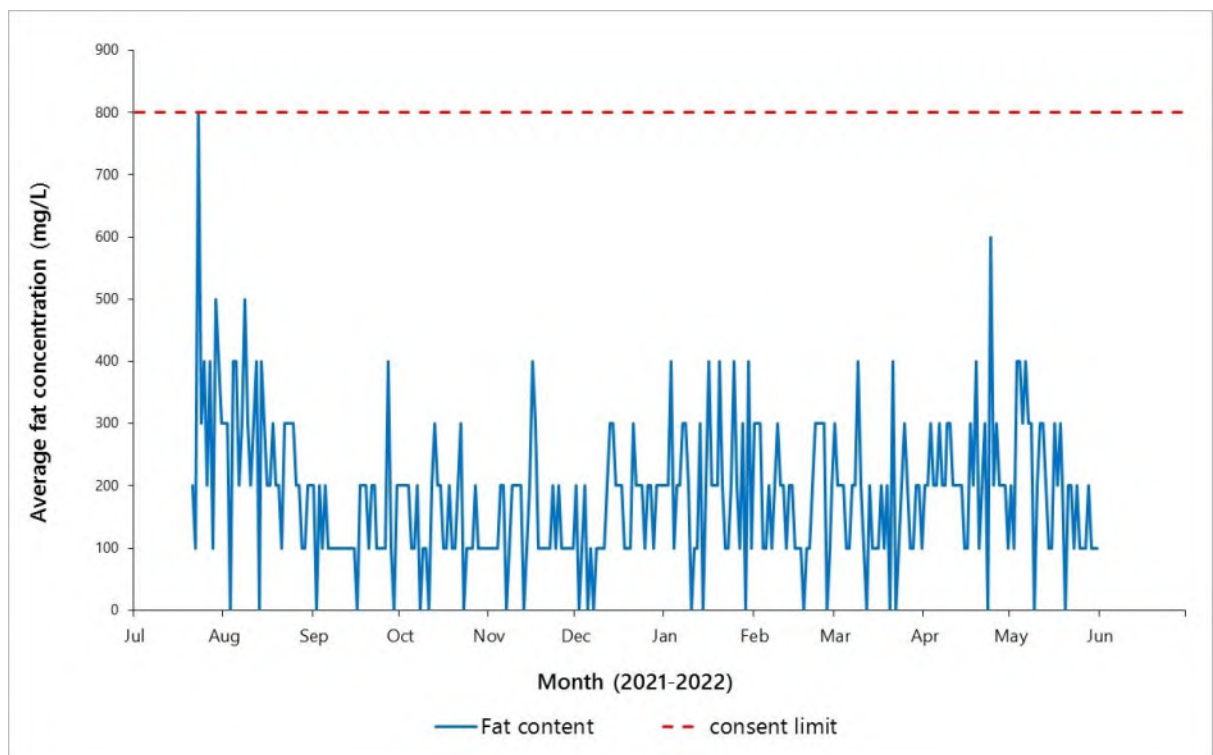


Figure 6 Daily, average concentrations of fats in wastewater discharge, based on 24 hour time-proportioned composite samples

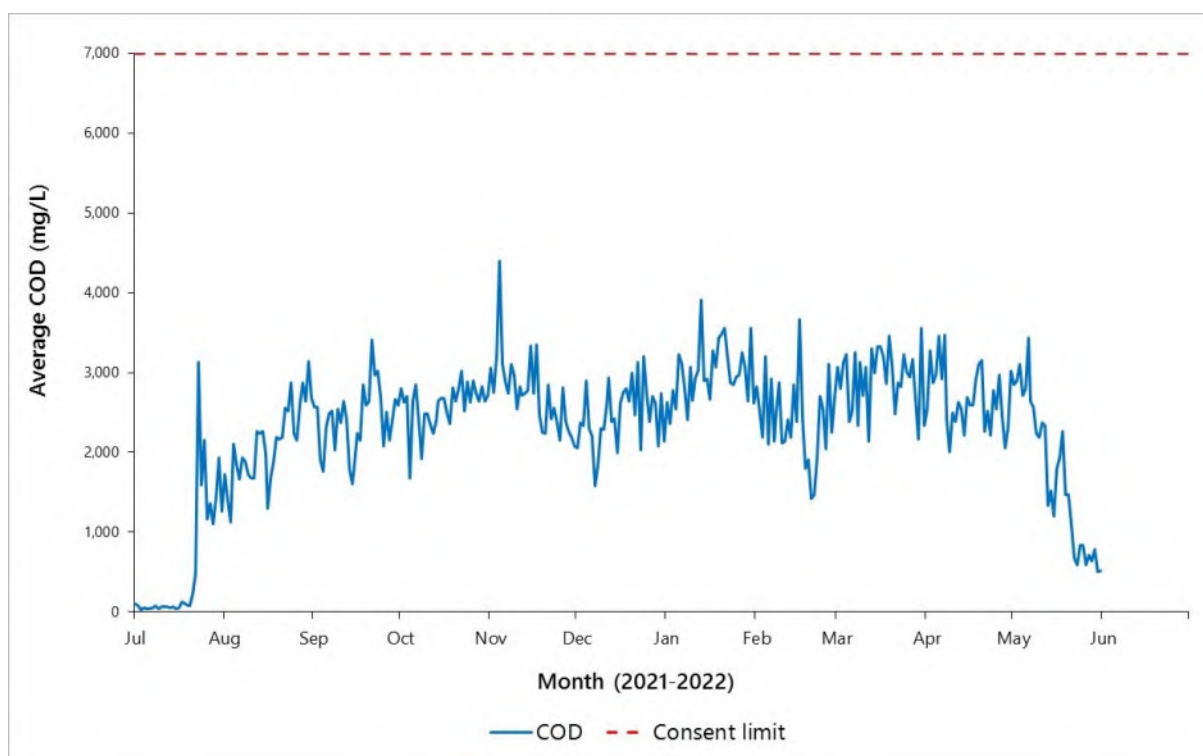


Figure 7 Daily, average COD in wastewater discharge, based on 24 hour time-proportioned composite samples

Table 9 Summary of daily wastewater discharge composition data (2021-2022)

Month	Suspended solids concentration			Fat concentration			COD		
	Mean (mg/L)	Max (mg/L)	Breach days	Mean (mg/L)	Max (mg/L)	Breach days	Mean (mg/L)	Max (mg/L)	Breach days
July	115	666	0	336	800	0	552	3124	0
August	251	376	0	248	500	0	2,100	3,137	0
September	255	482	0	130	400	0	2,410	3,404	0
October	283	528	0	139	300	0	2,586	3,023	0
November	385	784	0	140	400	0	2,742	4,394	0
December	399	674	0	155	300	0	2,468	3,200	0
January	445	570	0	203	400	0	2,991	3,912	0
February	343	482	0	179	300	0	2,405	3,670	0
March	452	624	0	165	400	0	2,921	3,556	0
April	411	698	0	223	600	0	2,678	3,467	0
May	289	728	0	197	400	0	1,705	3,429	0
June*	-	-	-	-	-	-	-	-	-
<b>Consent limit</b>	<b>≤ 1,000</b>			<b>≤ 800</b>			<b>≤ 7,000</b>		

Month	Suspended solids concentration			Fat concentration			COD		
	Mean (mg/L)	Max (mg/L)	Breach days	Mean (mg/L)	Max (mg/L)	Breach days	Mean (mg/L)	Max (mg/L)	Breach days
Total no. of breach days	0			0			0		

\* Routine testing of fat, suspended solids and COD not undertaken when there is no milk to site

Table 10 summarises the annual total wastewater discharge volumes and constituent mass loadings over the past five years. This data is also presented graphically in Appendix III, spanning back to 2009-2010. For the 2021-2022 monitoring year, 6,908,350 m<sup>3</sup> of wastewater was discharged through the outfall. This was a slight increase but similar to 2020-2021. The annual wastewater discharge volume over the previous five year period has remained below the peak in 2014-2015 of 8,398,542 m<sup>3</sup> (Table 10, Appendix III). The estimated total mass of COD decreased in the year under review; continuing the declining trend noted since the 2014-2015 period. The estimated total mass of suspended solids and fats increased compared to the previous year, but both constituent masses have remained fairly consistent since 2016-2017 (Table 10, Appendix III).

**Table 10 Summary of estimated annual total masses and average concentrations of wastewater discharge constituents over the past five monitoring years, for the 11-month dairy season (July-May)**

Monitoring year	Volume discharged (m <sup>3</sup> )	Suspended solids		Fat*		COD	
		Estimated total mass (tonnes)	Average mg/L	Estimated total mass (tonnes)	Average mg/L	Estimated total mass (tonnes)	Average mg/L
2017-18	7,321,210	2,410	283	1,741	246	19,555	2,447
2018-19	6,811,370	2,011	274	1,523	213	18,541	2,360
2019-20	6,544,711	2,149	324	1,707	260	17,629	2,407
2020-21	6,898,719	2,104	305	1,683	244	16,998	2,464
2021-22	6,908,350	2,272	329	1,837	266	16,027	2,320

\* Data for fat was collected from 21 July 2021 (when the first milk arrived on site).

#### 2.1.4.2 Discharge grab samples

Grab samples of the wastewater, prior to discharge through the Fonterra outfall, were collected by the Council on 11 occasions during the 2021-2022 dairy season (Table 11). These samples were analysed for temperature, COD, conductivity, pH, suspended solids, oil and grease (O&G), *E. coli* and enterococci bacteria.

The main purpose of collecting the grab samples was to measure the microbiological quality of the discharge, which cannot be undertaken on 24-hour composite samples. These results also allow an assessment of the range of effluent component concentrations, rather than the 'average' results that are produced by composite samples.

Table 11 Results of wastewater grab sample analyses for 2021-2022

Parameter	COD	Conductivity	<i>E. coli</i>	Enterococci	pH	SS	Temp.	O&G
Unit	g/m <sup>3</sup>	µS/cm @ 25°C	cfu/100 ml	cfu/100 ml	pH	g/m <sup>3</sup>	°C	g/m <sup>3</sup>
Summary statistics (July 2010 to June 2021)								
Minimum	28	288	<1	<3	2.1	3	13.2	<4
Maximum	8,320	9,360	110,000	8,500,000	12.5	2,000	43.6	870
Median	2,200	2,360	20	53,500	11.0	290	30.8	120
2021-2022 monitoring results								
6 Aug 2021	1,460	2,300	< 18	4,000	11.6	230	27.3	167
29 Oct 2021	3,200	2,950	9,200	1,500,000	6.2	123	32.8	122
9 Nov 2021	3,900	2,280	450	1,600,000	4.2	670	-	420
17 Nov 2021	3,300	1,910	24,000	1,220,000	9.8	850	30	270
23 Nov 2021	3,500	3,400	9,200	-	4.5	640	-	270
20 Dec 2021	4,600	2,120	24,000	810,000	5.3	430	34.9	116
18 Jan 2022	3,400	1,865	20	380,000	10.8	370	33	270
16 Feb 2022	2,600	2,080	> 160,000	480,000	4.7	330	32.9	159
17 Mar 2022	3,100	2,550	> 16,000	1,700,000	4.7	510	33.3	183
22 Apr 2022	1,920	2,940	9,400	31,000	4.7	270	-	103
30 May 2022	610	1,098	<180	140,000	11.0	145	22.4	126
<b>Consent limit</b>	<b>7,000</b>	-	-	-	-	<b>1,000</b>	-	<b>800</b>

High concentrations of faecal indicator bacteria, in particular enterococci, were recorded in the grab samples (Table 11). The discharge of domestic wastes in the dairy wastewater itself is specifically prohibited, and this condition was complied with. It is not unusual for high numbers of faecal indicator bacteria to be found in dairy factory wastewater in the absence of domestic wastes, as has been found elsewhere in the country e.g. at Clandeboye and Westland Milk Hokitika (Palliser *et al.*, 2013 and referenced therein). In most grab samples, enterococci counts were significantly higher than those for *E. coli*. Enterococci are more tolerant of extreme growth conditions than faecal coliforms (including *E. coli*), with the high temperatures and variable pH occurring in the wastewater potentially depressing the growth of the latter (Palliser *et al.*, 2013).

The three parameters with consent limits (that are applicable to the 24 hour time-proportioned composite samples); SS, COD and fat (O&G), remained well below those limits in all grab samples collected during the year. As is often seen in the grab samples, wastewater pH levels fluctuated about the historical median during the monitoring period. All of the results from samples collected during the year were within the range of previous results.

#### 2.1.4.3 Discharge inter-laboratory comparisons

An inter-laboratory comparison was performed on two occasions during the 2021-2022 monitoring period on the 24 hour time-proportioned samples taken from the wastewater discharge. The results obtained by both laboratories are presented in Table 12.

Table 12 includes an agreements column which summarises the acceptability of the difference in each result for the two laboratories. Differences of less than 10% of the mean of the two values are considered acceptable. Differences of 10-25% are considered to constitute a difference between the two laboratories and differences of greater than 25% are considered significantly different.

Table 12 Inter-laboratory comparisons performed on 24 hour composite wastewater samples (2021-2022)

Parameter	Unit	16 February 2022			30 May 2022		
		Council	Fonterra	Agree	Council	Fonterra	Agree
COD	g/m <sup>3</sup>	1,330	3,670	**	250	498	**
pH	pH	11.9	6.2	**	4.2	10.5	**
Suspended solids	g/m <sup>3</sup>	192	392	**	72	82	✓

Note: ✓ = acceptable agreement

\* = within 10% - 25% difference from the mean

\*\* = significantly different (i.e. > 25% difference from the mean)

Of the six comparisons, just one was within the acceptable agreement range. The other five were considered significantly different, exceeding 25% difference of the mean. Overall, the level of consistency demonstrated between the two laboratories during the year under review was again very poor. A portable pH meter will be used during the interlab samples collected during 2022-2023 to begin to investigate where the differences are arising.

#### 2.1.4.4 Marine ecological surveys

In order to assess the effects of the Fonterra dairy factory and Hawera Wastewater Treatment Plant combined outfall discharge on the nearby intertidal communities, a survey was conducted at four sites in summer (Late January to early February, post-peak season) (Figure 8). The survey included three potential impact sites either side of the outfall (two southeast and one northwest) and one control site (further northwest). It was expected that adverse effects of the marine outfall discharge on intertidal communities would have been evident as a significant decline in species richness and diversity at the potential impact sites, relative to the control site. The main findings of the survey are summarised below, and presented in Figures 9 and 10.



Figure 8 Map of sampling sites in relation to the outfall

Impacts of the marine outfall discharge on the local intertidal communities were not evident from the 2022 summer survey results. Two potential impact sites had greater species richness and diversity results than the control site, Waihi Reef, while the other site (350 m NW of the outfall) had recently experienced a natural rock fall event and was buried by large boulders and other debris. Seven years ago, the site 200 m SE of the outfall was also buried during a rock fall event. Species richness and diversity at this site has only just recovered to a pre-rock fall level in the last two years. Long-term results did not indicate any differential trends between the impact sites and the control site regarding species richness or diversity. These findings are consistent with historical results.

Overall, these results indicate that the marine outfall discharge was not having detectable adverse effects on nearby intertidal reefs. Natural environmental factors, including coastal erosion, exposure and substrate mobility, appear to remain the dominant drivers of species richness and diversity at the sites surveyed.

A copy of the intertidal ecological survey report is available from the Council upon request.

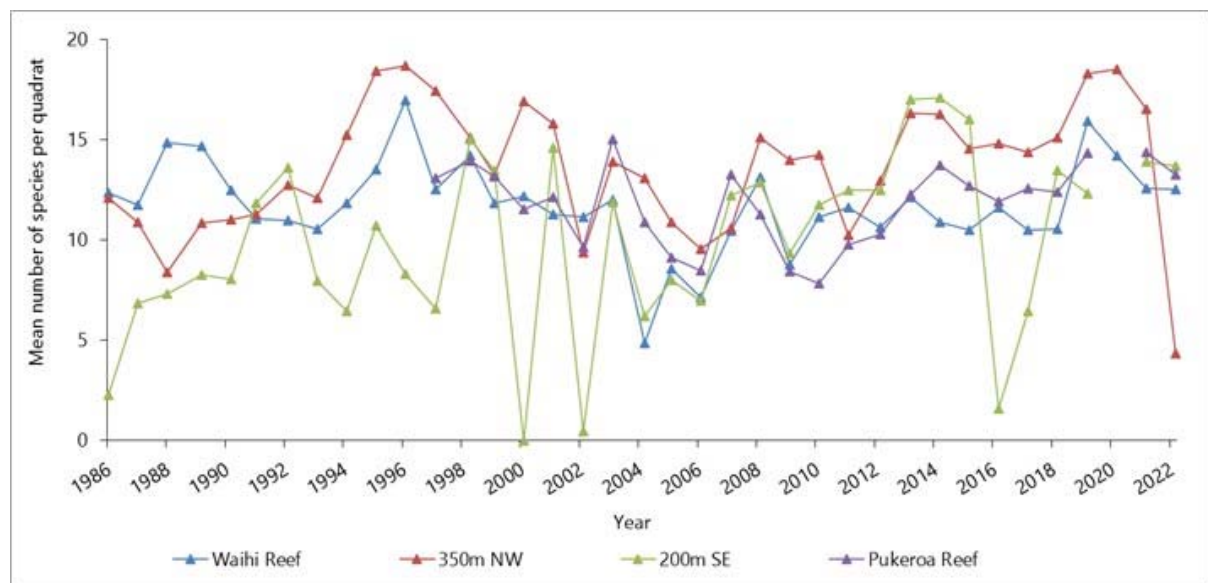


Figure 9 Mean number of species per quadrat for summer surveys (1986-2022)

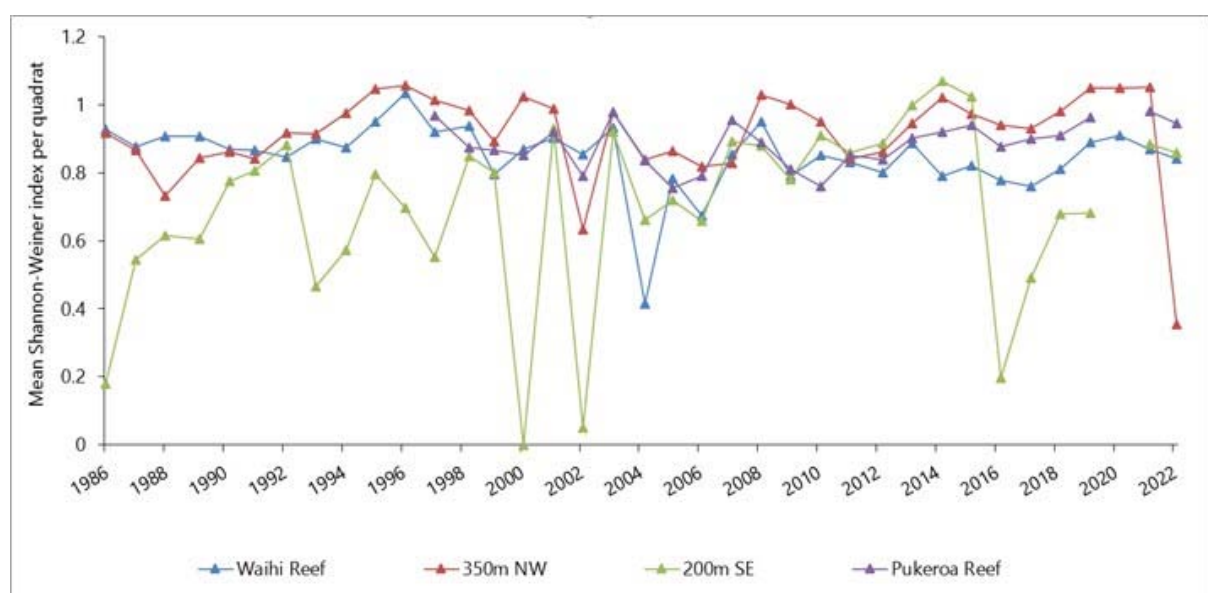


Figure 10 Mean Shannon-Weiner Indices per quadrat for summer surveys (1986-2022)

## 2.2 Air

### 2.2.1 Inspections

During each monthly site visit, a good standard of housekeeping was observed and no unusual emissions to air were noticed. Milk odour was occasionally noted around the site, but the odour was never objectionable or offensive and it was not detected beyond the boundaries of the site. Onsite milk powder deposition was noted as negligible to low during most inspections.

### 2.2.2 Emission source analysis

Consent 4103-2.3 limits powder emissions to the atmosphere from the spray drying process cyclone exhausts to 125 mg/m<sup>3</sup>. A separate limit is in place for Powder-3, whereby powder emissions from this facility shall not exceed 150 mg/m<sup>3</sup>.

Fonterra's independent consultant, Verum Group, carried out powder emission measurements on dryer exhaust stacks between September 2021 and February 2022. These results are presented in Table 13. All results for Powder-3 are presented separately in Table 14. Powder-1 is no longer in use and has been removed from resource consent 4103.

Table 13 Emission source analysis results for 2021-2022 (special condition 7)

Date	Plant		Emission concentration (mg/m <sup>3</sup> 0°C, 1 atm, dry gas)	Emission control
10 December 2021	Casein	Dryer stack 1	50	Dual cyclones
		Dryer stack 2	38	Dual cyclones
13 January 2022	Powder-2	Dryer stack	1	Baghouse
1 September 2021	Powder-5 (small stacks)	East stack	59	Dual cyclones
		West stack	44	Dual cyclones
1 September 2021	Powder-5 (large stacks)	North stack	38	Dual cyclones
		South stack	28	Dual cyclones
9 February 2022	Alamin Dryer	Dryer stack	2	Baghouse
9 February 2022	Casein Dust Collector	Dryer stack	2	Cyclone
7 December 2021	WPC dryer	Exhaust	6	Baghouse
<b>Consent limit</b>		<b>125</b>		

Table 14 Emission source analysis results for 2021-2022 (special condition 8)

Date	Plant (product)		Emission concentration (mg/m <sup>3</sup> 0°C, 1 atm, dry gas)	Emission control
9 December 2021	Powder-3 (WMP)	East stack	27	Cyclone
		West stack	39	
		Fluid Bed Exhaust	17	

Date	Plant (product)		Emission concentration (mg/m <sup>3</sup> 0°C, 1 atm, dry gas)	Emission control
8 February 2022	Powder-3 Dryer (BMP)	East stack	76	
		West stack	100	
		Fluid Bed Exhaust	130	
Consent limit		150		

The results from all of the dryers were below the emissions concentration limit based on the testing that was undertaken (Table 13, Table 14).

### 2.2.3 Deposition gauging

Many industries emit dust from various sources during operational periods. In order to assess the effects of the emitted dust, industries are monitored using deposition gauges.

Deposition gauges are modified buckets, elevated on a stand to approximately 1.6 m. The buckets contain deionised water to ensure that any dust that settles out of the air is not re-suspended by wind. A copper sulphate solution at a concentration of 5 g/L acts as a preservative to prevent the growth of algae and bacteria.

Deposition gauges were deployed at five sampling sites on six occasions around the Whareroa site for periods of approximately three weeks, between August and December 2020. The contents of the gauges were analysed for COD. The COD results are compared with the theoretical COD value for dry milk powder and a "total deposited milk powder" (TDMP) value is calculated.

The locations of the five air deposition monitoring sites are provided in Figure 11.

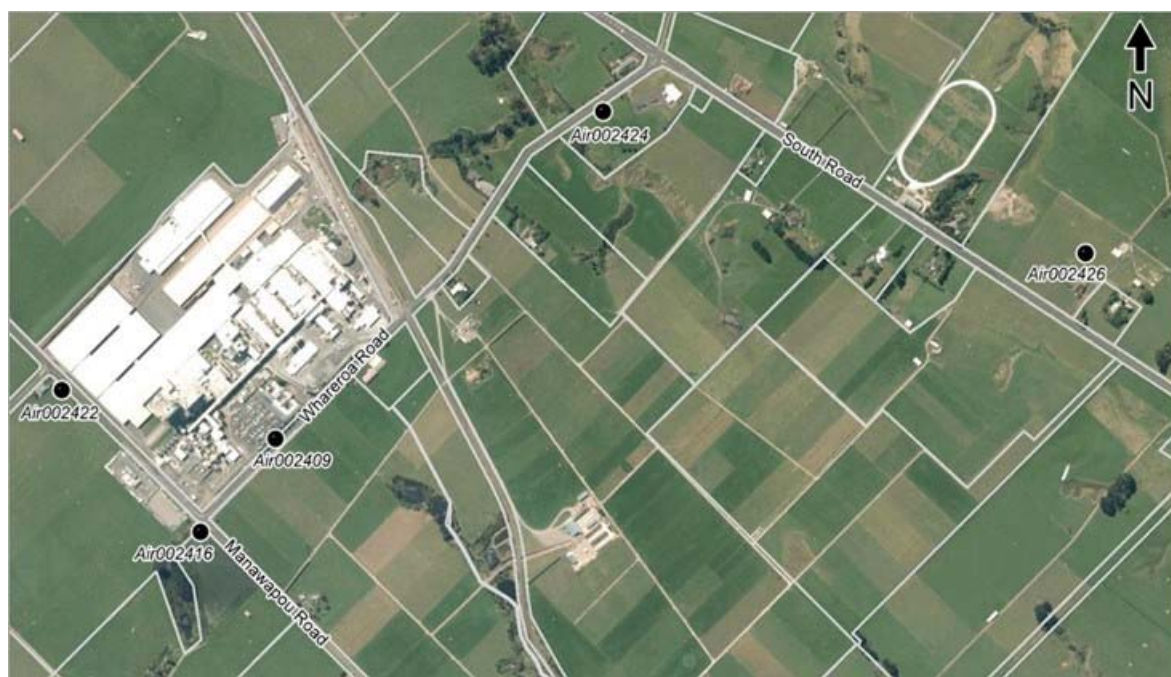


Figure 11 Location of air deposition sites

TDMP values for each monitoring site are presented in Table 15. The Council's nuisance guideline value for total deposited particulate is 130 mg/m<sup>2</sup>/day. The Council does not have a specific guideline value for milk

powder deposition. The Fonterra deposition survey determines deposition due to milk powder only, rather than total deposition.

Table 15 Total deposited milk powder values (mg/m<sup>2</sup>/day) for each monitoring site during 2021

Site ID	Run 1	Run 2	Run 3	Run 4	Run 5	Run 6
	22 Sept to 7 October	7 to 22 October	22 Oct to 3 November	3 to 17 November	17 Nov to 2 December	2 to 16 December
AIR002409	104	<b>186</b>	114	109	<b>193</b>	<b>192</b>
AIR002416	15	35	32	32	48	<b>167</b>
AIR002422	17	12	57	36	103	49
AIR002424	16	11	57	25	35	55
AIR002426	15	12	38	40	10	58
Council guideline	130 mg/m <sup>2</sup> /day					

As expected, the highest TDMP values were recorded at the staff car park entrance (AIR002409) (Table 15, Figure 12). This is the closest site to the powder drying facilities and is where previous monitoring results have typically been the highest.

Overall, the results indicate that the majority of the powder fallout occurred in the immediate vicinity of the powder plants and did not extend far beyond the site boundaries. Deposition of milk powder on the site is not of great environmental concern, provided that the stormwater management systems perform satisfactorily.

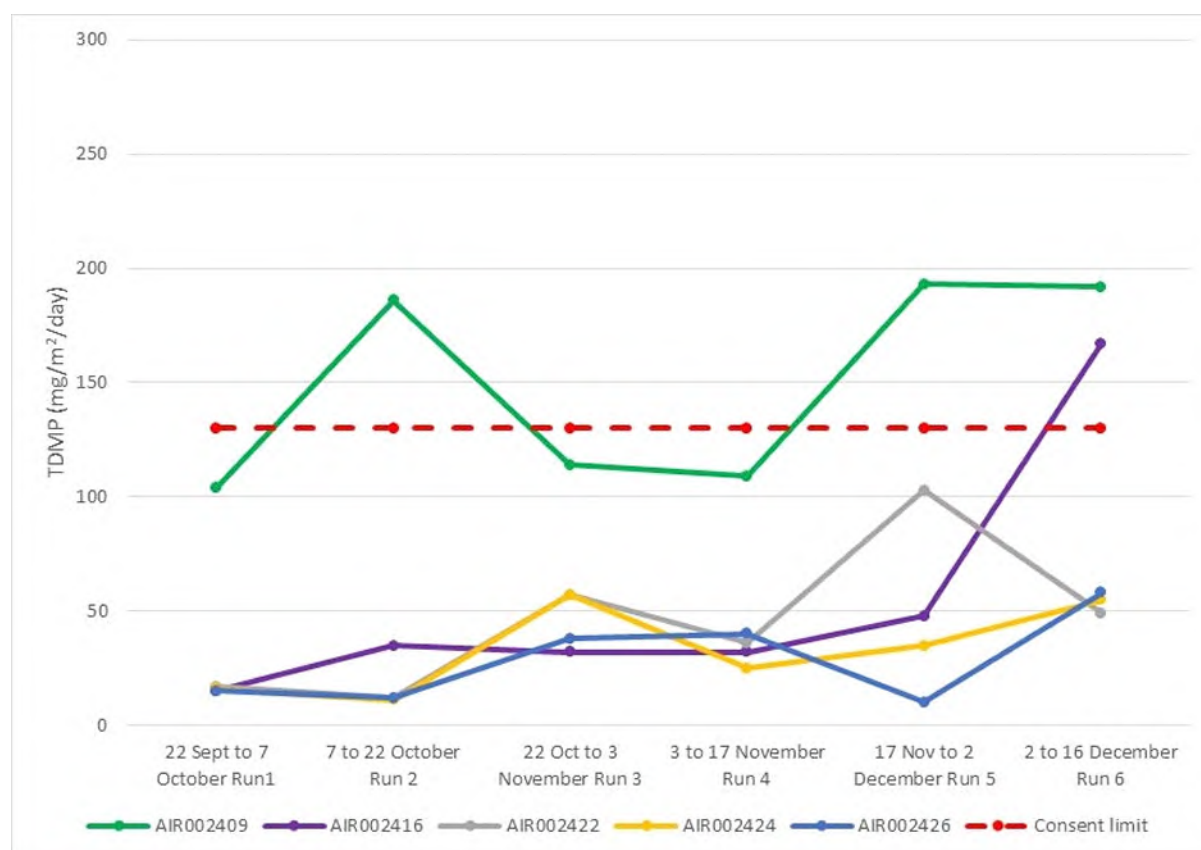


Figure 12 Milk powder fallout at air deposition sites surrounding Whareroa (September to December 2021)

### 2.2.4 Inhalable particulate (PM<sub>10</sub>) monitoring

Special condition 10 of consent 4103 sets a limit on the emissions of PM<sub>10</sub> to the atmosphere from the site to a maximum of 50 µg/m<sup>3</sup> (24-hour average).

During the reporting period, a “DustTrak” PM<sub>10</sub> monitor was deployed on two occasions in the vicinity of the dairy complex. The deployments lasted for approximately 50 hours, with the instrument placed in a down-wind position at the start of the deployment. Monitoring consisted of continual measurements of PM<sub>10</sub> concentrations. The results from the sampling runs are shown in Table 16 and Figure 13.

Table 16 Daily mean of PM10 results during four days’ monitoring at Whareroa dairy complex

	Run 1 (51 hrs) (8 to 10 February 2022)		Run 2 (50 hrs) (18 to 20 February 2022)	
24 hr. set	Day 1 (Start to 24 hrs)	Day 2 (24 hrs to end)	Day 1 (Start to 24 hrs)	Day 2 (24 hrs to end)
Daily average	13.0 µg/m <sup>3</sup>	12.0 µg/m <sup>3</sup>	13.0 µg/m <sup>3</sup>	15 µg/m <sup>3</sup>
NES	50µg/m <sup>3</sup>			

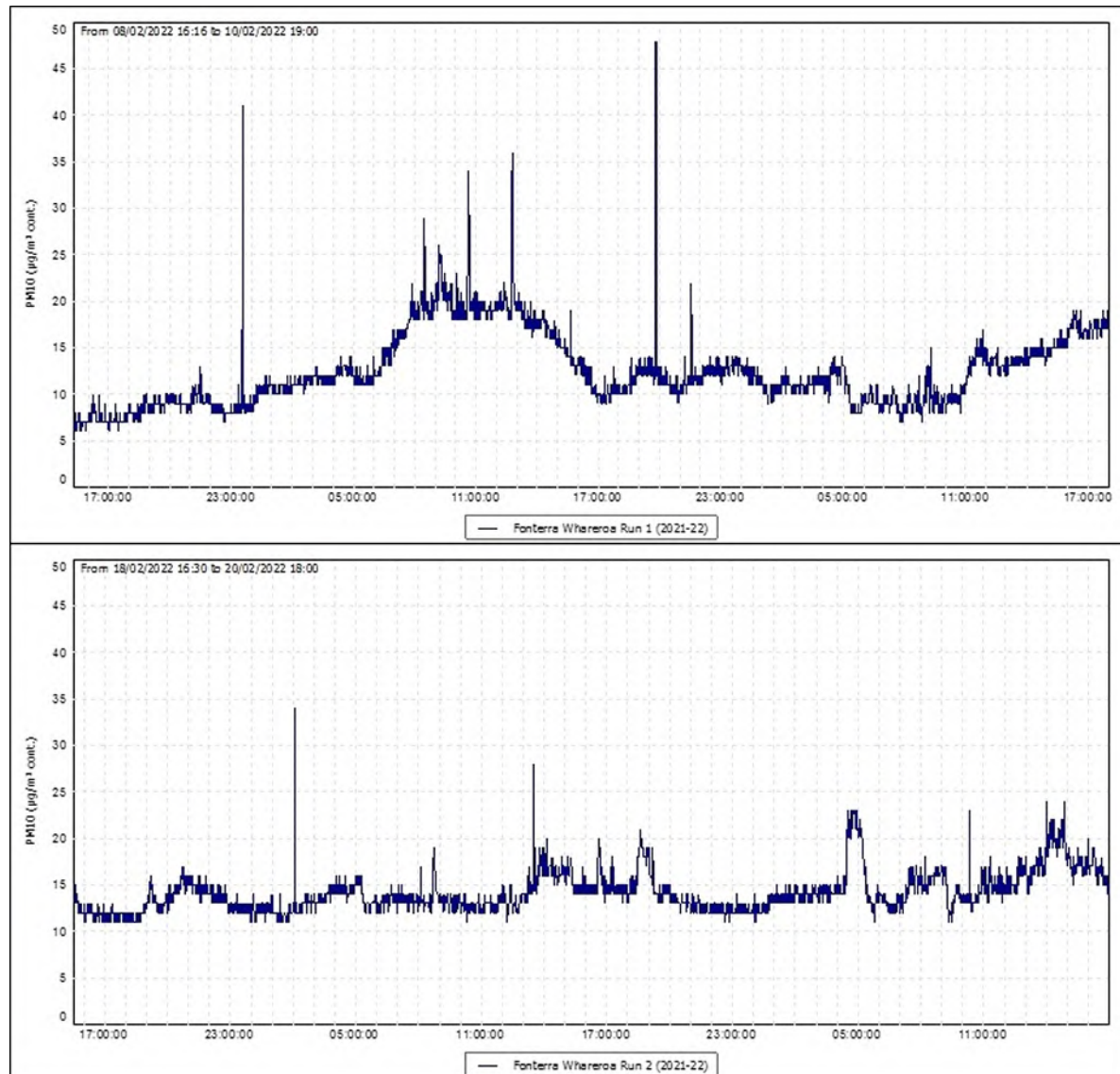


Figure 13 PM<sub>10</sub> concentrations (µg/m<sup>3</sup>) at the Whareroa dairy complex

During the first 51-hour run, from 8 to 10 February 2022, the average recorded PM<sub>10</sub> concentrations for the first and second 24-hour periods were 13.0 µg/m<sup>3</sup> and 12.0 µg/m<sup>3</sup>. These daily means equate to 26% and 24%, respectively, of the 50 µg/m<sup>3</sup> value that is set by both the National Environmental Standard and the resource consent.

During the second 50-hour run, from 18 to 20 February 2022, the average recorded PM<sub>10</sub> concentrations for the first and second 24-hour periods were 13.0 µg/m<sup>3</sup> and 15.0 µg/m<sup>3</sup>, respectively. These daily means equate to 26% and 30%, respectively, of 50 µg/m<sup>3</sup>.

The regional background PM<sub>10</sub> level has been determined to be approximately 11 µg/m<sup>3</sup>.

A copy of the full PM<sub>10</sub> monitoring report is available from the Council upon request.

## 2.2.5 Nitrogen oxide (NO<sub>x</sub>) monitoring

NO<sub>x</sub>, any mixture of nitrous oxide (N<sub>2</sub>O), nitric oxide (NO) and nitrogen dioxide (NO<sub>2</sub>), are produced from soil, motor vehicles and industrial fuel combustion processes. Indoor domestic appliances (gas stoves, gas or wood heaters) are significant localised sources of nitrogen oxides.

Ambient NO<sub>x</sub> monitoring was incorporated into the monitoring programme in 1996-1997, to monitor the effects of the co-generation plant at the site. In October 1997, Fonterra commissioned a second co-generation plant (Co-gen 2) in response to increased milk coming to the site. NO<sub>x</sub> is the main emission of concern associated with Fonterra's co-generation plants, from the perspective of potential environmental effects. Special condition 7 of consent 6273 set limits for nitrogen dioxide emissions:

*"The consent holder shall control all emissions of nitrogen dioxide or its precursors to the atmosphere from the site, so as to ensure that the maximum ground level concentration of nitrogen dioxide measured under ambient conditions does not exceed 200 micrograms per cubic metre [µg/m<sup>3</sup>] [one-hour average], or 100 µg/m<sup>3</sup> [twenty-four hour average], at or beyond the boundary of the site."*

The Council uses passive absorption discs to monitor ambient NO<sub>x</sub>. The gases diffuse into the discs and any target gases are captured. These discs are deployed for periods of approximately three weeks and are then sent to an external laboratory for analysis.

Passive NO<sub>x</sub> discs were placed in four locations surrounding the Fonterra site (Figure 14) on one occasion during the 2021-2022 monitoring year.

From the average concentration measured, it is possible to calculate a theoretical maximum daily concentration that may have occurred during the exposure period. There are mathematical equations used by air quality scientists to predict the maximum concentrations over varying time periods. These are somewhat empirical, in that they take little account of factors such as local topography, micro-climates and diurnal variation. Nevertheless, they are applied conservatively and have some recognition of validity.

One formula generally used is:

$$C(t_2) = C(t_1) \times \left(\frac{t_1}{t_2}\right)^p$$

where C(t) = the average concentration during the time interval t, and p = a factor lying between 0.17 and 0.20. When converting from longer time periods to shorter time periods, using p = 0.20 gives the most conservative estimate (i.e. the highest calculated result for time period t<sub>2</sub>, given a measured concentration for time period t<sub>1</sub>). Using the 'worst case' factor of p = 0.20, the monitoring data reported above has been converted to equivalent 'maximum' 24 hour exposure levels.

Table 17 presents the actual levels found, theoretical maximum 1 hour and 24 hour concentrations of NO<sub>x</sub>, and consent 6273 limits.



Figure 14 NO<sub>x</sub> sample site locations around the Fonterra plant

Throughout the 2021-2022 monitoring period NO<sub>x</sub> concentrations remained well below consent condition limits (consent 6273, special condition 7- 200 mg/m<sup>3</sup> one hour average, 100 mg/m<sup>3</sup> 24 hour average).

Variation in NO<sub>x</sub> concentration values can be explained in terms of distance from possible NO<sub>x</sub> sources, namely the plant and road traffic, as well as wind speed and direction.

Since 2014, the Council has coordinated a region-wide monitoring programme to measure NO<sub>x</sub>, not only at individual compliance monitoring sites near industries that emit NO<sub>x</sub>, but simultaneously at urban sites (from the Council's regional state of the environment programme) to determine exposure levels for the general population. The programme involves deploying all measuring devices on the same day, with retrieval three weeks later. This approach enables the Council to further evaluate the effects of local and regional emission sources and ambient air quality in the region.

Table 17 NO<sub>x</sub> levels and theoretical 1 hour and 24 hour maximums for each air monitoring site at Fonterra (2021-2022)

Monitoring period	NO <sub>x</sub> concentration µg/m <sup>3</sup>											
	AIR002410			AIR002411			AIR002412			AIR002413		
	NO <sub>x</sub> (Lab)	1 h (Cal)	24 h (Cal)	NO <sub>x</sub> (Lab)	1 h (Cal)	24 h (Cal)	NO <sub>x</sub> (Lab)	1 h (Cal)	24 h (Cal)	NO <sub>x</sub> (Lab)	1 h (Cal)	24 h (Cal)
10 Feb – 3 March 2022	1.2	4.2	2.2	0.4	0.7	0.4	0.4	0.7	0.4	0.4	0.7	0.4
Consent limit		200	100		200	100		200	100		200	100

1 h = 1 hour theoretical maximum

24 h = 24 hour theoretical maximum

Figure 15 presents the average NO<sub>x</sub> levels (theoretical 1 hour concentrations) from seven industrial sites monitored in southern Taranaki from 2014 to 2022. The results from Figure 15 show that NO<sub>x</sub> levels at Fonterra are generally comparable with some of the larger hydrocarbon production stations around Taranaki and were exceptionally low during 2021-2022 compared with previous years.

Copies of regional NO<sub>x</sub> monitoring reports are available from the Council upon request.

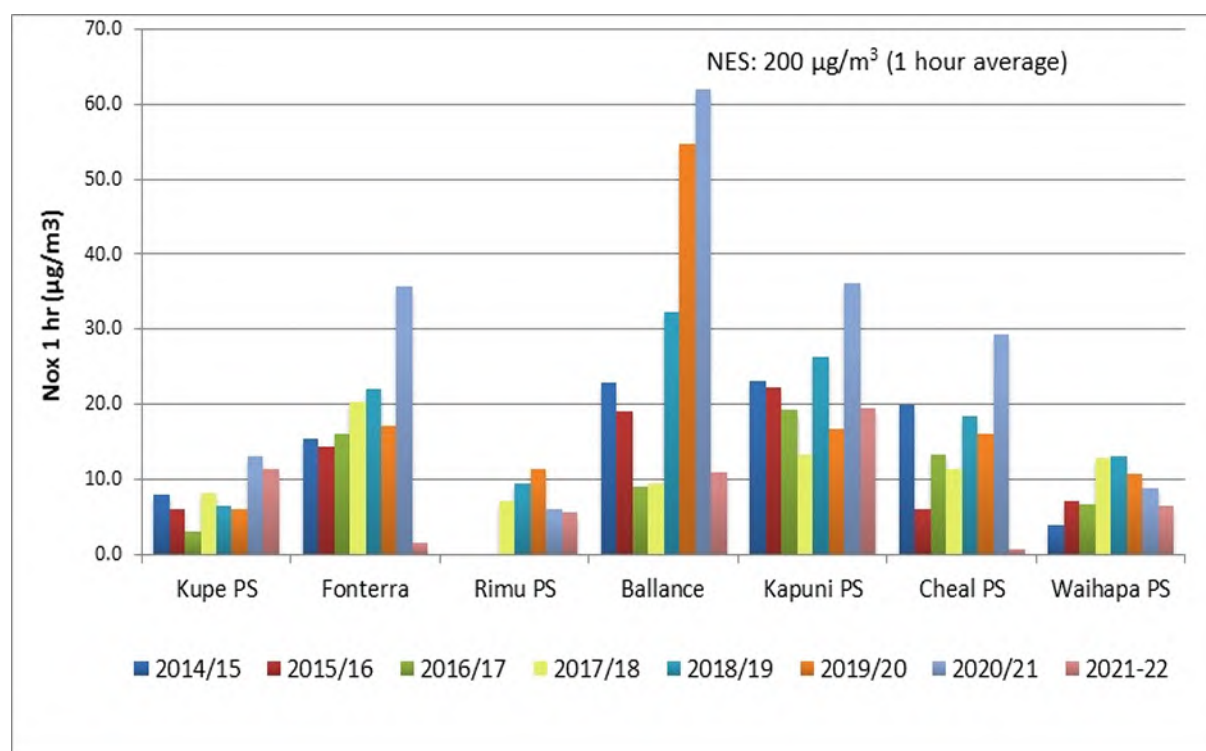


Figure 15 Average NO<sub>x</sub> levels at seven monitored industrial sites in southern Taranaki

## 2.3 Incidents, investigations, and interventions

The monitoring programme for the year was based on what was considered to be an appropriate level of monitoring, review of data, and liaison with Fonterra. During the year matters may arise which require additional activity by the Council, for example provision of advice and information, or investigation of potential or actual causes of non-compliance or failure to maintain good practices. A pro-active approach, that in the first instance avoids issues occurring, is favoured.

For all significant compliance issues, as well as complaints from the public, the Council maintains a database record. The record includes events where the individual/organisation concerned has itself notified the Council. Details of any investigation and corrective action taken are recorded for non-compliant events.

Complaints may be alleged to be associated with a particular site. If there is potentially an issue of legal liability, the Council must be able to prove by investigation that the identified individual/organisation is indeed the source of the incident (or that the allegation cannot be proven).

Table 18 below sets out details of any incidents recorded, additional investigations, or interventions required by the Council in relation to Fonterra's activities during the 2021-2022 period. This table presents details of all events that required further investigation or intervention regardless of whether these were found to be compliant or not.

Table 18 Incidents, investigations, and interventions summary table

Date	Details	Compliant (Y/N)	Enforcement Action Taken?	Outcome
9 Nov 2021	Self-notification was received regarding wastewater that had been	N	N	Investigation found that the sump at the mixing chamber where flows from Fonterra and SDTC Hawera WWTP meet

Date	Details	Compliant (Y/N)	Enforcement Action Taken?	Outcome
	discharged from the outfall pipeline via a manhole into an unnamed tributary.			had overflowed into the nearby tributary. There was no discharge to the stream at the time of the inspection and the stream was running clear. STDC had diverted their flow and this ceased the overflow. Samples of the stream were collected with no environmental effects noted.
22 Nov 2021	Self-notification was received regarding discharge of DAF sludge solids into the Mangapapa Stream. A hose was not disconnected correctly resulting in a spill of approx 900 L, most was contained using a spill kit, a small amount entered the stream.	N	14 day letter	The site was visited by the Fonterra Environmental officer who collected water samples upstream and downstream. These showed no adverse effects. An incident report was received which outlined the procedures which have been adopted to preventing a future occurrence.
8 Dec 2021	Self-notification was again received regarding wastewater that had been discharged from the outfall pipeline via a manhole into an unnamed tributary	N	Abatement notice	Investigation found no visible effects in the stream and samples did not indicate any further adverse effects in the stream. An abatement notice was issued requiring works to be undertaken to prevent future overflows. Fonterra has since rectified the issue by installing a level meter to alert when water levels are high, and constructing a bund around the mixing chamber to contain any discharge.

## 3 Discussion

### 3.1 Discussion of site performance

#### 3.1.1 Inspections

Routine inspections found the site was generally maintained in a satisfactory condition, with no significant issues noted throughout the monitoring period.

Three incidents occurred during the year which required investigation by Council. The sump at the mixing chamber where flows from Fonterra and the STDC Hawera WWTP meet overflowed into the nearby tributary on two occasions in late 2021. Although no significant adverse effects were noted in the stream on either occasion, an abatement notice was issued following the second overflow and Fonterra undertook works to prevent further overflows and contain them if they did occur. A third incident involved the discharge of a small amount of DAF sludge solids. The majority of the spill was contained and Fonterra's explanation (14-day letter) was accepted without further action.

#### 3.1.2 Wastewater treatment plant - Dissolved Air Floatation (DAF) unit

Condition 7 of consent 1450-3 required that Fonterra install and commission a Dissolved Air Flotation Unit (DAF). This was constructed across the road from the main site, with completion and final commissioning undertaken early in the 2021-2022 monitoring period. The process involves acid dosing waste water to bring the pH down to around 4, which causes the fats and proteins to precipitate out and solidify. Dissolved air is added to the wastewater which helps the solids float to the top where they are scraped off into a hopper. The treated wastewater is then discharged to the ocean outfall while the solids are applied to land as a fertiliser or composted.

#### 3.1.3 Provision of data and reports

##### Consent 0047-4

Condition 23 requires provision of an Annual Performance Data Summary Report (annually before 31 August). This was provided.

Condition 24 required that a water efficiency study be undertaken before June 2021 (and at five-yearly intervals thereafter), with a Water Efficiency BPO report to be submitted that summarises the study and its findings. This has not been submitted.

Condition 27 requires submission of a 'Financial Contribution and Environmental Enhancement report (annually, before 1 August). This was not submitted during the 2021-2022 period.

##### Consent 1450-3.1

Condition 8 requires submission of a report summarising the performance of the Dissolved Air Flotation Unit (DAF) by June 2022. This has not been submitted.

Condition 16 requires a Contingency Plan for the site is maintained and regularly updated. The most recent update was received in February 2019.

Condition 17 requires provision of an Annual Performance Data Summary Report (annually before 31 August). This was provided.

Condition 18 requires the provision of a Wastewater Management BPO Report before June 2021 (and at five-yearly intervals). This has not been provided.

### Consent 4103-2

Condition 4 of consent 4103 requires a written report to be provided every six years reviewing technological advances in the reduction and mitigation of emissions, an inventory of emissions and addressing other relevant issues in relation to emissions.

The latest report was produced in August 2018, however, this was only received by Council in December 2020. The report was reviewed and has been assessed as not meeting the requirements of the consent. Specifically, there has been no further review of technological advances in accordance with special condition 4(a). Abatement Notice EAC-23962 was issued requiring Fonterra to comply with this special condition. Fonterra engaged the services of a consultant to update the report to meet the requirements of condition 4. This was expected to be finalised and submitted by the end of March 2022, and an extension of the abatement notice was granted. This has not been submitted at the end of the 2021-2022 monitoring period.

### Consent 5013-2

Condition 2 requires that a visual inspection of the pipeline and diffuser is conducted annually, with an Annual Inspection Report submitted before 30 June annually. This was not submitted during 2021-2022.

### Consent 6273-1

Condition 4 requires a written report to be provided every six years reviewing technological advances in the reduction and mitigation of emissions, an inventory of emissions and addressing other relevant issues in relation to emissions. The last report was produced in July 2014, with the next report due in July 2020. This has not been submitted.

## 3.1.4 Monitoring and management plans

Resource consents 0047-4 (water abstraction) and 1450-3 (wastewater discharge) contain four special conditions relating to Tangata Whenua Involvement Plans (TWIPs).

### 0047-4

Condition 12 requires Fonterra to submit to Council a TWIP, developed in consultation with Te Runanga o Ngati Ruanui and Te Korowai o Ngāruahine (collectively referred to as "Tangata Whenua" for the purposes of this consent). Conditions 13, 14 and 15 provide further details around the purpose, processes and requirements of the TWIP.

The TWIP was finalised during the 2018-2019 monitoring year. It is a requirement of the Tangata Whenua Involvement Plan that a Kaitiaki Group is formed, comprising representatives from Tangata Whenua, Fonterra Limited, STDC and Council. Kaitiaki Group meetings were conducted during the monitoring period under review.

Conditions 16 and 17 outline Monitoring Plan requirements.

A monitoring regime was developed during the 2019-2020 year in consultation with Tangata Whenua. The monitoring is to focus on fish and macroinvertebrate communities within the Tangahoe River and Tawhiti Stream, as required by condition 16 (in addition to conditions in resource consents 4927-2 and 5148-2).

Condition 19 requires the preparation of a Low Flow Contingency Plan. This was received in April 2018.

### 1450-3

Condition 10 requires STDC and Fonterra to submit to Council a TWIP, developed in consultation with Te Runanga o Ngati Ruanui and Te Korowai o Ngāruahine (collectively referred to as "Tangata Whenua" for the purposes of this consent). Conditions 11, 12, and 13 provide further details around the purpose, processes and requirements of the TWIP. A separate TWIP for the wastewater discharge consent was also finalised during the 2018-2019 monitoring year.

Conditions 14 and 15 outline Monitoring Plan requirements.

Development has begun on an additional monitoring component, focusing on taonga intertidal species which inhabit Pukeroa Reef (as required by resource consent 1450-3). Implementation was postponed in 2019-2020, due to the COVID-19 pandemic, and was unable to be rolled out again in 2020-2021 or 2021-2022. The Council intends to finalise and commence this monitoring component, working with representatives of Ngati Ruanui in the 2022-2023 monitoring period.

Changes to the existing rocky shore intertidal monitoring component was made during the 2021-2022 monitoring period. Specifically, the monitoring frequency has been reduced from biannual (spring and summer), to annual (summer only). This reduction in survey frequency was discussed with representatives of Ngati Ruanui on 16 August 2021. An agreement was reached on the basis that the monitoring frequency could be revised and reverted back to biannual if warranted. Grounds for reviewing the monitoring frequency could include an unexplained decrease in diversity of the rocky shore reef communities, a change in the nature of the wastewater discharge, etc.

### 3.1.5 Financial contributions and the Environmental Enhancement Fund

Condition 25 of consent 0047-4 requires that Fonterra make an annual payment of \$10,000 for the purpose of mitigating any adverse effects of the taking. Condition 26 states that this contribution is only used for specific environmental enhancement projects within the Tangahoe River catchment that have been agreed to by the Kaitiaki Group and Council. This contribution was received during the 2021-2022 monitoring period.

On 1 July 2021, a memo from Council was circulated to the Kaitiaki group summarising various environmental enhancement opportunities for the Kaitiaki Group to consider funding. This included the recommendation that a small portion of the fund be allocated towards developing a Tangahoe Catchment Management Plan (CMP). The memo also detailed seven environmental enhancement opportunities that the group might consider pursuing further. This included; fencing and planting of small seeps and wetlands, fencing, planting and retiring steep marginal farmland, protection and enhancement of inanga spawning habitat on the Tangahoe River, removing barriers to fish passage and improving fish habitat, constructed wetlands, maintenance and enhancement of existing wetlands, and widening and enhancing existing riparian margins along tributaries of the Tawhiti Stream.

A meeting of the Kaitiaki Group in early July 2021 identified constructed wetlands and barriers to fish passage as two projects they were keen to initiate. Riverwise Consulting was engaged to undertake a desktop exercise to identify current barriers to fish passage in the Tangahoe Catchment. A report 'Tangahoe Catchment Identification of stream diversions and other potential fish passage barriers' was produced in November 2021. An action plan was agreed to at a Kaitiaki Group meeting in April 2022 and Phase 2 of the project is due to commence in November 2022.

## 3.2 Environmental effects of exercise of consents

### 3.2.1 Abstractions

Fonterra were compliant with all water abstraction consent conditions during the year. Maximum daily abstraction volumes weren't exceeded and minimum flows were maintained.

### 3.2.2 Stormwater

Discharge sampling from the Tawhiti, Tangahoe and coastal stormwater ponds was undertaken on ten occasions over the 2021-2022 monitoring year. At the discharge from the Tawhiti ponds, one parameter

(total chlorine), exceeded the consent limit on one occasion. As three or more exceedances are required for consent non-compliance, this discharge is deemed to have been compliant throughout 2021-2022.

At the discharge from the Tangahoe ponds, three parameters (total chlorine, oil and grease and BOD) exceeded the consent limit on one occasion each. As there were no parameters that exceeded the consent limit more than twice during the year; the discharge was deemed to be compliant with this consent condition (condition 7).

The discharge from the coastal stormwater ponds remained compliant with the consent limit throughout the year, with no exceedances recorded.

A survey was carried out at three sites in an unnamed tributary of the Tangahoe River in October 2021 to investigate the effects of the Fonterra dairy factory stormwater discharge on macroinvertebrate health. Overall, the results of the survey indicated that stormwater discharges from the factory had not had any recent significant detrimental effects upon the streambed macroinvertebrate communities. The lowered taxa richness and slightly lowered MCI at site 2 can be attributed to the limited habitat at this site, rather than to any effects from the discharge.

The summer survey undertaken in six sites in tributaries of the Tawhiti Stream (two sites), Tangahoe River (three sites) and an unnamed coastal stream (one site) found that dairy factory stormwater discharges had not significantly negatively affected macroinvertebrate communities of the unnamed tributary of the Tawhiti Stream or the unnamed coastal stream. However, results indicated that stormwater discharges from the factory had caused localised adverse effects on the macroinvertebrate communities of the unnamed tributary of the Tangahoe River at site 1, with no further effects detected further downstream at sites 2 or 3.

### 3.2.3 Wastewater

A number of routine monitoring components were used to assess the wastewater discharge and its environmental effects. Fonterra measured effluent outflow and collected 24-hour composite samples to analyse the wastewater composition. The Council collected 11 wastewater grab samples and undertook two inter-laboratory comparisons of 24-hour composite samples with Fonterra. In terms of environmental effects, the marine outfall was visually inspected from the coastal look out during each Council inspection, and an intertidal ecological survey was undertaken.

The limit on the daily volume of wastewater discharged was not exceeded during the 2021-2022 season. Results of composite monitoring by Fonterra found that suspended solids, COD and fat concentrations remained compliant throughout the year.

Fonterra's wastewater performance was similar to the previous year, with the results of all composite monitoring complying with consent conditions (Table 19).

Table 19 Wastewater discharge compliance history 2016-2021

Month	Discharge volume	Suspended solids	Fat	COD	Number of non-compliance days
2015-2016	-	12	2	-	14
2016-2017	-	-	-	-	0
2017-2018	-	1	2	-	2
2018-2019	-	-	1	-	1
2019-2020	-	-	-	-	0
2020-2021	-	-	-	-	0
2021-2022	-	-	-	-	0

Wastewater grab samples were collected by the Council on 11 occasions during the monitoring period. All results obtained complied with consent limits.

Visual inspections of the outfall discharge undertaken from the coastal lookout during routine inspections found no evidence of the discharge adversely affecting the coastal environment beyond the mixing zone designated in resource consent 1450.

A summer intertidal ecological survey was undertaken in the year under review. The survey did not provide any evidence to suggest that the outfall was having any adverse effects on the intertidal reef communities of South Taranaki. Natural environmental factors, including coastal erosion, exposure and substrate mobility, appeared to be dominant drivers of species richness and diversity at the sites surveyed.

### 3.2.4 Air discharges

Throughout the 2021-2022 monitoring period, emissions to air were monitored with visual inspections, odour surveys, testing of particulate emissions, gauging of milk powder deposition, measurement of ambient nitrogen concentration and PM<sub>10</sub> monitoring.

Onsite milk powder deposition was noted as negligible to low during most inspections.

Emission source analysis (stack testing) results of particle emissions from the drier facilities were compliant with consent conditions.

Consistent with previous years, milk powder deposition was high at the staff car park throughout the monitoring period, suggesting that the majority of the powder fallout occurred in the immediate vicinity of the powder plants. Deposition of milk powder on the site is not of great environmental concern, provided that the stormwater management systems perform satisfactorily.

Fonterra remained compliant with NO<sub>x</sub> limits stipulated in consent 6273 during the 2021-2022 monitoring period. Ambient NO<sub>x</sub> concentrations at Fonterra Whareroa are generally comparable with those at some of Taranaki's larger hydrocarbon production stations. Results were exceptionally low during 2021-2022 compared with previous years.

Monitoring indicated that PM<sub>10</sub> concentrations at Fonterra Whareroa remained below the consent limit and National Environmental Standard.

## 3.3 Evaluation of performance

A summary of Fonterra's compliance record for the year under review is set out in Tables 20-37.

### 3.3.1 Water abstraction

Table 20 Summary of performance for Consent 0047-4.1

<b>Purpose: To take water from the Tawhiti Stream and the Tangahoe River for various plant purposes</b>		
<b>Condition requirement</b>	<b>Means of monitoring during period under review</b>	<b>Compliance achieved?</b>
1. Combined total abstraction limit of 30,000 m <sup>3</sup> over 24 hours	Fonterra monitor compliance. Abstraction data is also telemetered to the Council and reviewed by Council officers	Yes
2. Maximum abstraction rate in Tawhiti Stream when flow is less than 800 L/s	Fonterra monitor compliance. Abstraction data is also telemetered to the Council and reviewed by Council officers	Yes
3. Maintenance of minimum flows	Council's telemetered sites	Yes

<b>Purpose: To take water from the Tawhiti Stream and the Tangahoe River for various plant purposes</b>		
<b>Condition requirement</b>	<b>Means of monitoring during period under review</b>	<b>Compliance achieved?</b>
4. Reduced minimum flow in Tangahoe River for maximum of 21 days	Council's telemetered site	N/A
5. Maintenance of minimum flows during an emergency situation of no more than 48 hours	Council's telemetered sites	N/A
6. Report requirement following an emergency situation	Condition 5 not exercised	N/A
7. Requirements for measuring and recording flow	Equipment inspected by Council. Data telemetered to Council	Yes
8. Requirements for installation of water meters, data loggers, and turbidity meters	Equipment inspected by Council. Data telemetered to Council	Yes
9. Requirement for installation of fish screens at intakes	Screens have been installed at Tangahoe intake. Consent variation extended deadline for Tawhiti to 30 April 2022 (compliance was not assessed during monitoring period)	Yes
10. Certification of water meters and data loggers	Equipment inspected by Council	Yes
11. Preparation, implementation and compliance with all plans required by consent	Kaitiaki Group meetings, self-reporting, Council monitoring	Yes
12. Preparation and submission of Tangata Whenua Involvement Plan (TWIP)	Tangata Whenua Involvement Plan (version 2) provided to Council	Yes
13. Purpose of the TWIP	Council review	Yes
14. Minimum requirements of the TWIP	Council review	Yes
15. Provision for consent holder review and amendment of TWIP	Review not undertaken during monitoring period	N/A
16. Monitoring Plan requirement	Monitoring undertaken as per plan	Yes
17. Provision of Monitoring Plan to Fish and Game for review	Liaison with consent holder	Yes
18. Implementation and compliance with Monitoring Plan	Liaison with consent holder	Yes
19. Preparation of Low Flow Contingency Plan	Plan received April 2018	Yes
20. Recording and reporting of turbidity, abstraction volumes and river flow in accordance with consent	Council review	Yes

<b>Purpose: To take water from the Tawhiti Stream and the Tangahoe River for various plant purposes</b>		
<b>Condition requirement</b>	<b>Means of monitoring during period under review</b>	<b>Compliance achieved?</b>
21. Consent holder to notify Council if measuring or recording equipment malfunctions	No issues during monitoring year	N/A
22. Equipment to be readily accessible for Council Officers to inspect and verify	Council inspection	Yes
23. Provision of Annual Performance Data Summary Report by 31 August	Report received	Yes
24. Water Efficiency BPO Report	First report due 1 June 2021	<b>No</b>
25. Provision of financial contribution for the mitigation of adverse environmental effects	Payment for 2021-2022 year received	Yes
26. Specification for financial contribution	Council review	Yes
27. Annual provision of Financial Contribution and Environmental Enhancement Report (FCEER)	Report not received	<b>No</b>
28. Council review provision	Next optional review in June 2026	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent Overall assessment of administrative performance in respect of this consent		<b>High Improvement required</b>

N/A = not applicable

### 3.3.2 Water discharges

Table 21 Summary of performance for Consent 1450-3.1

<b>Purpose: To discharge all wastewater from dairy factory processes and associated processes undertaken at the Whareroa dairy processing site through a marine outfall into the Tasman Sea</b>		
<b>Condition requirement</b>	<b>Means of monitoring during period under review</b>	<b>Compliance achieved?</b>
1. Discharge to only occur through outfall and diffuser	Diving inspections	Yes
2. Discharge volume not to exceed 40,000 m <sup>3</sup> over 24 hours	Council review of Fonterra monitoring data	Yes
3. Discharge shall not include sewage	Council wastewater sampling and review of Fonterra monitoring data	Yes
4. Constituent limits for wastewater discharge	Council wastewater sampling and review of Fonterra monitoring data	Yes

Purpose: To discharge all wastewater from dairy factory processes and associated processes undertaken at the Whareroa dairy processing site through a marine outfall into the Tasman Sea		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
5. No adverse effects on receiving environment beyond mixing zone	Council monitoring	Yes
6. Measure, record and report rate and volume of wastewater data	Council review of Fonterra monitoring data	Yes
7. Installation and commission of Dissolved Air Flotation (DAF) Unit	DAF Unit commissioned	Yes
8. Provision of DAF Performance Report	Report due by 1 June 2022, not provided	<b>No</b>
9. Preparation, implementation and compliance with all plans required by consent	Kaitiaki Group meetings, self-reporting, Council monitoring	Yes
10. Preparation and submission of Tangata Whenua Involvement Plan (TWIP)	Tangata Whenua Involvement Plan (version 2) provided to Council	Yes
11. Purpose of the TWIP	Council review	Yes
12. Minimum requirements of the TWIP	Council review	Yes
13. Provision for consent holder review and amendment of TWIP	Review not undertaken during monitoring period	N/A
14. Monitoring Plan requirement	Monitoring Plan in place	Yes
15. Implementation and compliance with Monitoring Plan	Liaison with consent holder	Yes
16. Preparation of Contingency Plan	Fonterra Whareroa Wastewater Discharge Management Plan February 2019 (version 3) – supplied to Council	Yes
17. Provision of Annual Performance Data Summary Report by 31 August	Report received	Yes
18. Wastewater Management BPO Report	First report due 1 June 2021, not provided	<b>No</b>
19. Council review provision	Next optional review in June 2026	N/A
20. Provision for review of condition 4, upon receipt of DAF Performance Report	Report not yet received	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent Overall assessment of administrative performance in respect of this consent		<b>High Improvement required</b>

Table 22 Summary of performance for Consent 3902-3.0

<b>Purpose: To discharge stormwater into an unnamed tributary of the Tangahoe River</b>		
<b>Condition requirement</b>	<b>Means of monitoring during period under review</b>	<b>Compliance achieved?</b>
1. Adopt best practicable option to prevent or minimise adverse effects	Site inspections	Yes
2. Catchment area not to exceed 10 ha	Consent holder liaison	Yes
3. Consent holder to prepare and maintain contingency plan	Whareroa Underground Services and Water Discharge Management Plan August 2020 (version 3) - supplied to Council	Yes
4. Consent holder to prepare and maintain stormwater management plan	Whareroa Underground Services and Water Discharge Management Plan August 2020 (version 3) - supplied to Council	Yes
5. Effects on receiving waters	Site inspections, physicochemical analysis, freshwater biomonitoring surveys	Mostly – potential adverse effects on macroinvertebrates
6. No visible bacterial and/or fungal growths downstream	Site inspections and freshwater biomonitoring surveys	Yes
7. Limits on chemical composition of discharge	Physicochemical analysis – there were some single exceedances	Yes
8. Maintenance of fencing and planting of riparian margin	Site inspections	Yes
9. Optional review provision re. environmental effects	No further option for review prior to expiry	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		<b>Good</b>
Overall assessment of administrative performance in respect of this consent		<b>High</b>

Table 23 Summary of performance for Consent 3907-3.0

<b>Purpose: To discharge stormwater into an unnamed tributary of the Tawhiti Stream</b>		
<b>Condition requirement</b>	<b>Means of monitoring during period under review</b>	<b>Compliance achieved?</b>
1. Adopt best practicable option to prevent or minimise adverse effects	Site inspections	Yes
2. Catchment area not to exceed 13 ha	Consent holder liaison	Yes
3. Consent holder to prepare and maintain contingency plan	Whareroa Underground Services and Water Discharge Management Plan August 2020 (version 3) - supplied to Council	Yes

<b>Purpose: To discharge stormwater into an unnamed tributary of the Tawhiti Stream</b>		
<b>Condition requirement</b>	<b>Means of monitoring during period under review</b>	<b>Compliance achieved?</b>
4. Consent holder to prepare and maintain stormwater management plan	Whareroa Underground Services and Water Discharge Management Plan August 2020 (version 3) - supplied to Council	Yes
5. Effects on receiving waters	Site inspections, physicochemical analysis, freshwater biomonitoring surveys	Yes
6. No visible bacterial and/or fungal growths downstream	Site inspections and freshwater biomonitoring surveys	Yes
7. Limits on chemical composition of discharge	Physicochemical analysis	Yes
8. Optional review provision re. environmental effects	No further option for review prior to expiry	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		<b>High</b>
Overall assessment of administrative performance in respect of this consent		<b>High</b>

Table 24 Summary of performance for Consent 4133-3.1

<b>Purpose: To discharge stormwater to the unnamed coastal stream</b>		
<b>Condition requirement</b>	<b>Means of monitoring during period under review</b>	<b>Compliance achieved?</b>
1. Adopt best practicable option to prevent or minimise adverse effects	Site inspections	Yes
2. Catchment area not to exceed 21 ha	Consent holder liaison	Yes
3. Consent holder to prepare and maintain contingency plan	Whareroa Underground Services and Water Discharge Management Plan August 2020 (version 3) - supplied to Council	Yes
4. Consent holder to prepare and maintain stormwater management plan	Whareroa Underground Services and Water Discharge Management Plan August 2020 (version 3) - supplied to Council	Yes
5. Effects on receiving waters	Site inspections, physicochemical analysis, freshwater biomonitoring surveys	Yes
6. No visible bacterial and/or fungal growths downstream	Site inspections and freshwater biomonitoring surveys	Yes
7. Limits on chemical composition of discharge	Physicochemical analysis	Yes
8. Maintenance of fencing and planting of riparian margin	Site inspections	Yes
9. Optional review provision re. environmental effects	No further option for review prior to expiry	N/A

<b>Purpose: To discharge stormwater to the unnamed coastal stream</b>		
<b>Condition requirement</b>	<b>Means of monitoring during period under review</b>	<b>Compliance achieved?</b>
Overall assessment of consent compliance and environmental performance in respect of this consent		<b>High</b>
Overall assessment of administrative performance in respect of this consent		<b>High</b>

Table 25 Summary of performance for Consent 4927-2.0

<b>Purpose: To discharge river silt and sand to the Tawhiti Stream</b>		
<b>Condition requirement</b>	<b>Means of monitoring during period under review</b>	<b>Compliance achieved?</b>
1. No adverse effects beyond mixing zone	Not assessed during period under review	N/A
2. Preparation of a Monitoring plan	Monitoring plan implemented	Yes
3. Implementation and compliance with Monitoring plan	Liaison with consent holder	N/A
4. Optional review provision re. environmental effects	Next review due in June 2024	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		<b>N/A</b>
Overall assessment of administrative performance in respect of this consent		<b>N/A</b>

Table 26 Summary of performance for Consent 5148-2.0

<b>Purpose: To discharge river silt and sand into the Tangahoe River</b>		
<b>Condition requirement</b>	<b>Means of monitoring during period under review</b>	<b>Compliance achieved?</b>
1. No adverse effects beyond mixing zone	Not monitored during period under review	N/A
2. Preparation of a Monitoring plan	Monitoring plan prepared	Yes
3. Implementation and compliance with Monitoring plan	Not monitored during period under review	N/A
4. Optional review provision re. environmental effects	Next option for review in June 2024	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		<b>N/A</b>
Overall assessment of administrative performance in respect of this consent		<b>N/A</b>

N/A = not applicable

### 3.3.3 Coastal permits

Table 27 Summary of performance for Consent 5013-2.0

Purpose: <i>To occupy CMA with, and maintain, a rock wall, outfall and diffuser structure</i>		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. Structures to be maintained so that they function effectively	Structures were deemed to be functioning effectively during period under review	Yes
2. Annual outfall inspection and report	Annual inspection undertaken, report not received	<b>Partially –report not submitted</b>
3. Provision of Maintenance Work Plan, if necessary	Maintenance work plan received December 2021	Yes
4. Confirmation of completion of works, if undertaken	Liaison with consent holder, notification received	Yes
5. Outfall pipeline shall not be visible at any time	Inspections and intertidal ecological inspections	Yes
6. Optional review provision re. environmental effects	Next review option in June 2026	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		<b>High Improvement required</b>
Overall assessment of administrative performance in respect of this consent		

N/A = not applicable

### 3.3.4 Air discharges

Table 28 Summary of performance for Consent 4103-2.3

<b>Purpose: To discharge emissions to air from the manufacture and processing of milk products</b>		
<b>Condition requirement</b>	<b>Means of monitoring during period under review</b>	<b>Compliance achieved?</b>
1. Adopt best practicable option to prevent or minimise adverse effects	Review of contingency and management plans and air quality monitoring	Yes
2. Measures representing best practicable option may be reviewed	Not reviewed during monitoring period	N/A
3. Any alterations to the plant, processes or operations must be approved by Council	Liaison with Consent holder	Yes
4. Written report with regard to emissions, improvements and mitigation within five years and every six thereafter	Report produced in August 2018, provided to Council in December 2020. Did not fulfil requirements of condition, subject of abatement notice	<b>No</b>
5. Consent authorises discharges to air according to application	Consent holder liaison	Yes

<b>Purpose: To discharge emissions to air from the manufacture and processing of milk products</b>		
<b>Condition requirement</b>	<b>Means of monitoring during period under review</b>	<b>Compliance achieved?</b>
6. Use of most appropriate process equipment and controls to minimise emissions and impacts	Emissions technology report overdue	N/A
7. Powder emissions to atmosphere <125 mg/m <sup>3</sup> (subject to condition 8)	Emission source analysis (stack testing)	Yes
8. Powder emissions to atmosphere from Powder-3 <150 mg/m <sup>3</sup>	Emission source analysis (stack testing)	Yes
9. Limits on depositions beyond boundary	Inspections, deposition gauging	Yes
10. PM <sub>10</sub> not to exceed 50 µg/m <sup>3</sup>	Air quality monitoring	Yes
11. No odour at or beyond boundary	Inspections	Yes
12. Monitoring of emissions	Air quality monitoring	Yes
13. Annual meeting with Council and submitters	Liaison with consent holder	Yes
14. Powder-5 can only process skim milk powder if Council are given five days' notice and a monitoring programme for the emissions is developed	No skim milk powder processed in Powder-5	N/A
15. Review of conditions if Condition 14 activated	No skim milk powder processed in Powder-5	N/A
16. Council may review consent for the purpose of dealing with any adverse effects	No further option for review	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent Overall assessment of administrative performance in respect of this consent		<b>High Improvement required</b>

N/A = not applicable

Table 29 Summary of performance for Consent 5044-2.0

<b>Purpose: To discharge emissions into the air from the disposal of laboratory wastes, and stormwater and sump cleanings onto and into land</b>		
<b>Condition requirement</b>	<b>Means of monitoring during period under review</b>	<b>Compliance achieved?</b>
1. Adoption of BPO to minimise adverse effects on the environment	Set out in management plan and emission report submitted to Council	Yes
2. Exercise of consent in accordance with application	Site inspections, consent holder liaison	Yes

<b>Purpose: To discharge emissions into the air from the disposal of laboratory wastes, and stormwater and sump cleanings onto and into land</b>		
<b>Condition requirement</b>	<b>Means of monitoring during period under review</b>	<b>Compliance achieved?</b>
3. Approval of a management plan	Air Management Plan March 2019 (version 4) – supplied to Council, Whareroa Land Disposal Management Plan July 2019 (version 8) – supplied to Council	Yes
4. Discharges resulting in no objectionable odours at site boundary	Site inspections.	Yes
5. Characteristics of an objectionable odour		N/A
6. Optional review	No further option for review, expired June 2022	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		<b>High</b>
Overall assessment of administrative performance in respect of this consent		<b>High</b>

N/A = not applicable

Table 30 Summary of performance for Consent 6257-1.1

<b>Purpose: To discharge emissions to air from dual fuel boilers</b>		
<b>Condition requirement</b>	<b>Means of monitoring during period under review</b>	<b>Compliance achieved?</b>
1. Best practicable option to prevent or minimise adverse environmental effects	Consent not yet exercised	N/A
2. Exercise of consent in accordance with application	Consent not yet exercised	N/A
3. Characteristics of coal similar to that described in application	Consent not yet exercised	N/A
4. Report on best practicable option within three months of commissioning	Consent not yet exercised	N/A
5. Review of measures relating to best practicable option	Consent not yet exercised	N/A
6. Minimisation of emissions	Consent not yet exercised	N/A
7. Minimum height of discharges 60 m	Consent not yet exercised	N/A
8. Approval from Council prior to plant alterations	Consent not yet exercised	N/A
9. Discharges not to exceed 20% obscuration	Consent not yet exercised	N/A
10. Discharges of particulate not to exceed 100 mg/Nm <sup>3</sup>	Consent not yet exercised	N/A

<b>Purpose: To discharge emissions to air from dual fuel boilers</b>		
<b>Condition requirement</b>	<b>Means of monitoring during period under review</b>	<b>Compliance achieved?</b>
11. Sulphur dioxide discharges not to exceed 385 kg/hr	Consent not yet exercised	N/A
12. Discharges of particulate not to exceed 43 kg/hr	Consent not yet exercised	N/A
13. Discharges of nitrogen oxides not to exceed 319 kg/hr	Consent not yet exercised	N/A
14. Maximum ground level concentration of sulphur dioxide not to exceed 350 mg/m <sup>3</sup>	Consent not yet exercised	N/A
15. Maximum ground level concentration of nitrogen dioxide not to exceed 350 mg/m <sup>3</sup>	Consent not yet exercised	N/A
16. Maximum ground level concentration of PM <sub>10</sub> not to exceed 50 mg/m <sup>3</sup>	Consent not yet exercised	N/A
17. Maximum ground level concentration of each or any metal not to exceed guideline values	Consent not yet exercised	N/A
18. Maximum ground level concentration of other contaminants not to exceed workplace exposure standards	Consent not yet exercised	N/A
19. Discharges not to give rise to significant ecological effects	Consent not yet exercised	N/A
20. Analysis of coal on a monthly basis	Consent not yet exercised	N/A
21. Consent holder to install and maintain various measuring devices	Consent not yet exercised	N/A
22. Consent holder to undertake annual source emission monitoring	Consent not yet exercised	N/A
23. Monitoring programme prepared	Provisional programme in place	Yes
24. Reporting regarding advances in technology	Consent not yet exercised	N/A
25. Reporting regarding emissions	Due 12 months from exercise of consent	N/A
26. Cultural impact report	Due 12 months from exercise of consent	N/A
27. Consent holder to undertake annual liaison meetings	Within 12 months of commissioning of energy centre	N/A
28. Consent lapse	Consent will lapse 1 June 2034 unless given effect to earlier	N/A

<b>Purpose: To discharge emissions to air from dual fuel boilers</b>		
<b>Condition requirement</b>	<b>Means of monitoring during period under review</b>	<b>Compliance achieved?</b>
29. Review of conditions	Next optional review in June 2022, recommendation attached in Section 3.6	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		<b>N/A</b>
Overall assessment of administrative performance in respect of this consent		<b>N/A</b>

N/A = not applicable

**Table 31 Summary of performance for Consent 6273-1.1**

<b>Purpose: To discharge emissions into the air from 'Cogen I' and 'Cogen II' co-generation energy generating plants</b>		
<b>Condition requirement</b>	<b>Means of monitoring during period under review</b>	<b>Compliance achieved?</b>
1. Best practical option to minimise adverse effects on environment	Site inspections, air quality monitoring, report as required by condition 4	Yes
2. Review of best practical option measures	No review undertaken	N/A
3. Approvals to be obtained for alterations	No alterations during period under review	N/A
4. Report on emissions and new technologies	Initial report submitted July 2014. Next report deadline July 2020. Report not yet received.	<b>No</b>
5. Specified circumstances under which diesel may be used to heat boilers	Liaison with consent holder	Yes
6. Notification requirement	Liaison with consent holder	Yes
7. Diesel specifications	Not assessed	N/A
8. Sulphur dioxide < 350 µg/m <sup>3</sup> (1 hour exposure) or < 125 µg/m <sup>3</sup> (24-hour exposure)	Not monitored during period under review	N/A
9. Carbon monoxide < 10 mg/m <sup>3</sup> (8 hour exposure) or <30 mg/m <sup>3</sup> (one-hour exposure)	Not monitored during period under review	N/A
10. Sum of nitrogen oxides not to exceed 48 g/s	Not monitored during period under review	N/A
11. Nitrogen dioxide not to exceed 200 µg/m <sup>3</sup> (one-hour average) or 100 µg/m <sup>3</sup> (24-hour average)	Air quality monitoring	Yes
12. PM <sub>10</sub> not to exceed 50 µg/m <sup>3</sup> (24-hour average)	Air quality monitoring	Yes
13. Control of emissions so that max concentration of any contaminant is not increased by	Not monitored during period under review	N/A

<b>Purpose: To discharge emissions into the air from 'Cogen I' and 'Cogen II' co-generation energy generating plants</b>		
<b>Condition requirement</b>	<b>Means of monitoring during period under review</b>	<b>Compliance achieved?</b>
more than 1/30 <sup>th</sup> of the relevant Workplace Exposure Standard		
14. Minimum height of discharge 17.5 m above ground	Structure has not been altered	Yes
15. Minimisation of emissions and impacts by selection of most appropriate equipment etc	Air quality monitoring, as discussed in report required by condition 4	Yes
16. Consent holder to undertake monitoring of emissions and their effects	Monitoring plan in place	Yes
17. No emissions of visible smoke or plume of water vapour	Inspections	Yes
18. Water treatment regime to the satisfaction of Council	Inspections	Yes
19. Optional review of consent	No further option for review prior to expiry	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		<b>High Improvement required</b>
Overall assessment of administrative performance in respect of this consent		

N/A = not applicable

**Table 32 Summary of performance for Consent 7465-1.0**

<b>Purpose: To discharge emissions into the air from the combustion of waste wood packaging</b>		
<b>Condition requirement</b>	<b>Means of monitoring during period under review</b>	<b>Compliance achieved?</b>
1. Only untreated timber packaging to be burned	Consent no longer exercised	N/A
2. Total volume not to exceed 4 m <sup>3</sup>	Consent no longer exercised	N/A
3. Best practicable option to minimise environmental effects	Consent no longer exercised	N/A
4. Regard to wind and weather conditions	Consent no longer exercised	N/A
5. Discharge not to give rise to contaminants beyond boundary	Consent no longer exercised	N/A
6. Discharge not to give rise to odour beyond the boundary	Consent no longer exercised	N/A
7. Records to be maintained of burning events	Consent no longer exercised	N/A
8. Consent lapse if not given effect before 2014	Consent no longer exercised	N/A
9. Optional review of consent	No further option for review prior to expiry	N/A

<b>Purpose: To discharge emissions into the air from the combustion of waste wood packaging</b>		
<b>Condition requirement</b>	<b>Means of monitoring during period under review</b>	<b>Compliance achieved?</b>
Overall assessment of consent compliance and environmental performance in respect of this consent		<b>N/A</b>
Overall assessment of administrative performance in respect of this consent		<b>N/A</b>

N/A = not applicable

### 3.3.5 Discharges of waste to land

Table 33 Summary of performance for Consent 4406-2.0

<b>Purpose: To discharge laboratory wastes onto and into land</b>		
<b>Condition requirement</b>	<b>Means of monitoring during period under review</b>	<b>Compliance achieved?</b>
1. Adoption of action likely to minimise adverse effects on the environment	Consent no longer exercised	N/A
2. Enacted in accordance with the terms of the application	Consent no longer exercised	N/A
3. Limitations on size of discharge	Consent no longer exercised	N/A
4. Management plan for discharge site provided	Consent no longer exercised	N/A
5. Siting of discharge pits	Consent no longer exercised	N/A
6. Limitations on placing of discharge sites	Consent no longer exercised	N/A
7. Disposal pits cannot intercept water table	Consent no longer exercised	N/A
8. Contaminants entering other bodies of water not permitted	Consent no longer exercised	N/A
9. Cannot lead to adverse impacts on surrounding bodies of water	Consent no longer exercised	N/A
10. Items permitted to be discharged	Consent no longer exercised	N/A
11. Earth cover over discharge	Consent no longer exercised	N/A
12. Soil and vegetation cover over pits	Consent no longer exercised	N/A
13. Maintenance of soil cover	Consent no longer exercised	N/A
14. Records to be kept on pit usage	Consent no longer exercised	N/A
15. Optional review provision re environmental effects	No further option for review, consent expired in June 2022	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		<b>N/A</b>
Overall assessment of administrative performance in respect of this consent		<b>N/A</b>

Table 34 Summary of performance for Consent 5036-2.0

<b>Purpose: To discharge waste material onto land</b>		
<b>Condition requirement</b>	<b>Means of monitoring during period under review</b>	<b>Compliance achieved?</b>
1. Adoption of action likely to minimise adverse effects on the environment	Site inspections and liaison with consent holder	Yes
2. Disposal of unprocessable wastes via irrigation to comply with nitrogen and COD loading limits	Not exercised during year under review	N/A
3. Exercise of consent in accordance with applications	Site inspections and liaison with consent holder	Yes
4. Limits on discharge of stormwater sump cleanings and unprocessable dairy waste	Site inspections and liaison with consent holder	Yes
5. Consent holder to provide management plan	Whareroa Land Disposal Management Plan July 2019 (version 8) – supplied to Council	Yes
6. Discharge not within 50 m of bore, 25 m of surface water, 100 m from cliff	Site inspections and liaison with consent holder	Yes
7. Disposal pit(s) not to intercept the water table	Site inspections and liaison with consent holder	Yes
8. Exercise of consent not to lead to contaminants entering a water body via overland surface flows	Site inspections and liaison with consent holder	Yes
9. Exercise of consent not to result in adverse impacts on groundwater	Not monitored during period under review; no incidents reported	N/A
10. Discharged material to be covered by 50 mm soil	Site inspections and liaison with consent holder	Yes
11. Liquid to be removed from disposal pits prior to covering	Site inspections and liaison with consent holder	Yes
12. Only materials outlined in application to be discharged	Site inspections, liaison with consent holder and requirements in management plan	Yes
13. Disposal pits to be reinstated and re-vegetated	No pits reinstated during the year	N/A
14. Cover layer to be suitably maintained	No pits reinstated during the year	Yes
15. Disposal not to give rise to objectionable or offensive odours beyond boundary	Site inspections and liaison with consent holder; no complaints received	Yes
16. Consent holder to maintain records of discharge	Not requested	Yes
17. Discharge of unprocessable wastes to occur only after all other options have been exhausted	Site inspections, liaison with consent holder	Yes

<b>Purpose: To discharge waste material onto land</b>		
<b>Condition requirement</b>	<b>Means of monitoring during period under review</b>	<b>Compliance achieved?</b>
18. Optional review provision re. environmental effects	No further option for review, consent expired in June 2022	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		<b>High</b>
Overall assessment of administrative performance in respect of this consent		<b>High</b>

Table 35 Summary of performance for Consent 9908-1.0

<b>Purpose: To discharge dairy liquids onto land and the associated emissions to air, in various locations throughout the Taranaki region</b>		
<b>Condition requirement</b>	<b>Means of monitoring during period under review</b>	<b>Compliance achieved?</b>
1. Dairy liquids to be discharged; limited to dairy by-products, unprocessable dairy products and surplus dairy products	Consent holder liaison, data review	Yes
2. Exercise of consent in accordance with Dairy Liquids Spreading Management Plan	Dairy Liquids Spreading Management Plan November 2020 (version 9) – supplied to Council	Yes
3. Notify the Council of the intent to discharge dairy liquids to land	Notification provided to Council July 2021	Yes
4. Discharge shall not result in any liquids ponding for more than 30 minutes	Not monitored during year under review, no complaints received	N/A
5. Discharge shall not result in any liquids reaching surface water, any subsurface drainage system or any adjacent property	Self-notification	<b>Mostly – one incident</b>
6. Best practicable option to minimise environmental effects	Not monitored during year under review, no complaints received	N/A
7. No spray drift beyond the boundary of the property	Not monitored during year under review, no complaints received	N/A
8. Sodium adsorption ratio not exceeding 15	Consent holder liaison, data review	Yes
9. Nitrogen loading rate shall not exceed limits provided in consent	Consent holder liaison, data review	Yes
10. Discharge shall not occur within the minimum buffer distances provided in consent	Consent holder liaison, farm register and data review	N/A
11. No discharge within, adjacent to or directly impacting on any Statutory Acknowledgement Area	Consent holder liaison, farm register and data review	N/A

<b>Purpose: To discharge dairy liquids onto land and the associated emissions to air, in various locations throughout the Taranaki region</b>		
<b>Condition requirement</b>	<b>Means of monitoring during period under review</b>	<b>Compliance achieved?</b>
12. No offensive or objectionable odour beyond property boundary	Not monitored during year under review, no complaints received	N/A
13. Notify the Council within 48 hours of any accidental discharge	Notification received	Yes
14. Maintain a complaints register	Liaison with consent holder, no complaints received during the year	N/A
15. Notify the Council of event having significant adverse effect on water quality	No such events occurred during the year	N/A
16. Record of application sites	Not requested during period under review	N/A
17. Farm register	Appendix 1 of Dairy Liquids Spreading Management Plan November 2020 (version 9)	Yes
18. Consent shall lapse 2019 if not exercised	Consent has been exercised	N/A
19. Optional review of consent	Next scheduled optional review in June 2023, recommendation attached in section 3.6	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent Overall assessment of administrative performance in respect of this consent		<b>Good High</b>

N/A = not applicable

### 3.3.6 Land use permits

Table 36 Summary of performance for Consent 10208-1.0

<b>Purpose: To construct, place and use a water intake structure in the bed of the Tangahoe River</b>		
<b>Condition requirement</b>	<b>Means of monitoring during period under review</b>	<b>Compliance achieved?</b>
1. Structure shall be constructed in accordance with specified documentation	Site inspections and liaison with consent holder (construction now complete)	N/A
2. Signage requirements	Site inspections and liaison with consent holder (construction now complete)	N/A
3. Meet with a Council Officer prior to commencement of works	Site inspections and liaison with consent holder (construction now complete)	N/A
4. Erosion control requirements	Site inspections and liaison with consent holder (construction now complete)	N/A
5. Sediment control requirements	Site inspections and liaison with consent holder (construction now complete)	N/A
6. Earthwork stabilisation requirements	Site inspections and liaison with consent holder (construction now complete)	N/A
7. Works notification requirement	Notification received (construction now complete)	N/A

<b>Purpose: To construct, place and use a water intake structure in the bed of the Tangahoe River</b>		
<b>Condition requirement</b>	<b>Means of monitoring during period under review</b>	<b>Compliance achieved?</b>
8. Concrete work to be isolated from running water	Site inspections and liaison with consent holder (construction now complete)	N/A
9. Concrete to remain isolated from running water for 48 hours	Site inspections and liaison with consent holder (construction now complete)	N/A
10. Bank protection structures shall be installed following the installation of the coffer dam (in accordance with specified documentation)	Site inspections and liaison with consent holder (construction now complete)	N/A
11. No instream works between 1 May and 31 October inclusive	Site inspections and liaison with consent holder (construction now complete)	N/A
12. Streambed disturbance to be minimised and reinstated as far as practicable	Site inspections and liaison with consent holder (construction now complete)	N/A
13. Reasonable steps taken to minimise instream effects from sediment	Site inspections and liaison with consent holder (construction now complete)	N/A
14. Adopt best practicable option to prevent/ minimise adverse effects	Site inspections and liaison with consent holder (construction now complete)	N/A
15. Water flow shall not be adversely affected	Site inspections and liaison with consent holder (construction now complete)	N/A
16. Following works, river banks shall not be steeper than the existing natural banks	Site inspections and liaison with consent holder (construction now complete)	N/A
17. Works to remain responsibility of consent holder (and subsequent erosion, etc)	No issues noted during monitoring period	N/A
18. Protocols adopted if archaeological remains are discovered	Liaison with consent holder (construction now complete)	N/A
19. Consent lapse clause	Consent has been exercised	N/A
20. Consent review clause	Next optional review in June 2028	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		<b>N/A</b>
Overall assessment of administrative performance in respect of this consent		<b>N/A</b>

N/A = not applicable

Table 37 Evaluation of overall environmental performance over time

Year	High	Good	Improvement required	Poor
2014-15	-	✓	-	-
2015-16	-	-	✓	-
2016-17	-	✓	-	-
2017-18	-	-	✓	-
2018-19	-	✓	-	-
2019-20	-	-	✓	-
2020-21	-		✓	-
Totals	0	3	4	0

During the year, Fonterra demonstrated levels of environmental performance and administrative performance that both required improvement as defined in Appendix II.

### 3.4 Recommendations from the 2020-2021 Annual Report

In the 2020-2021 Annual Report, it was recommended:

1. THAT in the first instance monitoring of air emissions from the Whareroa plant in the 2021-2022 year continues at the same level as in 2020-2021.
2. THAT, monitoring of water discharges (including stormwater) and abstractions for the Whareroa plant in the 2021-2022 year continues at the same level as in 2020-2021.
3. THAT, subject to recommendations 4 and 5, freshwater and marine ecological monitoring in the 2021-2022 year continues at the same level as in 2020-2021.
4. THAT a Taonga species survey on Pukeroa Reef be trialled, as required by resource consents 1450.
5. THAT, the frequency of the rocky shore intertidal surveys is reduced from biannual (spring and summer) to annual (summer only).
6. THAT combined inspections of the Whareroa plant for monitoring of air emissions and water discharges in the 2021-2022 year continues at the same level as in 2020-2021.
7. THAT, Fonterra initiates a review of the current oil and grease stormwater consent limit, given the recent change in test method.
8. THAT should there be issues with environmental or administrative performance in 2021-2022, monitoring may be adjusted to reflect any additional investigation or intervention as found necessary.
9. THAT the option for a review of resource consents 3902-3, 3907-3, 4133-3, 6257-1, 7465-1 and 10208-1 in June 2022, as set out in conditions of the consents, not be exercised, on the grounds that the current conditions are adequate.

Recommendations 1, 2, 3, 5, 6, 8, and 9 were implemented. The Taonga species survey as per recommendation 4 has been re-scheduled to be undertaken during 2022-2023. Recommendation 7 was not undertaken.

### 3.5 Alterations to monitoring programmes for 2022-2023

In designing and implementing the monitoring programmes for air/water discharges in the region, the Council has taken into account:

- the extent of information already made available through monitoring or other means to date;
- its relevance under the RMA;
- the Council's obligations to monitor consented activities and their effects under the RMA;
- the record of administrative and environmental performances of the consent holder; and
- reporting to the regional community.

The Council also takes into account the scope of assessments required at the time of renewal of permits, and the need to maintain a sound understanding of industrial processes within Taranaki exercising resource consents.

No planned changes have been made to the 2022-2023 monitoring programme.

It should be noted that the proposed programme represents a reasonable and risk-based level of monitoring for the site in question. The Council reserves the right to subsequently adjust the programme from that initially prepared, should the need arise if potential or actual non-compliance is determined at any time during 2022-2023.

### 3.6 Exercise of optional review of consent

Resource consent 9908-1 provides for an optional review of the consent in June 2023. Condition 19 allows the Council to review the consent, for the purpose of ensuring that the conditions are adequate to deal with any adverse effects on the environment.

Based on the results of monitoring in the year under review, and in previous years as set out in earlier annual compliance monitoring reports, it is considered that there are no grounds that require a review to be pursued.

## 4 Recommendations

1. THAT in the first instance monitoring of air emissions from the Whareroa plant in the 2021-2022 year continues at the same level as in 2020-2021.
2. THAT, monitoring of water discharges (including stormwater) and abstractions for the Whareroa plant in the 2022-2023 year continues at the same level as in 2021-2022.
3. THAT, subject to recommendation 4, freshwater and marine ecological monitoring in the 2022-2023 year continues at the same level as in 2021-2022.
4. THAT a Taonga species survey on Pukeroa Reef be trialled, as required by resource consents 1450.
5. THAT combined inspections of the Whareroa plant for monitoring of air emissions and water discharges in the 2022-2023 year continues at the same level as in 2021-2022.
6. THAT, Fonterra initiates a review of the current oil and grease stormwater consent limit, given the recent change in test method.
7. THAT should there be issues with environmental or administrative performance in 2022-2023, monitoring may be adjusted to reflect any additional investigation or intervention as found necessary.
8. THAT the option for a review of resource consent 9908-1 in June 2023, as set out in condition 19 of the consent, not be exercised, on the grounds that the current conditions are adequate.

## Glossary of common terms and abbreviations

The following abbreviations and terms may be used within this report:

Biomonitoring	Assessing the health of the environment using aquatic organisms.
BOD	Biochemical oxygen demand. A measure of the presence of degradable organic matter, taking into account the biological conversion of ammonia to nitrate.
BODCF	Biochemical oxygen demand of a filtered sample.
Bund	A wall around a tank to contain its contents in the case of a leak.
CBOD	Carbonaceous biochemical oxygen demand. A measure of the presence of degradable organic matter, excluding the biological conversion of ammonia to nitrate.
cfu	Colony forming units. A measure of the concentration of bacteria usually expressed as per 100 millilitre sample.
COD	Chemical oxygen demand. A measure of the oxygen required to oxidise all matter in a sample by chemical reaction.
Conductivity	Conductivity, an indication of the level of dissolved salts in a sample, usually measured at 25°C and expressed in $\mu\text{S}/\text{cm}$ .
Cumec	A volumetric measure of flow- 1 cubic metre per second ( $1 \text{ m}^3\text{s}^{-1}$ ).
DAF	Dissolved Air Flotation
DO	Dissolved oxygen.
DRP	Dissolved reactive phosphorus.
<i>E. coli</i>	<i>Escherichia coli</i> , an indicator of the possible presence of faecal material and pathological micro-organisms. Usually expressed as colony forming units per 100 millilitre sample.
Ent	Enterococci, an indicator of the possible presence of faecal material and pathological micro-organisms. Usually expressed as colony forming units per 100 millilitre of sample.
FC	Faecal coliforms, an indicator of the possible presence of faecal material and pathological micro-organisms. Usually expressed as colony forming units per 100 millilitre sample.
Fresh	Elevated flow in a stream, such as after heavy rainfall.
$\text{g}/\text{m}^2/\text{day}$	grams/metre <sup>2</sup> /day.
$\text{g}/\text{m}^3$	Grams per cubic metre, and equivalent to milligrams per litre (mg/L). In water, this is also equivalent to parts per million (ppm), but the same does not apply to gaseous mixtures.
Incident	An event that is alleged or is found to have occurred that may have actual or potential environmental consequences or may involve non-compliance with a consent or rule in a regional plan. Registration of an incident by the Council does not automatically mean such an outcome had actually occurred.
Intervention	Action/s taken by Council to instruct or direct actions be taken to avoid or reduce the likelihood of an incident occurring.
Investigation	Action taken by Council to establish what were the circumstances/events surrounding an incident including any allegations of an incident.

Incident register	The incident register contains a list of events recorded by the Council on the basis that they may have the potential or actual environmental consequences that may represent a breach of a consent or provision in a Regional Plan.
L/s	Litres per second.
m <sup>2</sup>	Square metres.
MCI	Macroinvertebrate community index; a numerical indication of the state of biological life in a stream that takes into account the sensitivity of the taxa present to organic pollution in stony habitats.
µS/cm	Microsiemens per centimetre
Mixing zone	The zone below a discharge point where the discharge is not fully mixed with the receiving environment. For a stream, conventionally taken as a length equivalent to 7 times the width of the stream at the discharge point.
NH <sub>4</sub>	Ammonium, normally expressed in terms of the mass of nitrogen (N).
NH <sub>3</sub>	Unionised ammonia, normally expressed in terms of the mass of nitrogen (N).
NO <sub>3</sub>	Nitrate, normally expressed in terms of the mass of nitrogen (N).
NTU	Nephelometric Turbidity Unit, a measure of the turbidity of water.
O&G	Oil and grease, defined as anything that will dissolve into a particular organic solvent (e.g. hexane). May include both animal material (fats) and mineral matter (hydrocarbons).
pH	A numerical system for measuring acidity in solutions, with 7 as neutral. Numbers lower than 7 are increasingly acidic and higher than 7 are increasingly alkaline. The scale is logarithmic i.e. a change of 1 represents a ten-fold change in strength. For example, a pH of 4 is ten times more acidic than a pH of 5.
Physicochemical	Measurement of both physical properties (e.g. temperature, clarity, density) and chemical determinants (e.g. metals and nutrients) to characterise the state of an environment.
PM <sub>10</sub>	Relatively fine airborne particles (less than 10 micrometre diameter, respectively).
PM <sub>10</sub> , PM <sub>2.5</sub> , PM <sub>1.0</sub>	Relatively fine airborne particles (less than 10 or 2.5 or 1.0 micrometre diameter, respectively).
Resource consent	Refer Section 87 of the RMA. Resource consents include land use consents (refer Sections 9 and 13 of the RMA), coastal permits (Sections 12, 14 and 15), water permits (Section 14) and discharge permits (Section 15).
RMA	<i>Resource Management Act 1991</i> and including all subsequent amendments.
Shannon-Wiener index	An ecological diversity measure which factors in the number of species present and their relative abundance.
SS	Suspended solids.
SQMCI	Semi quantitative macroinvertebrate community index.
Temp	Temperature, measured in °C (degrees Celsius).
Turb	Turbidity, expressed in NTU.

For further information on analytical methods, contact an Environment Quality Manager.

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# Appendix I

## Resource consents held by Fonterra

(For a copy of the signed resource consent  
please contact the TRC Consents department)

### Water abstraction permits

Section 14 of the RMA stipulates that no person may take, use, dam or divert any water, unless the activity is expressly allowed for by a resource consent or a rule in a regional plan, or it falls within some particular categories set out in Section 14. Permits authorising the abstraction of water are issued by the Council under Section 87(d) of the RMA.

### Water discharge permits

Section 15(1)(a) of the RMA stipulates that no person may discharge any contaminant into water, unless the activity is expressly allowed for by a resource consent or a rule in a regional plan, or by national regulations. Permits authorising discharges to water are issued by the Council under Section 87(e) of the RMA.

### Air discharge permits

Section 15(1)(c) of the RMA stipulates that no person may discharge any contaminant from any industrial or trade premises into air, unless the activity is expressly allowed for by a resource consent, a rule in a regional plan, or by national regulations. Permits authorising discharges to air are issued by the Council under Section 87(e) of the RMA.

### Discharges of wastes to land

Sections 15(1)(b) and (d) of the RMA stipulate that no person may discharge any contaminant onto land if it may then enter water, or from any industrial or trade premises onto land under any circumstances, unless the activity is expressly allowed for by a resource consent, a rule in a regional plan, or by national regulations. Permits authorising the discharge of wastes to land are issued by the Council under Section 87(e) of the RMA.

### Land use permits

Section 13(1)(a) of the RMA stipulates that no person may in relation to the bed of any lake or river use, erect, reconstruct, place, alter, extend, remove, or demolish any structure or part of any structure in, on, under, or over the bed, unless the activity is expressly allowed for by a resource consent, a rule in a regional plan, or by national regulations. Land use permits are issued by the Council under Section 87(a) of the RMA.

### Coastal permits

Section 12(1)(b) of the RMA stipulates that no person may erect, reconstruct, place, alter, extend, remove, or demolish any structure that is fixed in, on, under, or over any foreshore or seabed, unless the activity is expressly allowed for by a resource consent, a rule in a regional plan, or by national regulations. Coastal permits are issued by the Council under Section 87(c) of the RMA.

**Water Permit**  
**Pursuant to the Resource Management Act 1991**  
**a resource consent is hereby granted by the**  
**Taranaki Regional Council**

Name of  
Consent Holder: Fonterra Limited  
PO Box 444  
Hawera 4640

Decision Date  
(Change): 5 December 2019

Commencement Date  
(Change): 5 December 2019 (Granted Date: 8 November 2017)

**Conditions of Consent**

Consent Granted: To take water from the Tawhiti Stream and the Tangahoe River for the purposes of processing and manufacturing dairy products, cleaning of plant, cooling, domestic use and for a co-generation plant

Expiry Date: 1 June 2052

Review Date(s): June 2021 and at 5 years intervals thereafter

Site Location: Main South Road & 135 Hicks Road, Hawera

Grid Reference (NZTM) 1712861E - 5616233N (Tawhiti)  
1715770E - 5612494N (Tangahoe)

Catchment: Tangahoe

Tributary: Tawhiti

*For General, Standard and Special conditions  
pertaining to this consent please see reverse side of this document*

## General condition

- a. The consent holder shall pay to the Taranaki Regional Council all the administration, monitoring and supervision costs of this consent, fixed in accordance with section 36 of the Resource Management Act 1991.

## Special conditions

### Rate of taking

1. The total amount of water taken from the Tawhiti Stream and the Tangahoe River in any 24 hour period ending at 6.00am (New Zealand Standard Time) shall not exceed 30,000 cubic metres.
2. When the flow in the Tawhiti Stream is less than 800 litres per second, as measured at the 'Tawhiti at Duffys' flow recorder site (Grid Ref NZTM 1714275-5615594), the rate of taking from the Tawhiti Stream shall not exceed 184 litres per second, unless the turbidity of the Tangahoe River at the take site (Grid Ref NZTM 1715770-5612494) is greater than 850 NTU, then the rate shall not exceed 347 litres per second.

#### Advice Note:

*For the avoidance of doubt, this condition does not limit the amount of water that may be taken from the Tangahoe River, provided the amount does not exceed 30,000 cubic metres in accordance with condition 1.*

### Minimum flows

3. Except as provided for by conditions 4 and 5, no taking shall occur:
  - (a) when the flow immediately downstream of the Tangahoe River take site is less than 450 litres per second; or
  - (b) from the Tawhiti Stream when the flow, as recorded at the 'Tawhiti at Duffys' flow recorder site, is less than 240 litres per second.
4. On no more than 21 days during any period commencing 01 July and ending 30 June of the following year, taking may occur from the Tangahoe River if its flow is between 300 litres per second and 450 litres per second.
5. During an emergency situation, taking in accordance with condition 1 may occur for a period not exceeding 48 hours from the:
  - (a) Tawhiti Stream when the flow at the 'Tawhiti at Duffys' flow recorder site is more than 50 litres per second; and
  - (b) Tangahoe River when the flow immediately downstream of the intake is more than 273 litres per second.

For the purposes of this condition, an emergency situation is the inability of the consent holder to take, pump, or treat the water taken, due to an event beyond the control of the consent holder, including: failure of power supply; contamination of river water, and damage to infrastructure (pumping station, pipeline, treatment plant).

6. On each occasion that condition 5 is exercised, the consent holder shall within seven working days of the emergency ceasing provide a written report to the Chief Executive, Taranaki Regional Council giving reasons for the emergency, the volumes of water abstracted, the minimum flows that occurred, the water conservation measures adopted during the emergency and any measures that can be adopted to prevent a reoccurrence. A copy of each report shall also be provided to Tangata Whenua and Fish & Game New Zealand (Taranaki).
7. The consent holder shall ensure that the flow in the river downstream of each take site is measured and recorded at intervals not exceeding 15 minutes to an accuracy of +10% for flows less than:
  - (a) 2000 litres per second for the Tangahoe River; and
  - (b) 1000 litres per second for the Tawhiti Stream.

Advice Note:

*For the avoidance of doubt, the river flow gauging stations downstream of each take site, and any associated data telemetry, is owned and operated by the Taranaki Regional Council. This flow data shall be provided to the consent holder so it can manage the takes from each take site in accordance with the conditions of this consent.*

**Installation of Monitoring Equipment and Screens**

8. Before exercising this consent the consent holder shall:
  - (a) install, and thereafter maintain a water meter and a datalogger at each site of taking (or a nearby site in accordance with Regulation 10 of the *Resource Management (Measurement and Reporting of Water Takes) Regulations 2010*. Water meters and dataloggers shall be tamper-proof and shall measure and record the rate and volume of water taken to an accuracy of  $\pm 5\%$  at intervals not exceeding 15 minutes;
  - (b) install, and thereafter maintain equipment that records the turbidity of the Tangahoe River at the take site to an accuracy of  $\pm 5\%$  at intervals not exceeding 15 minutes.
9. The consent holder shall install screens on:
  - (a) the water intake structure within the Tangahoe River prior to 8 November 2019; and
  - (b) the water intake structure within the Tawhiti Stream prior to 30 April 2022;for the purpose of preventing fish from entering the intake. The screens shall have a mesh aperture not exceeding 2 mm and the sweep velocity shall exceed the approach velocity.
10. Within 30 days of the commencement date of this consent, the consent holder shall provide the Taranaki Regional Council with a document from a suitably qualified person certifying that the water meter and datalogger at each site of taking required by condition 8(a) of this consent:
  - (a) has been installed and/or maintained in accordance with the manufacturer's specifications; and/or
  - (b) has been tested and shown to be operating to an accuracy of  $\pm 5\%$ .

The documentation shall also be provided:

- (c) at other times when reasonable notice is given by the Chief Executive, Taranaki Regional Council who has reasonable evidence that the equipment may not be functioning as required by this consent; and
- (d) no less frequently than once every five years.

### **Monitoring and Management Plans**

11. The consent holder shall prepare, implement and comply with its obligations under all plans required by the conditions of this consent.

### Tangata Whenua Involvement Plan

12. Within 3 months of the commencement date of this consent, the consent holder shall prepare and submit to the Taranaki Regional Council a Tangata Whenua Involvement Plan ("TWIP"). The TWIP shall be developed in consultation with Te Runanga o Ngati Ruanui Trust and Te Korowai o Ngaruahine Trust (collectively referred to as "Tangata Whenua" for the purposes of this consent).
13. The purpose of the Plan is to recognise Tangata Whenua's kaitiakitanga responsibilities and to identify the process and extent of involvement by Tangata Whenua in:
- (a) the development, implementation and review of the Monitoring Plan (condition 16) and Water Efficiency BPO Report (condition 24);
  - (b) the development and implementation of environmental enhancement projects in accordance with condition 25.
  - (c) monitoring the conditions of this consent.
  - (d) the establishment of a Kaitiaki Group.
14. As a minimum the TWIP shall detail:
- (a) *Development of Plans* - A process for Tangata Whenua to have input into and provide feedback to the consent holder and Taranaki Regional Council on the development of the Monitoring Plan (condition 16) and Water Efficiency BPO Report (condition 24) prior to each being lodged with the Taranaki Regional Council.
  - (b) *Implementation and review of Plans* - A process for Tangata Whenua to have input into and provide feedback on the implementation and reviews of:
    - (i) the Monitoring Plan;
    - (ii) monitoring of the effects of the takes;
    - (iii) the Annual Performance and Data Summary Reports; and
    - (iv) the Water Efficiency BPO Report.
  - (c) *Information Sharing* - A process for ongoing information sharing between Tangata Whenua and the consent holder to enable an improved understanding of the relevant cultural values that may be affected by the activities authorised by this consent and the traditional/cultural uses of the Tawhiti Stream and Tangahoe River.

- (d) *Kaitiaki Group* - A process to establish and maintain a Kaitiaki Group (KG), which shall include:
- (i) the process by which the Taranaki Regional Council, Te Runanga o Ngati Ruanui Trust, Te Korowai o Ngaruahine Trust and the consent holder will be invited to become members of the KG;
  - (ii) the process by which membership may be amended and advisers appointed and/or engaged by the KG;
  - (iii) the terms of reference for the KG, which shall be:
    - the conditions of this consent and their implementation; and
    - the environmental enhancement projects to be carried out pursuant to condition 25;
  - (iv) the way the KG will operate, including frequency of meetings and methods of communication between members; and
  - (v) the reasons the KG may cease to function and the process for that.
15. The consent holder may review and amend the TWIP from time to time in consultation with Tangata Whenua. A copy of the amended plan shall be provided to the Taranaki Regional Council.

#### Monitoring Plan

16. Within 6 months of the date of commencement of this consent, the consent holder shall ensure a Monitoring Plan is prepared. The purpose of the Monitoring Plan is to identify the techniques, methodologies and procedures that will be employed to acquire data in relation to, and monitor compliance with the conditions of this consent, and the effects of the taking authorised by this consent on:
- (a) instream habitat values and macroinvertebrate communities within the Tawhiti Stream and Tangahoe River; and
  - (b) native fish populations within the Tawhiti Stream and Tangahoe River.

#### Advice Note:

*The Taranaki Regional Council assumes responsibility for the preparation and implementation of the Monitoring Plan for annual compliance purposes.*

17. The consent holder shall provide a copy of the Monitoring Plan to Fish and Game New Zealand for comment prior to it being approved by the Taranaki Regional Council.
18. At all times, the consent holder shall implement and comply with those aspects of the Monitoring Plan that the consent holder is responsible for (as detailed in the Monitoring Plan).

#### Low Flow Contingency Plan

19. Within 6 months of the commencement date of this consent, the consent holder shall prepare a Low Flow Contingency Plan and provide a copy of the plan to the Taranaki Regional Council, Tangata Whenua and Fish and Game New Zealand. The purpose of the Low Flow Contingency Plan is to identify the techniques, methods and procedures that will be employed by the consent holder to reduce the amount of water taken from the Tawhiti Stream and Tangahoe River to the greatest extent that is practicable during periods when the flow downstream of the Tangahoe River take site is between 300 litres per second and 450 litres per second and abstraction is occurring in accordance with conditions 4 and 5.

### **Reporting**

20. Within 6 months of the commencement date of this consent, the consent holder shall begin recording turbidity, the volumes of water taken and river flow in accordance with the conditions of this consent. The records taken shall:
  - (a) be in a format that, in the opinion of the Chief Executive, Taranaki Regional Council, is suitable for auditing;
  - (b) specifically record the water taken as 'zero' when no water is taken;
  - (c) be transmitted to the Taranaki Regional Council's computer system within 2 hours of being recorded.
21. If any measuring or recording equipment required by the conditions of this consent, which is owned and operated by the consent holder, breaks down, or for any reason is not operational, the consent holder shall advise the Chief Executive, Taranaki Regional Council as soon as is reasonably practicable after the consent holder becomes aware of the breakdown or malfunction, by emailing [hydro@trc.govt.nz](mailto:hydro@trc.govt.nz). Any repairs or maintenance to the equipment must be undertaken by a suitably qualified person.
22. All measuring or recording equipment required by the conditions of this consent shall be accessible to Taranaki Regional Council officers at all reasonable times for inspection and/or data retrieval. In addition the data logger shall be designed and installed so that Taranaki Regional Council officers can readily verify that it is accurately recording the required information.

### Annual Performance Data Summary Report

23. Each year by 31 August, the consent holder shall prepare an Annual Performance Data Summary Report and provide a copy of the report to the Chief Executive, Taranaki Regional Council. The Annual Performance Data Summary Report shall relate to the preceding 12 month period ending 30 June and summarise:
  - (a) Data relating to the performance of major components within the water take systems and compliance with the conditions of this consent; and
  - (b) Any results of monitoring undertaken in accordance with the Monitoring Plan.

### Water Efficiency BPO Report

24. Before 1 June 2021 and at 5 yearly intervals thereafter, the consent holder shall undertake a water efficiency study that assesses the overall water use efficiency on site, identifies the best practicable options ("BPO") to improve water use efficiency and makes recommendations about the implementation of any BPOs. The study shall also include a review of hydrological records to determine whether the minimum flows specified in conditions 3(a), 4, 5 and 19 should be increased. The consent holder shall then prepare a Water Efficiency BPO Report which summarises the study and its findings and recommendations and provide a copy of it to the Chief Executive, Taranaki Regional Council, Tangata Whenua and Fish and Game New Zealand within 30 working days of the study being completed.

For the purposes of the consent, best practicable option means the best method for preventing or minimising the adverse effects on the environment having regard, among other things, to—

- (a) the nature of the taking and the sensitivity of the receiving environment to adverse effects; and
- (b) the financial implications, and the effects on the environment, of that option when compared with other options; and
- (c) the current state of technical knowledge and the likelihood that the option can be successfully applied.

### **Financial Contributions**

- 25. The consent holder shall make a \$10,000 (plus GST and adjusted for inflation) payment to the Taranaki Regional Council for each year of this consent as a financial contribution for the purpose of mitigating the adverse environmental effects of the taking. The first payment shall be made within 30 days of the commencement date of this consent and subsequent payments shall be made annually before 1 September.
- 26. The contribution that is to be made in accordance with condition 25 shall only be used for specific environmental enhancement projects within the Tangahoe River catchment that have been agreed to by the Kaitiaki Group and the Chief Executive, Taranaki Regional Council including, but not limited to:
  - (a) Riparian planting and fencing of waterbodies;
  - (b) Enhancement, fencing and protection of wetlands;
  - (c) Enhancement of the native fishery;
  - (d) Enhancement of the Tangahoe River mouth/estuary; and
  - (e) Removal of fish barriers.

#### Advice Note:

*If the financial contributions paid pursuant to this consent accumulate with the Taranaki Regional Council over a period of 5 years or more without being spent and/or there are no agreed projects pursuant to condition 26 that the fund is to be applied to, the consent holder may make an application under section 127 of the RMA, to change, suspend or waive the contributions required under this condition or to otherwise modify this condition.*

- 27. Annually before 1 August the consent holder shall submit a “Financial Contribution and Environmental Enhancement Report” (“FCEER”) to the Chief Executive, Taranaki Regional Council. The purpose of the FCEER shall be to document the environmental enhancement project(s) that have occurred in the previous year pursuant to conditions 26, and it shall include as a minimum:
  - (a) the projects initiated and completed; and
  - (b) the total cost of each project.

### **Review**

- 28. In accordance with section 128 and section 129 of the Resource Management Act 1991, the Taranaki Regional Council may serve notice of its intention to review, amend, delete or add to the conditions of this resource consent by giving notice of review during the month of June 2021 and at 5-yearly intervals thereafter, for the purposes of:

Consent 0047-4.1

- (a) ensuring that the conditions are adequate to deal with any adverse effects on the environment arising from the exercise of this resource consent, which were either not foreseen at the time the application was considered or which it was not appropriate to deal with at the time; or
- (b) implementing a best practicable option with respect to improving water use efficiency identified in a Water Efficiency BPO Report prepared in accordance with condition 24;
- (c) increasing the flows specified in conditions 3(a), 4, 5 and 19 in accordance with any recommendation as a result of the Tangahoe River hydrological data review required by condition 24.

Signed at Stratford on 5 December 2019

For and on behalf of  
Taranaki Regional Council

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A D McLay  
**Director - Resource Management**

**Coastal Permit**  
**Pursuant to the Resource Management Act 1991**  
**a resource consent is hereby granted by the**  
**Taranaki Regional Council**

Name of  
Consent Holder: Fonterra Limited  
PO Box 444  
Hawera 4640

Decision Date  
(Change): 23 July 2020

Commencement Date  
(Change): 23 July 2020 (Granted Date: 8 November 2017)

**Conditions of Consent**

Consent Granted: To discharge all wastewater from dairy factory processes and associated processes undertaken at the Whareroa dairy processing site through a marine outfall into the Tasman Sea

Expiry Date: 1 June 2052

Review Date(s): June 2021 and at 5-yearly intervals thereafter

Site Location: Tasman Sea, Rifle Range Road, Hawera

Grid Reference (NZTM) Between 1711371E-5612940N & 1710410E-5611381N

Catchment: Tasman Sea

*For General, Standard and Special conditions  
pertaining to this consent please see reverse side of this document*

### **General condition**

- a. The consent holder shall pay to the Taranaki Regional Council all the administration, monitoring and supervision costs of this consent, fixed in accordance with section 36 of the Resource Management Act 1991.

### **Special conditions**

#### **Discharge requirements**

1. The discharge shall only occur through the outfall and diffuser located between the points defined by map references (NZTM) 1711371E-5612940N and 1710410E-5611381N.
2. The discharge over any 24-hour period ending at 6.00am New Zealand Standard Time (NZST) shall not exceed 40,000 cubic metres.
3. The discharge may include any wastewater from dairy factory processes and associated processes undertaken at the Whareroa dairy processing site and site stormwater, but shall not include any sewage.
4. The discharge, as determined by any 24 hour composite time-proportioned sample taken as the discharge leaves the Whareroa dairy processing site shall meet the standards below:
  - a. suspended solids concentration no greater than 1,000 milligrams/litre;
  - b. total fats concentration no greater than 800 milligrams/litre; and
  - c. Chemical Oxygen Demand (COD) concentration no greater than 7000 milligrams/litre.
5. The discharge authorised by this consent shall not give rise to any of the following effects in the Tasman Sea beyond a mixing zone of 200 metres from the centre line of the outfall diffuser:
  - a. the production of conspicuous oil or grease films, scums or foams, or floatable suspended materials;
  - b. any conspicuous change in the colour or visual clarity;
  - c. any emission of objectionable odour; or
  - d. any significant adverse effects on marine life, in particular: benthic communities; and intertidal aquatic life in and around Pukeroa Reef.
6. The consent holder shall measure and record the rate and volume of wastewater discharged to an accuracy of  $\pm 5\%$ . Records of the date, time, rate and cumulative volume of discharge from 6.00am (NZST), taken at intervals not exceeding 15 minutes shall be transmitted to the Taranaki Regional Council's computer system within 2 hours of being recorded.

## Consent 1450-3.1

7. Before 1 October 2021 the consent holder shall install and commission a Dissolved Air Flotation Unit (DAF):
  - a. to treat all wastewater from the cream, cheese, and milk treatment processing plants prior to discharge; or
  - b. designed with a capacity of at least 9,000 m<sup>3</sup>/day, and which uses a diversion system to ensure treatment of the site's wastewater with a total suspended solids concentration greater than 3350 g/m<sup>3</sup>, prior to discharge.
8. By 1 June 2022 the consent holder shall submit to the Taranaki Regional Council a report that:
  - a. summarises the performance of the DAF unit required by condition 7, including the wastewater characteristics to and discharging from the DAF unit;
  - b. summarises any change in the wastewater characteristics discharged pursuant to this consent post installation and commissioning the DAF unit; and
  - c. includes an analysis of whether it is appropriate to amend the discharge standards specified in condition 4 (a)-(c) of this consent to more accurately reflect any ongoing reductions of suspended solids, total fats or COD concentrations in the discharge which are occurring as a result of higher levels of treatment by the DAF unit, and makes any recommendations to that effect.

### **Monitoring and Management Plans**

9. The consent holder shall prepare, implement and comply with its obligations under all plans required by the conditions of this consent.

### **Tangata Whenua Involvement Plan**

10. Within 3 months of the commencement date of this consent, the consent holder in conjunction with South Taranaki District Council shall prepare and submit to the Taranaki Regional Council a Tangata Whenua Involvement Plan ("TWIP"). The TWIP shall be developed in consultation with Te Runanga o Ngati Ruanui Trust and Te Korowai o Ngāruahine Trust (collectively referred to as "Tangata Whenua" for the purposes of this consent).
11. The purpose of the TWIP is to recognise Tangata Whenua's kaitiakitanga responsibilities and to identify the process and extent of involvement by Tangata Whenua in:
  - (a) the development, implementation and reviews of the Monitoring Plan, Contingency Plan, and Wastewater Management BPO Report;
  - (b) monitoring the conditions of this consent; and
  - (c) the establishment of a Kaitiaki Group.

12. As a minimum the TWIP shall detail:

- (a) *Development of Plans* - A process for Tangata Whenua to have input into and provide feedback to the consent holder and Taranaki Regional Council on the development of the Monitoring Plan (condition 14), Contingency Plan (condition 16) and Wastewater Management BPO Report (condition 18) prior to each being lodged with the Taranaki Regional Council.
- (b) *Implementation and review of Plans* - A process for Tangata Whenua to have input into and provide feedback on the implementation and reviews of:
  - (i) the Monitoring Plan;
  - (ii) the Contingency Plan;
  - (iii) monitoring of the effects of the discharge;
  - (iv) the Annual Performance and Data Summary Reports; and
  - (v) Wastewater Management BPO Reports.
- (c) *Information Sharing* - A process for ongoing information sharing between Tangata Whenua and the consent holder to enable an improved understanding of the relevant cultural values that may be affected by the activities authorised by this consent.
- (d) *Kaitiaki Group* - A process to establish and maintain a Kaitiaki Group (KG), which shall include:
  - (i) the process by which the Taranaki Regional Council, Te Runanga o Ngati Ruanui Trust, Te Korowai o Ngāruahine Trust, South Taranaki District Council and the consent holder will be invited to become members of the KG;
  - (ii) the process by which membership may be amended and advisers appointed and/or engaged by the KG;
  - (iii) the terms of reference for the KG, which shall be the conditions of this consent and any other consent authorising a discharge from the same outfall, and their implementation;
  - (iv) the way the KG will operate, including frequency of meetings and methods of communication between members; and
  - (v) the reasons the KG may cease to function and the process for that.

13. The consent holder may review and amend the TWIP from time to time in consultation with Tangata Whenua. A copy of the amended plan shall be provided to the Taranaki Regional Council.

Monitoring Plan

14. Within 6 months of the commencement date of this consent, the consent holder shall ensure a Monitoring Plan is prepared. The purpose of the Monitoring Plan is to identify the techniques, methodologies and procedures that will be employed to acquire data in relation to, and to monitor compliance with the conditions of this consent, and the effects of the discharge authorised by this consent and any other consent authorising a discharge from the same outfall on:
- a. Benthic sediments and marine ecology; and
  - b. Pukeroa Reef.

**Advice Note:** The Taranaki Regional Council assumes responsibility for the preparation and implementation of the Monitoring Plan for annual compliance purposes.

## Consent 1450-3.1

15. At all times, the consent holder shall implement and comply with those aspects of the Monitoring Plan that the consent holder is responsible for (as detailed in the Monitoring Plan).

### Contingency Plan

16. The consent holder shall maintain and regularly update a 'Contingency Plan' that details measures and procedures that will be undertaken to prevent and remedy any environmental effects from a spillage or any discharge of contaminants not authorised by this consent. The plan and any amended versions shall be provided to the Chief Executive of the Taranaki Regional Council.

## Reporting

### Annual Data and Performance Report

17. Each year by 31 August, the consent holder shall prepare an Annual Data and Performance Report and forward a copy of the report to the Chief Executive, Taranaki Regional Council. The Annual Data and Performance Report shall relate to the preceding 12 month period ending 30 June and summarise:
  - a. data relating to the performance of major components within the consent holder's wastewater system, including the diversion set points and DAF system implemented in accordance with condition 7(b), and compliance with the conditions of this consent;
  - b. any results of monitoring undertaken in accordance with the Monitoring Plan; and
  - c. any incidents involving spills or accidental discharges and the measures taken to avoid, remedy or mitigate the adverse environmental effects of such a spill or discharge.

### Wastewater Management BPO Report

18. Before 1 June 2021 and at 5-yearly intervals thereafter, the consent holder shall provide to the Chief Executive, Taranaki Regional Council, a 'Wastewater Management BPO Report' reviewing relevant best practicable options ("BPO") in dairy wastewater management and how these might be applicable at the Whareroa site, and detailing any measures taken by the consent holder to improve or minimise the wastewater discharge, including the diversion set point and DAF system implemented in accordance with condition 7(b).

For the purposes of the consent, best practicable option means the best method for preventing or minimising the adverse effects on the environment having regard, among other things, to-

- a. the nature of the discharge and the sensitivity of the receiving environment to adverse effects; and
- b. the financial implications, and the effects on the environment, of that option when compared with other options; and
- c. the current state of technical knowledge and the likelihood that the option can be successfully applied.

**Review**

19. In accordance with section 128 and section 129 of the Resource Management Act 1991, the Taranaki Regional Council may serve notice of its intention to review, amend, delete or add to the conditions of this resource consent by giving notice of review during the month of June 2021 and at 5-yearly interval thereafter, for the purposes of:
  - a. ensuring that the conditions are adequate to deal with any adverse effects on the environment arising from the exercise of this resource consent, which were either not foreseen at the time the application was considered or which it was not appropriate to deal with at the time; or
  - b. implementing a best practicable option in dairy wastewater management as identified in the Wastewater Management BPO Report prepared in accordance with condition 18.
20. In accordance with section 128 and section 129 of the Resource Management Act 1991, the Taranaki Regional Council may serve notice of its intention to review condition 4 of this resource consent by giving notice of review within 6 months of receipt of the report required by condition 8, for the purposes of setting discharge standards more appropriate for the higher level of treatment.

Signed at Stratford on 23 July 2020

For and on behalf of  
Taranaki Regional Council

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A D McLay  
**Director - Resource Management**

**Discharge Permit**  
**Pursuant to the Resource Management Act 1991**  
**a resource consent is hereby granted by the**  
**Taranaki Regional Council**

Name of  
Consent Holder: Fonterra Limited  
PO Box 444  
Hawera 4640

Decision Date: 14 February 2014

Commencement Date: 14 February 2014

**Conditions of Consent**

Consent Granted: To discharge stormwater from the Whareroa milk processing site into an unnamed tributary of the Tangahoe River

Expiry Date: 1 June 2028

Review Date(s): June 2016, June 2022

Site Location: 89 Whareroa Road, Hawera

Legal Description: Lot 1 DP 12929 Lots 1 & 2 DP 13689 Lot 1 DP 17308 Lot 1 DP 17686 Lots 1-3 DP 19722 Pt Sec 234 Blk X Hawera SD (Discharge source)  
Lot 2 DP 2777 Blk X Hawera SD (Discharge site)

Grid Reference (NZTM) 1711975E-5614565N

Catchment: Tangahoe

*For General, Standard and Special conditions  
pertaining to this consent please see reverse side of this document*

### **General condition**

- a. The consent holder shall pay to the Taranaki Regional Council all the administration, monitoring and supervision costs of this consent, fixed in accordance with section 36 of the Resource Management Act 1991.

### **Special conditions**

1. The consent holder shall at all times adopt the best practicable option, as defined in section 2 of the Resource Management Act 1991, to prevent or minimise any adverse effects on the environment from the exercise of this consent.
2. The stormwater discharged shall be from a catchment area not exceeding 10 hectares.
3. Before 31 August 2014, the consent holder shall prepare and maintain a contingency plan that details measures and procedures to be undertaken to prevent spillage or any discharge of contaminants not authorised by this consent. The contingency plan shall be followed in the event of a spill or unauthorised discharge and shall be certified by the Chief Executive, Taranaki Regional Council as being adequate to avoid, remedy or mitigate the environmental effects of such a spillage or discharge.
4. Before 31 August 2014, the consent holder shall prepare and maintain a stormwater management plan that documents how the site is to be managed to minimise the contaminants that become entrained in the stormwater. This plan shall be followed at all times, shall be certified by the Chief Executive, Taranaki Regional Council, and shall include but not necessarily be limited to:
  - a) cleaning procedures for the site catchments discharging to the Eastern Pond; and
  - b) details of maintenance and cleaning programmes to remove the accumulated sediment from the ponds.

A Stormwater Management Plan template is available in the Environment section of the Taranaki Regional Council's web site [www.trc.govt.nz](http://www.trc.govt.nz).

5. After allowing for reasonable mixing, within a mixing zone extending 10 metres below the discharge point, the discharge shall not give rise to any of the following effects in the receiving waters:
  - a. the production of any conspicuous oil or grease films, scums or foams, or floatable or suspended materials;
  - b. any conspicuous change in the colour or visual clarity;
  - c. any emissions of objectionable odour;
  - d. the rendering of fresh water unsuitable for consumption by farm animals; and
  - e. any significant adverse effects on aquatic life, habitats or ecology.
6. There shall be no visible bacterial and/or fungal growths downstream of the discharge.

## Consent 3902-3.0

7. Constituents of the discharge shall meet the standards shown in the following table for eight of ten consecutive samples taken at least two weeks apart over the course of an annual monitoring period:

<u>Constituent</u>	<u>Standard</u>
Oil and grease	Concentration not greater than 5 gm <sup>-3</sup>
pH	Within the range 6.0 to 9.0
Suspended solids	Concentration not greater than 30 gm <sup>-3</sup>
BOD	Concentration not greater than 15 gm <sup>-3</sup> for the first two years following the date of issue of this consent, and 10 gm <sup>-3</sup> thereafter
Filtered carbonaceous BOD	Concentration not greater than 3.5 gm <sup>-3</sup> for the first two years following the date of issue of this consent, and 2 gm <sup>-3</sup> thereafter
Temperature	Not greater than 25°C
Total residual chlorine	Concentration not greater than 0.2 gm <sup>-3</sup>

This condition shall apply before entry of the treated stormwater into the receiving waters at a designated sampling point approved by the Chief Executive, Taranaki Regional Council.

8. The consent holder shall maintain the existing fencing and planting of the riparian margins of the receiving water body for a distance of 500 metres downstream of the discharge point for the purpose of mitigating the effects of the discharge.
9. In accordance with section 128 and section 129 of the Resource Management Act 1991, the Taranaki Regional Council may serve notice of its intention to review, amend, delete or add to the conditions of this resource consent by giving notice of review during the month of June 2016 and/or June 2022, for the purpose of ensuring that the conditions are adequate to deal with any adverse effects on the environment arising from the exercise of this resource consent, which were either not foreseen at the time the application was considered or which it was not appropriate to deal with at the time.

Transferred at Stratford on 13 April 2015

For and on behalf of  
Taranaki Regional Council

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A D McLay  
**Director - Resource Management**



**Discharge Permit**  
**Pursuant to the Resource Management Act 1991**  
**a resource consent is hereby granted by the**  
**Taranaki Regional Council**

Name of  
Consent Holder: Fonterra Limited  
PO Box 444  
Hawera 4640

Decision Date: 14 February 2014

Commencement Date: 14 February 2014

**Conditions of Consent**

Consent Granted: To discharge stormwater, back flushing from the sand filters and intermittent discharges of treated water from a reservoir, from the Whareroa milk processing site into an unnamed tributary of the Tawhiti Stream

Expiry Date: 1 June 2028

Review Date(s): June 2016, June 2022

Site Location: 89 Whareroa Road, Hawera

Legal Description: Lot 1 DP 12929 Lots 1 & 2 DP 13689 Lot 1 DP 17308 Lot 1 DP 17686 Lots 1-3 DP 19722 Pt Sec 234 Blk X Hawera SD (Discharge source)  
Pt Lot 2 DP 15204 Blk X Hawera SD (Discharge site)

Grid Reference (NZTM) 1711919E-5615318N

Catchment: Tangahoe

Tributary: Tawhiti

*For General, Standard and Special conditions  
pertaining to this consent please see reverse side of this document*

### **General condition**

- a. The consent holder shall pay to the Taranaki Regional Council all the administration, monitoring and supervision costs of this consent, fixed in accordance with section 36 of the Resource Management Act 1991.

### **Special conditions**

1. The consent holder shall at all times adopt the best practicable option, as defined in section 2 of the Resource Management Act 1991, to prevent or minimise any adverse effects on the environment from the exercise of this consent.
2. The stormwater discharged shall be from a catchment area not exceeding 13 hectares.
3. Before 31 August 2014, the consent holder shall prepare and maintain a contingency plan that details measures and procedures to be undertaken to prevent spillage or any discharge of contaminants not authorised by this consent. The contingency plan shall be followed in the event of a spill or unauthorised discharge and shall be certified by the Chief Executive, Taranaki Regional Council as being adequate to avoid, remedy or mitigate the environmental effects of such a spillage or discharge.
4. Before 31 August 2014, the consent holder shall prepare and maintain a stormwater management plan that documents how the site is to be managed to minimise the contaminants that become entrained in the stormwater. This plan shall be followed at all times, shall be certified by the Chief Executive, Taranaki Regional Council, and shall include but not necessarily be limited to:
  - a) cleaning procedures for the site catchments discharging to the Northern Pond; and
  - b) details of maintenance and cleaning programmes to remove the accumulated sediment from the ponds.

A Stormwater Management Plan template is available in the Environment section of the Taranaki Regional Council's web site [www.trc.govt.nz](http://www.trc.govt.nz).

5. After allowing for reasonable mixing, within a mixing zone extending 10 metres below the discharge point, the discharge shall not give rise to any of the following effects in the receiving waters:
  - a. the production of any conspicuous oil or grease films, scums or foams, or floatable or suspended materials;
  - b. any conspicuous change in the colour or visual clarity;
  - c. any emissions of objectionable odour;
  - d. the rendering of fresh water unsuitable for consumption by farm animals; and
  - e. any significant adverse effects on aquatic life, habitats or ecology.
6. There shall be no visible bacterial and/or fungal growths downstream of the discharge.

## Consent 3907-3.0

7. Constituents of the discharge shall meet the standards shown in the following table for eight of ten consecutive samples taken at least two weeks apart over the course of an annual monitoring period:

<u>Constituent</u>	<u>Standard</u>
Oil and grease	Concentration not greater than 5 gm <sup>-3</sup>
pH	Within the range 6.0 to 9.0
Suspended solids	Concentration not greater than 30 gm <sup>-3</sup>
BOD	Concentration not greater than 10 gm <sup>-3</sup>
Filtered carbonaceous BOD	Concentration not greater than 2 gm <sup>-3</sup>
Temperature	Not greater than 25°C
Total residual chlorine	Concentration not greater than 0.2 gm <sup>-3</sup>

This condition shall apply before entry of the treated stormwater into the receiving waters at a designated sampling point approved by the Chief Executive, Taranaki Regional Council.

8. In accordance with section 128 and section 129 of the Resource Management Act 1991, the Taranaki Regional Council may serve notice of its intention to review, amend, delete or add to the conditions of this resource consent by giving notice of review during the month of June 2016 and/or June 2022, for the purpose of ensuring that the conditions are adequate to deal with any adverse effects on the environment arising from the exercise of this resource consent, which were either not foreseen at the time the application was considered or which it was not appropriate to deal with at the time.

Transferred at Stratford on 13 April 2015

For and on behalf of  
Taranaki Regional Council

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A D McLay  
**Director - Resource Management**



**Discharge Permit**  
**Pursuant to the Resource Management Act 1991**  
**a resource consent is hereby granted by the**  
**Taranaki Regional Council**

Name of  
Consent Holder: Fonterra Limited  
PO Box 444  
Hawera 4640

Decision Date  
(Change): 24 July 2018

Commencement Date  
(Change): 24 July 2018 (Granted Date: 2 August 2017)

**Conditions of Consent**

Consent Granted: To discharge emissions into the air from the manufacture and processing of milk products and associated processes

Expiry Date: 1 June 2025

Review Date(s): June 2020

Site Location: Whareroa Road, Hawera

Grid Reference (NZTM) 1711450E-5614870N (Powder 3)  
1711600E-5614624N (DAF plant)

*For General, Standard and Special conditions  
pertaining to this consent please see reverse side of this document*

### **General condition**

- a. The consent holder shall pay to the Taranaki Regional Council all the administration, monitoring and supervision costs of this consent, fixed in accordance with section 36 of the Resource Management Act 1991.

### **Special conditions**

1. The consent holder shall adopt the best practicable option, as defined in section 2 of the Resource Management Act 1991, to prevent or minimise any actual or likely adverse effect on the environment associated with the discharge of contaminants into the environment from the site.
2. The measures representing the best practicable option may be reviewed in accordance with the procedure provided for in condition 16.
3. Prior to undertaking any alterations to the plant, processes or operations, as specified in the information provided in support of the original application for this consent, and with any subsequent application to change consent conditions which may significantly change the nature or quantity of contaminants emitted from the site, the consent holder shall consult with the Chief Executive, Taranaki Regional Council, and shall obtain any necessary approvals under the Resource Management Act 1991 and any amendments.
4. The consent holder shall provide to the Taranaki Regional Council within five years from the granting of this consent, and every six years thereafter a written report:
  - a) reviewing any technological advances in the reduction or mitigation of emissions, especially but not exclusively in respect of milk powder and other particulate emissions, how these might be applicable and/or implemented at the Whareroa site, and the costs and benefits of these advances; and
  - b) detailing an inventory of emissions from the site of such contaminants as the Chief Executive, Taranaki Regional Council, may from time to time specify following consultation with the consent holder; and
  - c) addressing any other issue relevant to the minimisation or mitigation of emissions from the Whareroa site that the Chief Executive, Taranaki Regional Council, considers should be included.
5. The consent holder shall be permitted to discharge into the air emissions of contaminants arising from the spray drying processes in the facilities known as WPC, Alamin, Powder-2, Powder-3, Powder-4, Powder-5, Casein-1 and Casein-2, together with other milk processing facility and supporting utility services (including the dissolved air floatation plant), as described in the information provided in support of the original application for this consent, and with any subsequent application to change consent conditions. Where there is conflict between applications the later application shall prevail, and where there is conflict between an application and consent conditions the conditions shall prevail.
6. The consent holder shall minimise the emissions and impacts of air contaminants discharged from the site by the selection of the most appropriate process equipment, process control equipment, emission control equipment, methods of control, supervision and operation, and the proper and effective operation, supervision, control and maintenance of all equipment and processes.

## Consent 4103-2.3

7. Subject to condition 8, powder emissions to the atmosphere from the spray drying process cyclone exhausts shall not exceed 125 milligrams per cubic metre (mg/m<sup>3</sup>) of gas flow, adjusted to 0 degrees Celsius, 1 atmosphere pressure, and dry gas basis.
8. Powder emissions to the atmosphere from the Powder-3 cyclone exhausts shall not exceed 150 milligrams per cubic metre (mg/m<sup>3</sup>) of gas flow, adjusted to 0 degrees Celsius, 1 atmosphere pressure, and dry gas basis.
9. The discharges authorised by this consent shall not give rise to suspended or deposited dust at or beyond the boundary of the site that, in the opinion of at least one enforcement officer of the Taranaki Regional Council, is offensive or objectionable. For the purposes of this condition, effects in excess of the following limits are deemed to be offensive or objectionable:
  - a) deposition of milk powder equivalent to 0.13 grams total deposited milk powder per square metre per day (g/m<sup>2</sup>/day); and/or
  - b) a suspended milk powder level of 1 milligram per cubic metre (mg/m<sup>3</sup>).
10. The consent holder shall control all emissions of fine particulates (PM<sub>10</sub>) to the atmosphere from the site, in order that the maximum ground level concentration of fine particulates (PM<sub>10</sub>) arising from the exercise of this consent measured under ambient conditions does not exceed 50 micrograms per cubic metre (µg/m<sup>3</sup>) (twenty-four hour average), at or beyond the boundary of the site.
11. The discharges authorised by this consent shall not give rise to an odour at or beyond the boundary of the site that, in the opinion of at least one enforcement officer of the Taranaki Regional Council, is offensive or objectionable.
12. The consent holder, in conjunction with the Taranaki Regional Council, shall undertake monitoring of emissions and their effects upon the environment as required by the Chief Executive, Taranaki Regional Council.
13. The consent holder shall convene an annual meeting of representatives of the Taranaki Regional Council, and interested submitters to application 2747, to discuss any matter relating to the exercise of this consent.
14. The Powder-5 facility may process skim milk powder only if the consent holder has:
  - a) given five (5) days prior notice to the Chief Executive, Taranaki Regional Council; and
  - b) developed a monitoring programme for the emissions and their effects upon the environment as required by the Chief Executive, Taranaki Regional Council.
15. The Taranaki Regional Council shall, within six (6) months of notice under condition 14, serve notice that it intends to review the conditions of this consent, in accordance with section 128(1)(a) of the Resource Management Act 1991, for the purpose of dealing with any significant adverse effect on the environment arising from the use of the Powder-5 plant for skim milk powder production.

## Consent 4103-2.3

16. In accordance with section 128 and section 129 of the Resource Management Act 1991, the Taranaki Regional Council may serve notice of its intention to review, amend, delete or add to the conditions of this resource consent within six months of receiving a report prepared by the consent holder pursuant to condition 4 of this consent, or in any case in June 2010 and/or June 2015 and/or June 2020, for the purposes of:
- a) dealing with any significant adverse effect on the environment arising from the exercise of the consent which was not foreseen at the time the application was considered and which it is appropriate to deal with at the time of the review; and/or
  - b) requiring the consent holder to adopt the best practicable option to remove or reduce any adverse effect on the environment caused by the discharge; and/or
  - c) to alter, add, or delete limits on mass discharge quantities or discharge or ambient concentrations of any contaminant or contaminants; and/or
  - d) taking into account any Act of Parliament, regulation, national policy statement, national environmental standard, regional policy statement or regional rule which relates to limiting, recording, or mitigating airborne contaminants and which is relevant to emissions from the milk and milk product processing plants and/or associated processes.

Signed at Stratford on 24 July 2018

For and on behalf of  
Taranaki Regional Council

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A D McLay  
**Director - Resource Management**

**Discharge Permit**  
**Pursuant to the Resource Management Act 1991**  
**a resource consent is hereby granted by the**  
**Taranaki Regional Council**

Name of  
Consent Holder: Fonterra Limited  
PO Box 444  
Hawera 4640

Decision Date  
(Change): 12 January 2016

Commencement Date  
(Change): 12 January 2016 (Granted Date: 14 February 2014)

**Conditions of Consent**

Consent Granted: To discharge stormwater, backwash and treated process water from the Whareroa milk processing site and the Water Treatment Plant into Unnamed Stream 18

Expiry Date: 1 June 2028

Review Date(s): June 2016, June 2022

Site Location: 89 Whareroa Road, Hawera

Legal Description: Lot 2 DP 2777 Blk X Hawera SD (Discharge source)  
Lot 1 DP 18056 Blk X Hawera SD (Discharge site)

Grid Reference (NZTM) 1711420E-5614456N

Catchment: Tangahoe

Tributary: Unnamed Stream 18

*For General, Standard and Special conditions  
pertaining to this consent please see reverse side of this document*

### **General condition**

- a. The consent holder shall pay to the Taranaki Regional Council all the administration, monitoring and supervision costs of this consent, fixed in accordance with section 36 of the Resource Management Act 1991.

### **Special conditions**

1. The consent holder shall at all times adopt the best practicable option, as defined in section 2 of the Resource Management Act 1991, to prevent or minimise any adverse effects on the environment from the exercise of this consent.
2. The storm water, backwash and treated process water discharged shall be from a catchment area not exceeding 22 hectares.
3. Before 31 August 2014, the consent holder shall prepare and maintain a contingency plan that details measures and procedures to be undertaken to prevent spillage or any discharge of contaminants not authorised by this consent. The contingency plan shall be followed in the event of a spill or unauthorised discharge and shall be certified by the Chief Executive, Taranaki Regional Council as being adequate to avoid, remedy or mitigate the environmental effects of such a spillage or discharge.
4. Before 31 August 2014, the consent holder shall prepare and maintain a stormwater management plan that documents how the site is to be managed to minimise the contaminants that become entrained in the stormwater. This plan shall be followed at all times, shall be certified by the Chief Executive, Taranaki Regional Council, and shall include but not necessarily be limited to:
  - a) cleaning procedures for the site catchments discharging to the Western Pond; and
  - b) details of maintenance and cleaning programmes to remove the accumulated sediment from the ponds.

A Stormwater Management Plan template is available in the Environment section of the Taranaki Regional Council's web site [www.trc.govt.nz](http://www.trc.govt.nz).

5. Prior to commissioning the Water Treatment Plant, the consent holder shall update and maintain the stormwater management plan required under condition 4 that documents how the site is to be managed to minimise the additional contaminants that became entrained in the stormwater. This plan shall be followed at all time, shall be certified by the Chief Executive, Taranaki Regional Council, and shall include but not necessarily be limited to cleaning procedures for the site catchments discharging to the Pond.
6. After allowing for reasonable mixing, within a mixing zone extending 10 metres below the discharge point, the discharge shall not give rise to any of the following effects in the receiving waters:
  - a. the production of any conspicuous oil or grease films, scums or foams, or floatable or suspended materials;
  - b. any conspicuous change in the colour or visual clarity;
  - c. any emissions of objectionable odour;
  - d. the rendering of fresh water unsuitable for consumption by farm animals; and
  - e. any significant adverse effects on aquatic life, habitats or ecology.

## Consent 4133-3.1

7. There shall be no visible bacterial and/or fungal growths downstream of the discharge.
8. Constituents of the discharge shall meet the standards shown in the following table for eight of ten consecutive samples taken at least two weeks apart over the course of an annual monitoring period:

<u>Constituent</u>	<u>Standard</u>
Oil and grease	Concentration not greater than 5 gm <sup>-3</sup>
pH	Within the range 6.0 to 9.0
Suspended solids	Concentration not greater than 100 gm <sup>-3</sup>
BOD	Concentration not greater than 15 gm <sup>-3</sup> for the first two years following the date of issue of this consent, and 10 gm <sup>-3</sup> thereafter
Filtered carbonaceous BOD	Concentration not greater than 3.5 gm <sup>-3</sup> for the first two years following the date of issue of this consent, and 2 gm <sup>-3</sup> thereafter
Temperature	Not greater than 25°C
Total residual chlorine	Concentration not greater than 0.2 gm <sup>-3</sup>

This condition shall apply before entry of the treated stormwater into the receiving waters at a designated sampling point approved by the Chief Executive, Taranaki Regional Council.

9. The consent holder shall maintain the existing fencing and planting of the riparian margins of the receiving water body for a distance of 500 metres downstream of the discharge point for the purpose of mitigating the effects of the discharge.
10. In accordance with section 128 and section 129 of the Resource Management Act 1991, the Taranaki Regional Council may serve notice of its intention to review, amend, delete or add to the conditions of this resource consent by giving notice of review during the month of June 2016 and/or June 2022, for the purpose of ensuring that the conditions are adequate to deal with any adverse effects on the environment arising from the exercise of this resource consent, which were either not foreseen at the time the application was considered or which it was not appropriate to deal with at the time.

Signed at Stratford on 12 January 2016

For and on behalf of  
Taranaki Regional Council

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A D McLay  
**Director - Resource Management**



**Discharge Permit**  
**Pursuant to the Resource Management Act 1991**  
**a resource consent is hereby granted by the**  
**Taranaki Regional Council**

Name of  
Consent Holder: Fonterra Limited  
PO Box 444  
Hawera 4640

Decision Date: 3 February 2004

Commencement Date: 3 February 2004

**Conditions of Consent**

Consent Granted: To discharge laboratory wastes onto and into land

Expiry Date: 1 June 2022

Review Date(s): June 2016

Site Location: Rifle Range Road, Hawera

Legal Description: Pt Lot 13 DP 2625 Blks IX & X Hawera SD

Grid Reference (NZTM) 1711450E-5613270N

Catchment: Tangahoe  
Waihi

*For General, Standard and Special conditions  
pertaining to this consent please see reverse side of this document*

### **General conditions**

- a) On receipt of a requirement from the Chief Executive, Taranaki Regional Council the consent holder shall, within the time specified in the requirement, supply the information required relating to the exercise of this consent.
- b) Unless it is otherwise specified in the conditions of this consent, compliance with any monitoring requirement imposed by this consent must be at the consent holder's own expense.
- c) The consent holder shall pay to the Council all required administrative charges fixed by the Council pursuant to section 36 in relation to:
  - i) the administration, monitoring and supervision of this consent; and
  - ii) charges authorised by regulations.

### **Special conditions**

- 1. The consent holder shall at all times adopt the best practicable option, as defined in section 2 of the Resource Management Act 1991, to prevent or minimise any adverse effects on the environment from the exercise of this consent.
- 2. The exercise of this resource consent shall be undertaken generally in accordance with the documentation submitted in support of application 2746. In the case of any contradiction between the documentation submitted in support of application 2746 and the conditions of this consent, the conditions of this resource consent shall prevail.
- 3. The discharge authorised by this consent shall not exceed 1 m<sup>3</sup>/day.
- 4. The consent holder shall provide a management plan for the discharge site to the Chief Executive, Taranaki Regional Council, for written approval within three months of the granting of this consent, and regularly updated as required, to ensure that the conditions of this consent can be met, including but not limited to:
  - i) means of pit excavation;
  - ii) pit preparation;
  - iii) dimensions of each pit;
  - iv) placement and covering of wastes;
  - v) stormwater control;
  - vi) site control;
  - vii) nature of wastes;
  - viii) location of all present and previous pits; and
  - ix) an outline of the site options for future pit use.
- 5. The siting of each discharge pit shall be to the satisfaction of the Chief Executive, Taranaki Regional Council.
- 6. The discharge shall not occur within 50 metres of any bore, well or spring used for water supply purposes, nor within 25 metres of any surface water body, nor within 100 metres from the coastal cliff edge.

## Consent 4406-2

7. The disposal pit(s) shall not intercept the water table.
8. The exercise of this consent, including the design and management of the disposal pit(s), shall not lead to or be liable to lead to contaminants entering a water body from overland surface flows.
9. The exercise of this consent shall not result in any adverse impacts on groundwater as a result of leaching, or surface water including aquatic ecosystems, and/or result in a change to the suitability of use of the receiving water as determined by the Chief Executive, Taranaki Regional Council.
10. The only wastes to be discharged shall be petri dishes, their content and the plastic which they are wrapped in.
11. The discharged material shall be covered with up to 50 millimetres of earth or other suitable cover, within a period of four hours or less following each disposal.
12. Each disposal pit shall be reinstated with a low permeability, clean, compacted soil cover with a minimum thickness of 0.5 metre to be placed over the material, and vegetation re-established to the satisfaction of the Chief Executive, Taranaki Regional Council.
13. The consent holder shall compact, contour, and maintain the cover layer of soil so as to ensure its integrity at all times to the satisfaction of the Chief Executive, Taranaki Regional Council.
14. The consent holder shall keep records of all uses of the pits including date, volume discharged, and product type, and make these available to the Chief Executive, Taranaki Regional Council, upon request.
15. In accordance with section 128 and section 129 of the Resource Management Act 1991, the Taranaki Regional Council may serve notice of its intention to review, amend, delete or add to the conditions of this resource consent by giving notice of review during the month of June 2010 and/or June 2016, for the purpose of ensuring that the conditions are adequate to deal with any adverse effects on the environment arising from the exercise of this resource consent, which were either not foreseen at the time the application was considered or which it was not appropriate to deal with at the time.

Transferred at Stratford on 13 April 2015

For and on behalf of  
Taranaki Regional Council

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A D McLay  
**Director - Resource Management**



**Discharge Permit**  
**Pursuant to the Resource Management Act 1991**  
**a resource consent is hereby granted by the**  
**Taranaki Regional Council**

Name of  
Consent Holder: Fonterra Limited  
PO Box 444  
Hawera 4640

Decision Date: 17 October 2017

Commencement Date: 8 November 2017

**Conditions of Consent**

Consent Granted: To discharge river silt and sand from mechanical pre-filtering of river water during abstraction of water, by returning it into the Tawhiti Stream

Expiry Date: 1 June 2052

Review Date(s): June 2018 and at 3-yearly intervals thereafter

Site Location: Main South Road, Hawera

Grid Reference (NZTM) 1712861E-5616233N

Catchment: Tangahoe

Tributary: Tawhiti

*For General, Standard and Special conditions  
pertaining to this consent please see reverse side of this document*

### **General condition**

- a. The consent holder shall pay to the Taranaki Regional Council all the administration, monitoring and supervision costs of this consent, fixed in accordance with section 36 of the Resource Management Act 1991.

### **Special conditions**

1. After allowing for reasonable mixing within a mixing zone extending 50 metres downstream of the discharge point, the discharge shall not give rise to all or any of the following effects in the receiving water of the Tawhiti Stream:
  - (a) the production of any conspicuous oil or grease films, scums or foams, or
  - (b) floatable or suspended materials;
  - (c) any conspicuous change in the colour or visual clarity;
  - (d) any emission of objectionable odour;
  - (e) the rendering of fresh water unsuitable for consumption by farm animals;
  - (f) any significant adverse effects on aquatic life, habitats, or ecology;
  - (g) an increase in turbidity of more than 50% (as determined using NTU - nephelometric turbidity units).
2. Within 6 months of the commencement date of this consent, the consent holder shall ensure a Monitoring Plan is prepared (the "Monitoring Plan"). The purpose of the Monitoring Plan is to identify the techniques, methods and procedures that will be employed to acquire data in relation to, and monitor compliance, with:
  - (a) the conditions of this consent; and
  - (b) the effects of the discharge authorised by this consent on:
    - (i) instream habitat values, water quality and macroinvertebrate communities within the Tawhiti Stream; and
    - (ii) native fish populations within the Tawhiti Stream.

#### *Advice Note:*

*The Taranaki Regional Council assumes responsibility for the preparation and implementation of the Monitoring Plan for annual compliance purposes.*

3. At all times, the consent holder shall implement and comply with those aspects of the Monitoring Plan for which the consent holder is responsible (as detailed in the Monitoring Plan).

4. In accordance with section 128 and section 129 of the Resource Management Act 1991, the Taranaki Regional Council may serve notice of its intention to review, amend, delete or add to the conditions of this resource consent by giving notice of review during the month of June 2018 and at 3-yearly intervals thereafter for the purposes of ensuring that the conditions are adequate to deal with any adverse effects on the environment arising from the exercise of this resource consent, which were either not foreseen at the time the application was considered or which it was not appropriate to deal with at the time.

Signed at Stratford on 17 October 2017

For and on behalf of  
Taranaki Regional Council

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A D McLay  
**Director - Resource Management**



**Coastal Permit  
Pursuant to the Resource Management Act 1991  
a resource consent is hereby granted by the  
Taranaki Regional Council**

Name of  
Consent Holder: Fonterra Limited  
PO Box 444  
Hawera 4640

Decision Date: 17 October 2017

Commencement Date: 8 November 2017

**Conditions of Consent**

Consent Granted: To occupy the Coastal Marine Area with and carry out routine maintenance on:

- a marine outfall pipeline and diffuser structure approximately 1845 metres long; and
- a rock wall approximately 100 metres long for the protection of the outfall, stream diversion pipelines and associated structures

Expiry Date: 1 June 2052

Review Date(s): June 2021 and at 5-yearly intervals thereafter

Site Location: Tasman Sea, Rifle Range Road, Hawera

Grid Reference (NZTM) Between 1711294E-5612963N & 1711437E-5612906N

Catchment: Tasman Sea

*For General, Standard and Special conditions  
pertaining to this consent please see reverse side of this document*

**General condition**

- a. The consent holder shall pay to the Taranaki Regional Council all the administration, monitoring and supervision costs of this consent, fixed in accordance to section 36 of the Resource Management Act, 1991.

**Special conditions**

1. The consent holder shall maintain the outfall and diffuser structures and the rock wall so that they continue to function effectively for their intended purpose.
2. The consent holder shall undertake a visual inspection of the outfall pipeline and diffuser each year. A report shall be submitted to the Taranaki Regional Council before 30 June each year (the “Annual Inspection Report”) and shall include as a minimum:
  - (a) the date and time of the inspection;
  - (b) the condition of the outfall pipeline and diffuser; and
  - (c) a description of any maintenance work required.
3. In the event, the Annual Inspection Report identifies that maintenance work is required, the consent holder shall prepare and submit to the Taranaki Regional Council a Maintenance Work Plan which describes the maintenance work to be carried out, how the work will be undertaken and the programme for completion of the work. The Maintenance Work Plan shall be approved by the Chief Executive, Taranaki Regional Council, acting in a certification capacity as being adequate to ensure the maintenance works will avoid, remedy or mitigate the environmental effects of any such works, prior to any of the identified maintenance works being carried out.
4. Within 20 working days of the completion of any maintenance works being carried out in accordance with an approved Maintenance Work Plan, the consent holder shall provide written confirmation of the completion of works to the Taranaki Regional Council.
5. The outfall pipeline shall not be visible on the foreshore at any time.

6. In accordance with section 128 and section 129 of the Resource Management Act 1991, the Taranaki Regional Council may serve notice of its intention to review, amend, delete or add to the conditions of this resource consent by giving notice of review during the month of June 2021 and at 5-yearly intervals thereafter for the purposes of ensuring that the conditions are adequate to deal with any adverse effects on the environment arising from the exercise of this resource consent, which were either not foreseen at the time the application was considered or which it was not appropriate to deal with at the time.

Signed at Stratford on 17 October 2017

For and on behalf of  
Taranaki Regional Council

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A D McLay  
**Director - Resource Management**



**Discharge Permit**  
**Pursuant to the Resource Management Act 1991**  
**a resource consent is hereby granted by the**  
**Taranaki Regional Council**

Name of  
Consent Holder: Fonterra Limited  
PO Box 444  
Hawera 4640

Decision Date  
(Change): 19 December 2012

Commencement Date  
(Change): 19 December 2012 (Granted Date: 03 February 2004)

**Conditions of Consent**

Consent Granted: To discharge waste material from stormwater sumps and road sump and unprocessable dairy factory wastes onto and into land

Expiry Date: 1 June 2022

Review Date(s): June 2016

Site Location: Rifle Range Road, Hawera

Legal Description: Pt Lot 13 DP 2625 Blks IX & X Hawera SD  
(Discharge source & site)

Grid Reference (NZTM) 1711451E-5613271N

Catchment: Unnamed catchment 18

*For General, Standard and Special conditions  
pertaining to this consent please see reverse side of this document*

### **General conditions**

- a) On receipt of a requirement from the Chief Executive, Taranaki Regional Council the consent holder shall, within the time specified in the requirement, supply the information required relating to the exercise of this consent.
- b) Unless it is otherwise specified in the conditions of this consent, compliance with any monitoring requirement imposed by this consent must be at the consent holder's own expense.
- c) The consent holder shall pay to the Council all required administrative charges fixed by the Council pursuant to section 36 in relation to:
  - i) the administration, monitoring and supervision of this consent; and
  - ii) charges authorised by regulations.

### **Special conditions**

- 1. The consent holder shall at all times adopt the best practicable option, as defined in section 2 of the Resource Management Act 1991, to prevent or minimise any adverse effects on the environment from the exercise of this consent.
- 2. Wherever practicable, the consent holder shall seek to dispose of unprocessable dairy factory wastes as authorised by this consent by irrigation to land in accordance with the following application loading limits:
  - Nitrogen (N) – 250 kg/ha/year
  - Chemical Oxygen Demand (COD) – 4500 kg/ha/day
- 3. The exercise of this resource consent shall be undertaken generally in accordance with the documentation submitted in support of applications 2748, 3326 and 7284. In the case of any contradiction between the documentation submitted in support of applications 2748, 3326 and 7284 and the conditions of this consent, the conditions of this resource consent shall prevail.
- 4. The discharge of stormwater sump cleanings and road sump cleanings authorised by this consent shall not exceed 120 cubic metres per week. The discharge of unprocessable dairy wastes authorised by this consent shall not exceed 250 cubic metres per day.

5. The consent holder shall provide a management plan for the discharge site to the Chief Executive, Taranaki Regional Council, for written approval within three months of the granting of this consent, and regularly updated as required, to ensure that the conditions of this consent can be met, including but not limited to:

For Pit Disposal;

- i) Means of pit excavation;
- ii) Pit preparation;
- iii) Dimensions of each pit;
- iv) Placement and covering of wastes;
- v) Stormwater control;
- vi) Site control;
- vii) Nature of wastes
- viii) Location of all present and previous pits;
- ix) An outline of site options for future pit use;

For Irrigation Disposal;

- x) Location and area (ha) of area used for irrigation;
  - xi) Volume of material applied;
  - xii) Application loading rates (N and COD);
  - xiii) Mitigation measures for odour control.
6. The discharge shall not occur within 50 metres of any bore, well or spring used for water supply purposes, nor within 25 metres of any surface water body, nor within 100 metres from the coastal cliff edge.
7. The disposal pit(s) shall not intercept the water table.
8. The exercise of this consent, including the design and management of the burial pit(s), shall not lead to or be liable to lead to contaminants entering a water body from overland surface flows.
9. The exercise of this consent shall not result in any adverse impacts on groundwater as a result of leaching, or surface water including aquatic ecosystems, and/or result in a change to the suitability of use of the receiving water as determined by the Chief Executive, Taranaki Regional Council.
10. Where the discharge is to pits, the discharged material shall be covered with up to 50 millimetres of earth or other suitable cover, within a period of 7 days or less following each discharge.
11. All liquid shall be removed from the disposal pit prior to the application of covering material as required in special condition 9.

## Consent 5036-2

12. Only those materials as authorised by this consent and outlined in applications 2748, 3326 and 7284 shall be discharged of to the disposal pits or irrigated to land. Prior to each discharge operation the consent holder shall remove all non-biodegradable material entrained in the material to be discharged, as far as is practicable to the satisfaction of the Chief Executive, Taranaki Regional Council.
13. Each disposal pit shall be reinstated with a low permeability, clean, compacted soil cover with a minimum thickness of 0.5 metre to be placed over the material, and vegetation re-established to the satisfaction of the Chief Executive, Taranaki Regional Council.
14. The consent holder shall compact, contour, and maintain the cover layer of soil so as to ensure its integrity at all times to the satisfaction of the Chief Executive, Taranaki Regional Council.
15. The disposal of wastes as authorised by this consent shall not give rise to objectionable or offensive odours beyond the property boundary.
16. The consent holder shall keep records of all discharges to land including date, volume discharged, disposal method, disposal location, product type, and the reason for discharge and make these available to the Chief Executive, Taranaki Regional Council, upon request.
17. The discharge of unprocessable dairy waste under this consent shall only occur after all other reasonable waste disposal options have been exhausted, and the consent holder shall notify the Chief Executive, Taranaki Regional Council, in writing of the options assessed.
18. In accordance with section 128 and section 129 of the Resource Management Act 1991, the Taranaki Regional Council may serve notice of its intention to review, amend, delete or add to the conditions of this resource consent by giving notice of review during the month of June 2010 and/or June 2016, for the purpose of ensuring that the conditions are adequate to deal with any adverse effects on the environment arising from the exercise of this resource consent, which were either not foreseen at the time the application was considered or which it was not appropriate to deal with at the time.

Transferred at Stratford on 13 April 2015

For and on behalf of  
Taranaki Regional Council

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A D McLay  
**Director - Resource Management**

**Discharge Permit**  
**Pursuant to the Resource Management Act 1991**  
**a resource consent is hereby granted by the**  
**Taranaki Regional Council**

Name of  
Consent Holder: Fonterra Limited  
PO Box 444  
Hawera 4640

Decision Date: 3 February 2004

Commencement Date: 3 February 2004

**Conditions of Consent**

Consent Granted: To discharge emissions into the air from the disposal of laboratory wastes, and stormwater and sump cleanings onto and into land

Expiry Date: 1 June 2022

Review Date(s): June 2016

Site Location: Rifle Range Road, Hawera

Legal Description: Lot 13 DP 2625 Blks IX & X Hawera SD

Grid Reference (NZTM) 1711450E-5613270N

*For General, Standard and Special conditions  
pertaining to this consent please see reverse side of this document*

### **General conditions**

- a) On receipt of a requirement from the Chief Executive, Taranaki Regional Council the consent holder shall, within the time specified in the requirement, supply the information required relating to the exercise of this consent.
- b) Unless it is otherwise specified in the conditions of this consent, compliance with any monitoring requirement imposed by this consent must be at the consent holder's own expense.
- c) The consent holder shall pay to the Council all required administrative charges fixed by the Council pursuant to section 36 in relation to:
  - i) the administration, monitoring and supervision of this consent; and
  - ii) charges authorised by regulations.

### **Special conditions**

- 1. The consent holder shall at all times adopt the best practicable option, as defined in section 2 of the Resource Management Act 1991, to prevent or minimise any adverse effects on the environment from the exercise of this resource consent.
- 2. The exercise of this resource consent shall be undertaken generally in accordance with the documentation submitted in support of application 2749. In the case of any contradiction between the documentation submitted in support of application 2749 and the conditions of this resource consent, the conditions of this resource consent shall prevail.
- 3. The consent holder shall provide a management plan for the discharge site to the Chief Executive, Taranaki Regional Council, for written approval within three months of the granting of this consent, and regularly updated as required, outlining methods to adopt the best practicable option to prevent or minimise adverse effects on the environment with respect to discharges to air.
- 4. That the discharges authorised by this consent shall not give rise to an odour at or beyond the boundary of the site that is offensive or objectionable.

5. For the purposes of condition 4, without restriction, an odour shall be deemed to be offensive or objectionable if:
- (a) it is held to be so in the opinion of an officer of the Taranaki Regional Council, having regard to the duration, frequency, intensity and nature of the odour; and/or
  - (b) an officer of the Taranaki Regional Council observes that an odour is noticeable, and either it lasts longer than three (3) hours continuously, or it occurs frequently during a single period of more than six (6) hours; and/or
  - (c) no less than three individuals from at least two different properties that are affected at the time, each declare in writing that an objectionable or offensive odour was detected beyond the boundary of the site, provided the Council is satisfied that the declarations are not vexatious and that the objectionable or offensive odour was emitted from the site as specified in (b). Each declaration shall include the individuals' names and addresses, the date and time the objectionable or offensive odour was detected, the location of the individual when it was detected and the prevailing weather conditions during the event. The declarations shall be signed and dated.
6. In accordance with section 128 and section 129 of the Resource Management Act 1991, the Taranaki Regional Council may serve notice of its intention to review, amend, delete or add to the conditions of this resource consent by giving notice of review during the month of June 2010 and/or June 2016, for the purpose of ensuring that the conditions are adequate to deal with any adverse effects on the environment arising from the exercise of this resource consent, which were either not foreseen at the time the application was considered or which it was not appropriate to deal with at the time.

Transferred at Stratford on 13 April 2015

For and on behalf of  
Taranaki Regional Council

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A D McLay  
**Director - Resource Management**



**Discharge Permit**  
**Pursuant to the Resource Management Act 1991**  
**a resource consent is hereby granted by the**  
**Taranaki Regional Council**

Name of  
Consent Holder: Fonterra Limited  
PO Box 444  
Hawera 4640

Decision Date: 17 October 2017

Commencement Date: 8 November 2017

**Conditions of Consent**

Consent Granted: To discharge river silt and sand from mechanical pre-filtering of river water during abstraction of water, by returning it into the Tangahoe River

Expiry Date: 1 June 2052

Review Date(s): June 2018 and at 3-yearly intervals thereafter

Site Location: 135 Hicks Road, Hawera

Grid Reference (NZTM) 1715769E-5612503N

Catchment: Tangahoe

*For General, Standard and Special conditions  
pertaining to this consent please see reverse side of this document*

### **General condition**

- a. The consent holder shall pay to the Taranaki Regional Council all the administration, monitoring and supervision costs of this consent, fixed in accordance with section 36 of the Resource Management Act 1991.

### **Special conditions**

1. After allowing for reasonable mixing within a mixing zone extending 50 metres downstream of the discharge point, the discharge shall not give rise to all or any of the following effects in the receiving water of the Tangahoe River:
  - (a) the production of any conspicuous oil or grease films, scums or foams, or
  - (b) floatable or suspended materials;
  - (c) any conspicuous change in the colour or visual clarity;
  - (d) any emission of objectionable odour;
  - (e) the rendering of fresh water unsuitable for consumption by farm animals;
  - (f) any significant adverse effects on aquatic life, habitats, or ecology;
  - (g) an increase in turbidity of more than 50% (as determined using NTU - nephelometric turbidity units).
2. Within 6 months of the commencement date of this consent, the consent holder shall ensure a Monitoring Plan is prepared (the "Monitoring Plan"). The purpose of the Monitoring Plan is to identify the techniques, methods and procedures that will be employed to acquire data in relation to, and monitor compliance, with:
  - (a) the conditions of this consent; and
  - (b) the effects of the discharge authorised by this consent on:
    - (i) instream habitat values, water quality and macroinvertebrate communities within the Tangahoe River; and
    - (ii) native fish populations within the Tangahoe River.

#### *Advice Note:*

*The Taranaki Regional Council assumes responsibility for the preparation and implementation of the Monitoring Plan for annual compliance purposes.*

3. At all times, the consent holder shall implement and comply with those aspects of the Monitoring Plan for which the consent holder is responsible (as detailed in the Monitoring Plan).

4. In accordance with section 128 and section 129 of the Resource Management Act 1991, the Taranaki Regional Council may serve notice of its intention to review, amend, delete or add to the conditions of this resource consent by giving notice of review during the month of June 2018 and at 3-yearly intervals thereafter for the purposes of ensuring that the conditions are adequate to deal with any adverse effects on the environment arising from the exercise of this resource consent, which were either not foreseen at the time the application was considered or which it was not appropriate to deal with at the time.

Signed at Stratford on 17 October 2017

For and on behalf of  
Taranaki Regional Council

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A D McLay  
**Director - Resource Management**



**Land Use Consent**  
**Pursuant to the Resource Management Act 1991**  
**a resource consent is hereby granted by the**  
**Taranaki Regional Council**

Name of  
Consent Holder: Fonterra Co-operative Group Limited, Whareroa  
P O Box 444  
HAWERA

Consent Granted  
Date: 31 July 2001

**Conditions of Consent**

Consent Granted: To remove, reconstruct, erect, place and maintain a dam structure and associated fish pass on the Tawhiti Stream for water intake purposes at or about GR: Q21:229-780

Expiry Date: 1 June 2015

Review Date(s): June 2004, June 2010

Site Location: Main South Road, Hawera

Legal Description: Pt Lot 1 DP 2629 Pt Lot 1 DP 3710 Sec 689 Blk X Hawera SD

Catchment: Tangahoe

Tributary: Tawhiti

## Consent 5845-1

### General conditions

- a) That on receipt of a requirement from the Chief Executive, Taranaki Regional Council (hereinafter the Chief Executive), the consent holder shall, within the time specified in the requirement, supply the information required relating to the exercise of this consent.
- b) That unless it is otherwise specified in the conditions of this consent, compliance with any monitoring requirement imposed by this consent must be at the consent holder's own expense.
- c) That the consent holder shall pay to the Council all required administrative charges fixed by the Council pursuant to section 36 in relation to:
  - i) the administration, monitoring and supervision of this consent; and
  - ii) charges authorised by regulations.

### Special conditions

1. The consent holder shall notify the Chief Executive, Taranaki Regional Council, at least 48 hours prior to the commencement of removal of the existing structure and upon completion of all works licensed by this consent.
2. The consent holder shall notify the Chief Executive, Taranaki Regional Council, at least 48 hours prior to any maintenance works of the structure[s] or fish pass licensed by this consent which would involve disturbance of, or deposition to, the streambed or discharges to water.
3. The works licensed by this consent shall be undertaken in accordance with the documentation submitted in support of application 1471.
4. During the works licensed by this consent, the consent holder shall observe every practicable measure to prevent the discharge or placement of silt and/or organics and/or cement products and/or any other contaminants into the watercourse and to minimise disturbance of the streambed.
5. The consent holder, during removal of the existing structure and reconstruction of the structure and fish pass and maintenance, shall adopt the best practicable option to avoid or minimise the discharge of silt or other contaminants into water or onto the streambed and to avoid or minimise any adverse effects on water quality.
6. The consent holder shall ensure that the area and volume of streambed disturbance shall, so far as is practicable, be minimised and any areas which are disturbed shall, so far as is practicable, be reinstated.
7. All areas disturbed in association with the works, including the diversion channel, fences and replanting of vegetation, shall be reinstated to the satisfaction of the Chief Executive, Taranaki Regional Council.
8. The structure[s] licensed by this consent shall not obstruct fish passage.
9. Prior to construction of the fish pass, the consent holder shall supply a final design for the approval of the Chief Executive, Taranaki Regional Council.
10. The consent holder shall ensure that the intake is appropriately screened to avoid the entrapment of native fish.

## Consent 5845-1

11. The structure[s] authorised by this consent shall be maintained to ensure the conditions of this consent are met.
12. The structure[s] authorised by this consent shall be removed and the area reinstated, if and when the structure is no longer required. The consent holder shall notify the Taranaki Regional Council at least 48 hours prior to the removal of the structures and reinstatement of the area.
13. In accordance with section 128 and section 129 of the Resource Management Act 1991, the Taranaki Regional Council may serve notice of its intention to review, amend, delete or add to the conditions of this resource consent by giving notice of review during the month of June 2004 and/or June 2010, for the purpose of ensuring that the conditions are adequate to deal with any adverse effects on the environment arising from the exercise of this resource consent, which were either not foreseen at the time the application was considered or which it was not appropriate to deal with at the time.

Transferred at Stratford on 4 November 2003

For and on behalf of  
Taranaki Regional Council

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**Chief Executive**



**Discharge Permit**  
**Pursuant to the Resource Management Act 1991**  
**a resource consent is hereby granted by the**  
**Taranaki Regional Council**

Name of  
Consent Holder: Fonterra Limited  
PO Box 444  
Hawera 4640

Decision Date  
(Change): 9 June 2015

Commencement Date  
(Change): 9 June 2015 (Granted: 7 December 2005)

**Conditions of Consent**

Consent Granted: To discharge emissions into the air from dual fuel boilers  
(gas or coal) with a maximum energy output of 250 MW  
together with associated processes

Expiry Date: 1 June 2034

Review Date(s): June 2016, June 2022, June 2028

Site Location: Whareroa Road, Hawera

Legal Description: Pt Lot 2 DP 15204 Lot 1 DP 15204 Lot 3 DP 19882 Blk X  
Hawera SD

Grid Reference (NZTM) 1711850E-5615170N

*For General, Standard and Special conditions  
pertaining to this consent please see reverse side of this document*

### **General conditions**

- a) On receipt of a requirement from the Chief Executive, Taranaki Regional Council the consent holder shall, within the time specified in the requirement, supply the information required relating to the exercise of this consent.
- b) Unless it is otherwise specified in the conditions of this consent, compliance with any monitoring requirement imposed by this consent must be at the consent holder's own expense.
- c) The consent holder shall pay to the Council all required administrative charges fixed by the Council pursuant to section 36 in relation to:
  - i) the administration, monitoring and supervision of this consent; and
  - ii) charges authorised by regulations.

### **Special conditions**

#### **Best practicable option and mitigation**

- 1. The consent holder shall adopt the best practicable option, as defined in section 2 of the Resource Management Act 1991, to prevent or minimise any actual or likely adverse effect on the environment associated with the discharge of contaminants into the environment from the site.
- 2. The exercise of this consent shall be undertaken generally in accordance with the documentation submitted in support of application 2785. In the case of any contradiction between the documentation submitted in support of application 2785 and the conditions of this consent, the conditions of this consent shall prevail.
- 3. Other than as set out within this consent, the characteristics of any coal burned in the exercise of this consent shall be as generally described and/or achieve a similar level of environmental performance as set out in the documentation supporting the application for this consent.
- 4. A general outline of the methods, specifications, operating guidelines or other measures which represent the best practicable option at the time of commissioning shall be supplied by the consent holder to the Chief Executive, Taranaki Regional Council, within three months of the commissioning of the energy centre, and thereafter attached to this consent as Schedule A. Matters to be addressed in Schedule A shall include, but not be limited to: preferred fuel type and specification; air pollution abatement systems; combustion temperatures; definitions of 'cold start' and 'warm start'; measures to be used in the case of sudden loss of boiler capacity; minimum operating temperatures for baghouses; air fuel ratios; discharge (stack exit) velocities; and protocols for measuring the sulphur content of fuel on an on-going basis. This schedule can be amended by the consent holder at any time during the term of this consent to reflect changes in the methods, specifications, operating guidelines or other measures.
- 5. The measures representing the best practicable option may be reviewed in accordance with the procedure provided for in condition 29.
- 6. The consent holder shall minimise the emissions and impacts of air contaminants discharged from the site by the selection of the most appropriate process equipment, process control

equipment, emission control equipment, methods of control, supervision and operation, and the proper and effective operation, supervision, control and maintenance of all equipment and processes.

7. The minimum height of discharges to the atmosphere from the energy centre boiler stack shall be 60 metres above the ground level prevailing at the time of lodging the application for this consent.
8. Prior to undertaking any alterations to the plant, processes or operations, as specified in application 2785, which may significantly change the nature or quantity of contaminants emitted from the site, the consent holder shall consult with the Chief Executive, Taranaki Regional Council, and shall obtain any necessary approvals under the Resource Management Act 1991 and any amendments.

### **Emission limits**

9. Discharges to the atmosphere from the energy centre boiler stack shall not exceed 20% obscuration, as measured by the photoelectric obscuration gauge and corrected for path length and temperature as set out in Addendum No. 1 (1972) to 2BS2742:1969, or any replacement measurement standard, for any continuous period of 2 minutes or for more than 4 minutes cumulative in any 60 minute period, except:
  - (a) for up to 120 hours (cumulative) per boiler for initial commissioning of each boiler; and
  - (b) for up to 250 hours (cumulative) per year for the purpose of lighting up all boilers from cold; and
  - (c) for up to 100 hours (cumulative) per year for the purpose of lighting up all boilers from warm.
10. Discharges to the atmosphere of particulate from the energy centre boiler stack shall not exceed 100 milligrams per cubic metre ( $\text{mg}/\text{Nm}^3$ ) adjusted to 12% carbon dioxide ( $\text{CO}_2$ ) on a dry gas basis, except during those circumstances described in special condition 9(a), 9(b), and 9(c).
11. The sum of all discharges to the atmosphere of sulphur dioxide from the energy centre boiler stack shall not exceed 385 kilograms per hour ( $\text{kg}/\text{hr}$ ).
12. The sum of all discharges to the atmosphere of particulate from the energy centre boiler stack shall not exceed 43 kilograms per hour ( $\text{kg}/\text{hr}$ ).
13. The sum of all discharges to the atmosphere of nitrogen oxides from the energy centre boiler stack shall not exceed 319 kilograms per hour ( $\text{kg}/\text{hr}$ ).

### **Ambient and workplace limits**

14. The consent holder shall control all discharges of sulphur dioxide to the atmosphere from the site, in order that the maximum ground level concentration of sulphur dioxide arising from the exercise of this consent measured under ambient conditions on land does not exceed 350 micrograms per cubic metre (one-hour average exposure) or 120 micrograms per cubic metre (twenty-four hour average exposure) at or beyond the boundary of the site.
15. The consent holder shall control all discharges of nitrogen dioxide or its precursors to the atmosphere from the energy centre boiler stack, whether alone or in conjunction with any other discharges to the atmosphere from the site, in order that the maximum ground level concentration of nitrogen dioxide arising from the exercise of this consent measured under ambient conditions does not exceed 200 micrograms per cubic metre (one hour average exposure), or 100 micrograms per cubic metre (twenty-four hour average exposure), at or beyond the boundary of the site.
16. The consent holder shall control all discharges of particulate of effective diameter of less than 10 micrometres (PM<sub>10</sub>) to the atmosphere from the energy centre boiler stack, whether alone or in conjunction with any other discharges to the atmosphere from the site, in order that the maximum ground level concentration of PM<sub>10</sub> arising from the exercise of this consent measured under ambient conditions does not exceed 50 micrograms per cubic metre (twenty-four hour average exposure), at or beyond the boundary of the site, or at points within the site boundary where non-occupational exposure is likely to occur (such as residential dwellings).
17. The consent holder shall control all discharges of metals to the atmosphere from the energy centre boiler stack, whether alone or in conjunction with any other discharges to the atmosphere from the site, in order that the maximum ground level concentration of each or any metal arising from the exercise of this consent measured under ambient conditions does not exceed their respective guideline value set out in the 'Ambient Air Quality Guidelines 2002 Update', Air Quality Report No 32, Prepared by the Ministry for the Environment and the Ministry of Health, May 2002.
18. The consent holder shall control discharges to the atmosphere from the energy centre boiler stack of contaminants other than carbon dioxide and those addressed in conditions 10 to 17 above, whether alone or in conjunction with any discharges to the atmosphere from the site, in order that the maximum ground level concentration for any particular contaminant arising from the exercise of this consent measured at or beyond the boundary of the site, is not increased above background levels:
  - (a) by more than 1/30<sup>th</sup> of the relevant Workplace Exposure Standard-Time Weighted Average, or by more than the Workplace Exposure Standard-Short Term Exposure Limit at any time (all terms as defined in Workplace Exposure Standards, 2002, Department of Labour); or
  - (b) if no Short Term Exposure Limit is set, by more than the General Excursion Limit at any time (all terms as defined in Workplace Exposure Standards, 2002, Department of Labour).
19. The discharges authorised by this consent shall not give rise to any direct significant adverse ecological effect on any ecosystems in the Taranaki region, including but not limited to habitats, plants, animals, microflora and microfauna.

### **Recording and reporting**

20. Analysis of the coal (including but not limited to the sulphur and ash content of the coal) shall be undertaken on a monthly basis during the processing season. This shall be undertaken upon the coal blend that is supplied to the consent holder. The sampling of the coal blend shall be a composite sample generated by daily sub-sampling of the coal blend that is delivered to the consent holder. The information shall be provided to the Chief Executive, Taranaki Regional Council, upon request.
21. The consent holder shall install, operate, maintain and calibrate:
- (a) opacity meters;
  - (b) sulphur dioxide meters;
  - (c) temperature meters;
  - (d) oxygen meters; and
  - (e) carbon monoxide meters.

for the measuring and recording of the respective parameters in the discharge stack from the boilers, to the satisfaction of the Chief Executive, Taranaki Regional Council.

22. The consent holder shall annually undertake source emission monitoring to the satisfaction of the Chief Executive, Taranaki Regional Council. The monitoring shall include a determination of the exhaust concentrations of sulphur dioxide, total suspended particulates, and PM<sub>10</sub> particulates, in the manner set out in condition F1 within the application lodged for this consent, or to an equivalent standard. In addition, the consent holder shall monitor for mercury and arsenic, and the temperatures of the exhaust gases together with the generation loads prevailing at the time giving rise to those concentrations and mass emissions as determined in monitoring of the emissions. The results of the monitoring shall be provided to the Chief Executive, Taranaki Regional Council, and shall be made available annually to those invited to the liaison meeting convened under special condition 27.
23. A monitoring programme agreed between the consent holder and the Taranaki Regional Council, and provided to the Taranaki District Health Board and interested submitters to application 2785, shall be prepared within three months of the granting of this consent. The monitoring programme shall cover (at a minimum): monitoring for ground level ambient concentrations of sulphur dioxide; soil and vegetation levels of mercury, arsenic, and sulphates at reference sites; levels of mercury and arsenic within aquatic species; and a model validation monitoring survey for PM<sub>10</sub> (monitoring to be carried out to a recognised standard, by an accredited laboratory).

## Consent 6257-1.1

24. The consent holder shall provide to the Chief Executive, Taranaki Regional Council, within two years from the granting of this consent and again at four years from the granting of this consent and every six years thereafter a written report:
- (a) reviewing any technological advances in the reduction or mitigation of emissions, especially but not exclusively in respect of sulphur dioxide, dioxins, and heavy metals, how these might be applicable and/or implemented at the energy centre, and the costs and benefits of these advances; and
  - (b) addressing any other issue relevant to the minimisation or mitigation of emissions from the site that the Chief Executive, Taranaki Regional Council, reasonably considers should be included.
25. The consent holder shall provide to the Chief Executive, Taranaki Regional Council, within twelve months from the exercising of this consent and again every 12 months thereafter while the consent is being exercised, a written report:
- (a) detailing an inventory of emissions from the site of such contaminants as the Chief Executive, Taranaki Regional Council, may from time to time specify (in accordance with the emissions identified in the application) following consultation with the consent holder;
  - (b) detailing any measures that have been taken by the consent holder to improve the energy efficiency of the energy centre; and
  - (c) detailing average sulphur content and maximum sulphur content (based on monthly analyses of daily representative samples) of all fuel consumed at the site and volume of fuel consumed, during the previous twelve months.
26. The consent holder shall develop or procure a cultural impact report within 12 months of the granting of this consent.

### **Liaison meeting**

27. The consent holder shall invite staff of the Taranaki Regional Council and interested submitters to application 2785 to meet annually to discuss any matter relating to the exercise of this consent. The first liaison meeting shall be held within 12 months of the commissioning of the energy centre.

### **Lapse and review**

28. This consent shall lapse on 1 June 2034, unless the consent is given effect to before the end of that period or the Taranaki Regional Council fixes a longer period pursuant to section 125(1)(b) of the Resource Management Act 1991.

29. In accordance with section 128 and section 129 of the Resource Management Act 1991, the Taranaki Regional Council may serve notice of its intention to review, amend, delete or add to the conditions of this resource consent within two months of receiving a report prepared by the consent holder pursuant to conditions 24, 25, and 26 of this consent, or following non-compliance with special condition 14, or in any case in June 2010 and/or June 2016 and/or June 2022 and/or June 2028, for the purposes of:
- (a) dealing with any significant adverse effect on the environment arising from the exercise of the consent which was either not foreseen at the time the application was considered or which it is appropriate to deal with at the time of the review;
  - (b) requiring the holder to adopt the best practicable option to remove or reduce any adverse effect on the environment caused by the discharge;
  - (c) altering, adding, or deleting limits on discharge, receiving environment or ambient concentrations of any contaminant or contaminants, for the purpose of dealing with any significant adverse ecological effect on any ecosystem; or
  - (d) taking into account any Act of Parliament, regulation, national policy statement or national environmental standard which relates to setting maximum discharge or ambient concentrations of any air contaminant, and/or limiting, recording, or mitigating emissions of carbon dioxide, PM<sub>10</sub> particulate, heavy metals, sulphur dioxide, and/or nitrogen dioxide, and which is relevant to the air discharge from the consent holder's energy centre if it is the express intention of any such mechanism to apply retrospectively to existing activities.

Signed at Stratford on 9 June 2015

For and on behalf of  
Taranaki Regional Council

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A D McLay  
**Director - Resource Management**



**Discharge Permit**  
**Pursuant to the Resource Management Act 1991**  
**a resource consent is hereby granted by the**  
**Taranaki Regional Council**

Name of  
Consent Holder: Fonterra Limited  
PO Box 444  
Hawera 4640

Decision Date  
(Change): 23 October 2018

Commencement Date  
(Change): 23 October 2018 (Granted Date: 4 October 2006)

**Conditions of Consent**

Consent Granted: To discharge emissions into the air from 'Cogen-I' and  
'Cogen-II' co-generation energy generating plants with an  
energy output of 70 MW together with associated processes

Expiry Date: 1 June 2025

Review Date(s): June 2020

Site Location: Whareroa Road, Hawera

Grid Reference (NZTM) 1711450E-5614870N

*For General, Standard and Special conditions  
pertaining to this consent please see reverse side of this document*

### **General condition**

- a. The consent holder shall pay to the Taranaki Regional Council all the administration, monitoring and supervision costs of this consent, fixed in accordance with section 36 of the Resource Management Act 1991.

### **Special conditions**

1. The consent holder shall adopt the best practicable option, as defined in section 2 of the Resource Management Act 1991, to prevent or minimise any actual or likely adverse effect on the environment associated with the discharge of contaminants into the environment from the site.
2. The measures representing the best practicable option may be reviewed in accordance with the procedure provided for in condition 19.
3. Prior to undertaking any alterations to the plant, processes or operations, as specified in the original application and any subsequent applications to change consent conditions which may significantly change the nature or quantity of contaminants emitted from the site, the consent holder shall consult with the Chief Executive, and shall obtain any necessary approvals under the Resource Management Act 1991 and any amendments.
4. The consent holder shall provide to the Taranaki Regional Council within five years from the granting of this consent and every six years thereafter a written report:
  - a) reviewing any technological advances in the reduction or mitigation of emissions, how these might be applicable and/or implemented at the Whareroa site, and the costs and benefits of these advances; and
  - b) detailing an inventory of emissions from the site of such contaminants as the Chief Executive, may from time to time specify following consultation with the consent holder; and
  - c) detailing any measures that have been taken by the consent holder to improve the energy efficiency of the Whareroa site; and
  - d) addressing any other issue relevant to the minimisation or mitigation of emissions from the Whareroa site that the Chief Executive considers should be included.
5. The boilers shall only be heated using natural gas, except that diesel may be used in the following circumstances:
  - a) for temporary emergency heat/steam supply in the event of natural gas supply interruption; and
  - b) for short duration testing purposes.
6. The consent holder shall notify the Chief Executive, Taranaki Regional Council, in writing on each occasion that diesel combustion is used in the co-generation plants. The notification shall include the date and duration of the activity, the reason for the use of diesel, and shall be emailed to [worknotification@trc.govt.nz](mailto:worknotification@trc.govt.nz).
7. Diesel combusted in the boilers shall comply with Schedule 2 of the Engine Fuel Specifications regulations 2011, or subsequent amendments.

## Consent 6273-1.1

8. The consent holder shall control all emissions of sulphur dioxide to the atmosphere from the site, in order that the maximum ground level concentration of sulphur dioxide arising from the exercise of this consent measured under ambient conditions on land does not exceed 350 micrograms per cubic metre (one-hour average exposure) or 125 micrograms per cubic metre (twenty-four hour average exposure) at or beyond the boundary of the site.
9. The consent holder shall control all emissions of carbon monoxide to the atmosphere from the site, in order that the maximum ground level concentration of carbon monoxide arising from the exercise of this consent measured under ambient conditions does not exceed 10 milligrams per cubic metre (mg/m<sup>3</sup>) (eight- hour average exposure), or 30 milligrams per cubic metre (mg/m<sup>3</sup>) (one-hour average exposure) at or beyond the boundary of the site.
10. The sum of all discharges to the atmosphere of nitrogen oxides from the cogeneration plant shall not exceed 48 grams per second (g/s).
11. The consent holder shall control all emissions of nitrogen dioxide or its precursors to the atmosphere from the site, so as to ensure that the maximum ground level concentration of nitrogen dioxide measured under ambient conditions does not exceed 200 micrograms per cubic metre (µg/m<sup>3</sup>) (one-hour average), or 100 micrograms per cubic metre (µg/m<sup>3</sup>) (twenty-four hour average), at or beyond the boundary of the site.
12. The consent holder shall control all emissions of fine particulates (PM<sub>10</sub>) to the atmosphere from the site, in order that the maximum ground level concentration of fine particulates (PM<sub>10</sub>) arising from the exercise of this consent measured under ambient conditions does not exceed 50 micrograms per cubic metre (µg/m<sup>3</sup>) (twenty-four hour average), at or beyond the boundary of the site.
13. The consent holder shall control all emissions to the atmosphere from the site of contaminants other than carbon dioxide, carbon monoxide, and nitrogen oxides, in order that the maximum ground level concentration for any particular contaminant arising from the exercise of this consent measured at or beyond the boundary of the site is not increased above background levels:
  - a) by more than 1/30<sup>th</sup> of the relevant Workplace Exposure Standard-Time Weighted Average, or by more than the Workplace Exposure Standard Short Term Exposure Limit at any time (all terms as defined in Workplace Exposure Standards, 2002, Department of Labour); or
  - b) if no Short Term Exposure Limit is set, by more than the General Excursion Limit at any time (all terms as defined in Workplace Exposure Standards, 2002, Department of Labour).
14. The minimum height of discharge of products of combustion from the Cogen I plant shall be 15 metres above ground level, and from Cogen II plant shall be 17.5 metres above ground.

## Consent 6273-1.1

15. The consent holder shall minimise the emissions and impacts of air contaminants discharged from the site by the selection of the most appropriate process equipment, process control equipment, emission control equipment, methods of control, supervision and operation, and the proper and effective operation, supervision, control and maintenance of all equipment and processes.
16. The consent holder, in conjunction with the Taranaki Regional Council, shall undertake monitoring of emissions and their effects upon the environment as required by the Chief Executive.
17. Notwithstanding conditions 1 and 15 above, the co-generation plants shall not be operated so as to generate emissions of visible smoke, nor shall any plume of visible water vapour from the cooling towers cross the boundary of the site.
18. The water treatment regime used in the cooling water system associated with Cogen I and Cogen II shall be to the satisfaction of the Chief Executive.
19. In accordance with section 128 and section 129 of the Resource Management Act 1991, the Taranaki Regional Council may serve notice of its intention to review, amend, delete or add to the conditions of this resource consent within six months of receiving a report prepared by the consent holder pursuant to condition 4 of this consent, or in any case in June 2010 and/or June 2015 and/or June 2020, for the purposes of:
  - a) dealing with any significant adverse effect on the environment arising from the exercise of the consent which was not foreseen at the time the application was considered and which it is appropriate to deal with at the time of the review; and/or
  - b) requiring the consent holder to adopt the best practicable option to remove or reduce any adverse effect on the environment caused by the discharge; and/or
  - c) to alter, add, or delete limits on mass discharge quantities or discharge or ambient concentrations of any contaminant or contaminants; and/or
  - d) taking into account any Act of Parliament, regulation, national policy statement, regional policy statement or regional rule which relates to limiting, recording, or mitigating products of combustion and which is relevant to emissions from the co-generation plants.

Signed at Stratford on 23 October 2018

For and on behalf of  
Taranaki Regional Council

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A D McLay  
**Director - Resource Management**

**Discharge Permit**  
**Pursuant to the Resource Management Act 1991**  
**a resource consent is hereby granted by the**  
**Taranaki Regional Council**

Name of  
Consent Holder: Fonterra Limited  
PO Box 444  
Hawera 4640

Decision Date: 31 March 2009

Commencement Date: 31 March 2009

**Conditions of Consent**

Consent Granted: To discharge emissions into the air from the combustion of waste wood packaging

Expiry Date: 1 June 2028

Review Date(s): June 2016, June 2022

Site Location: Rifle Range Road, Hawera

Legal Description: Pt Lot 13 DP 2625 Blks IX & X Hawera SD

Grid Reference (NZTM) 1711447E-5613278N

*For General, Standard and Special conditions  
pertaining to this consent please see reverse side of this document*

### **General conditions**

- a) On receipt of a requirement from the Chief Executive, Taranaki Regional Council the consent holder shall, within the time specified in the requirement, supply the information required relating to the exercise of this consent.
- b) Unless it is otherwise specified in the conditions of this consent, compliance with any monitoring requirement imposed by this consent must be at the consent holder's own expense.
- c) The consent holder shall pay to the Council all required administrative charges fixed by the Council pursuant to section 36 in relation to:
  - i) the administration, monitoring and supervision of this consent; and
  - ii) charges authorised by regulations.

### **Special conditions**

- 1. The consent only authorises the combustion of untreated timber packing waste originating from the Whareroa Dairy Factory site.
- 2. The total volume of waste that can be burned in calendar month shall not exceed 4 cubic metres.
- 3. The consent holder shall at all times adopt the best practicable option, as defined in section 2 of the Resource Management Act 1991, to prevent or minimise any adverse effects on the environment from the exercise of this consent by ensuring proper and effective methods of control and supervision of the discharge at all times.
- 4. The consent holder, prior to lighting any fire, shall have regard to wind direction and speed so as to minimise adverse effects upon neighbours. No burning shall occur during foggy conditions.
- 5. The discharges authorized by this consent shall not give rise to a level of a contaminant or contaminants at or beyond the boundary of the site that is noxious or toxic.
- 6. The discharges authorized by this consent shall not give rise to an odour at or beyond the boundary of the site that is offensive or objectionable.
- 7. The consent holder shall maintain a record of each burning event, including: the date, time and duration; the wind conditions [strength and direction] over the duration of the burning; any problems or issues that occurred; and details of any complaints received about the burning. This record shall be made available to the Chief Executive, Taranaki Regional Council upon request.
- 8. This consent shall lapse on 31 March 2014, unless the consent is given effect to before the end of that period or the Taranaki Regional Council fixes a longer period pursuant to section 125(1)(b) of the Resource Management Act 1991.

9. In accordance with section 128 and section 129 of the Resource Management Act 1991, the Taranaki Regional Council may serve notice of its intention to review, amend, delete or add to the conditions of this resource consent by giving notice of review during the month of June 2016 and/or June 2022 for the purpose or purposes of ensuring that the conditions are adequate to deal with any adverse effects on the environment arising from the exercise of this resource consent, which were either not foreseen at the time the application was considered or which it was not appropriate to deal with at the time.

Transferred at Stratford on 13 April 2015

For and on behalf of  
Taranaki Regional Council

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A D McLay  
**Director - Resource Management**



**Discharge Permit**  
**Pursuant to the Resource Management Act 1991**  
**a resource consent is hereby granted by the**  
**Taranaki Regional Council**

Name of  
Consent Holder: Fonterra Limited  
PO Box 444  
Hawera 4640

Decision Date: 03 June 2014

Commencement Date: 03 June 2014

**Conditions of Consent**

Consent Granted: To discharge dairy liquids onto land and the associated emissions to air, in various locations throughout the Taranaki region

Expiry Date: 01 June 2034

Review Date(s): June 2017, June 2020, June 2023,  
June 2026, June 2029, June 2032

Site Location: Various locations throughout the Taranaki region

Legal Description: Various locations throughout the Taranaki region

Grid Reference (NZTM) Various locations throughout the Taranaki region

Catchment: Various locations throughout the Taranaki region

*For General, Standard and Special conditions  
pertaining to this consent please see reverse side of this document*

### General condition

- a. The consent holder shall pay to the Taranaki Regional Council all the administration, monitoring and supervision costs of this consent, fixed in accordance with section 36 of the Resource Management Act 1991.

### Special conditions

1. The dairy liquids to be discharged shall be limited to the following:
  - (a) *Dairy by-products*, which typically include, but are not limited to biomass or biosolids (drawn off from biological treatment plants); unused intermediate product of residue streams (such as stockfood and whey) and dissolved air flotation (DAF) sludge (fat and protein skimmed off liquid streams);
  - (b) *Unprocessable dairy products*, which typically include, but are not limited to silo and tank sediments; raw milk not accepted at the manufacturing site and other dairy products either contaminated or unfit for further processing; and
  - (c) *Surplus dairy products*, such as raw milk, permeate (PM18 and PM30) and buttermilk (including secondary skim and beta serum) that the consent holder is unable to process.
2. The exercise of this consent shall be in accordance with a Dairy Liquids Spreading Management Plan (DLSMP), prepared by the consent holder and approved by the Chief Executive, Taranaki Regional Council, acting in a certification capacity. The DLSMP shall detail how the discharge activity will be managed to achieve compliance with the conditions of this consent and shall include, but not limited to, the following:
  - (a) storage of dairy liquids;
  - (b) designated application areas and buffer zones for streams and property boundaries;
  - (c) selection of appropriate irrigation methods for different types of terrain;
  - (d) application rate and duration;
  - (e) application frequency and nitrogen loading rate;
  - (f) farm management and operator training;
  - (g) soil and herbage management;
  - (h) prevention of runoff and ponding;
  - (i) minimisation and control of odour and spray drift effects off site;
  - (j) operational control and maintenance of the spray irrigation system;
  - (k) monitoring of the effluent (physicochemical);
  - (l) recording of application sites, discharge volumes, rates, frequency, duration, dates and equipment operator details;
  - (m) remediation measures;
  - (n) mitigation measures including screening of any storage facilities and riparian planting;
  - (o) reporting monitoring data;
  - (p) procedures for responding to complaints; and
  - (q) notification to the Taranaki Regional Council of non-compliance with conditions of this consent.

3. Before July 15 each year, the consent holder shall notify the Taranaki Regional Council, by sending an email to [worknotification@trc.govt.nz](mailto:worknotification@trc.govt.nz) of the intent to discharge dairy liquids to land, including details of the locations and Farm IDs onto which the discharges will occur (as shown in the register). If dairy liquids are subsequently intended to be discharged onto any other land in that season, the consent holder shall notify the Taranaki Regional Council of that intention at least 2 working days in advance of such discharge occurring.
4. The discharge shall not result in any liquids ponding for more than 30 minutes.
5. The discharge shall not result in any liquids reaching surface water, any subsurface drainage system or any adjacent property.
6. The consent holder shall at all times adopt the best practicable option, as defined in section 2 of the Resource Management Act 1991, to prevent or minimise any adverse effects on the environment from the exercise of this consent.
7. There shall be no spray drift as a result of the irrigation of dairy liquids at or beyond the boundary of the property or properties on which spray irrigation is occurring.
8. The dairy liquids for discharge shall not have a sodium adsorption ratio (SAR) exceeding 15.
9. The nitrogen loading rate on land irrigated with dairy liquids, as a consequence of:
  - (a) the exercise of this consent; and/or
  - (b) the disposal of dairy farm effluent; and/or
  - (c) the disposal of any other waste or fertilizer;shall not exceed a combined total of:
  - (d) 200 kilograms of nitrogen per hectare per year on land used for grazing; or
  - (e) 300 kilograms of nitrogen per hectare per year where a crop such as maize, silage or hay is harvested from the land in the same season that dairy liquids are applied.
10. The discharge shall not occur within the following minimum buffer distances:
  - (a) 25 metres from the banks of any watercourse;
  - (b) 20 metres from any public road;
  - (c) 20 metres from any property boundary, unless the written approval of the adjoining occupier has been obtained to allow the discharge at a lesser distance;
  - (d) 50 metres from any bore, well or spring used for water supply purposes;
  - (e) 150 metres from any dwelling house or place of public assembly unless the written approval of the occupier has been obtained to allow the discharge at a lesser distance; and
  - (f) 300 metres from any school property.
11. There shall be no discharge within, adjacent to or directly impacting on any Statutory Acknowledgment Area.

## Consent 9908-1.0

12. There shall be no offensive or objectionable odour at or beyond the boundary of the property or properties on which a discharge occurs.
13. The consent holder shall notify the Taranaki Regional Council as soon as practicable and, as a minimum, within 48 hours, of any accidental discharge, equipment breakdown or other event which is likely to result in a breach of the conditions of this consent.
14. The consent holder shall maintain a complaints register for all aspects of the dairy liquids application activity. The register shall detail the date, time and type of complaint, cause of the complaint and action taken by the consent holder in response to the complaint. The register shall be available to the Taranaki Regional Council at all reasonable times. The consent holder shall forward a copy of each complaint received regarding odour, runoff or spray drift to the Taranaki Regional Council as soon as practicable but in any event within 48 hours of the complaint being made.
15. If, as a consequence of the activities authorised by these consents, an event occurs that may have a significant adverse effect on water quality at any registered drinking-water supply abstraction point, the consent holder shall, as soon as reasonably practicable, telephone the Taranaki Regional Council and the water supply operator and notify them of the event.
16. The consent holder shall keep a record of the application sites for the discharge of dairy liquids, including , but not limited to the following information:
  - (a) Type/characteristics of dairy liquids discharged;
  - (b) Date of discharge;
  - (c) Time/ duration of discharge;
  - (d) Volume and rate of discharge;
  - (e) Method of discharge;
  - (f) Name of equipment operator; and
  - (g) Location of the nearest watercourse, bore, property boundary; dwelling house; school, community halls, marae, and public road.

This record shall be kept and made available to the Chief Executive, Taranaki Regional Council, on request.

17. The following details of all farms used for dairy liquids spreading shall be recorded in a Farm Register, which shall be submitted to the Taranaki Regional Council:
  - (a) Name of the farm/property;
  - (b) Owner of the property;
  - (c) Physical address, Legal description and NZTopo50 map reference;
  - (d) Area available for irrigation (ha);
  - (e) General soil type, if known;
  - (f) Distance to any sensitive neighbours if closer than 300 metres from the farm, e.g. schools, community halls, marae.

Any new farms that become available for dairy liquids spreading shall be added the Farm Register, and the updated Register shall be provided to the Taranaki Regional Council.

## Consent 9908-1.0

18. This consent shall lapse on 30 June 2019, unless the consent is given effect to before the end of that period, of the Taranaki Regional Council fixes a longer period pursuant to Section 125(1)(b) of the Resource Management Plan 1991.
19. In accordance with section 128 and section 129 of the Resource Management Act 1991, the Taranaki Regional Council may serve notice of its intention to review, amend, delete or add to the conditions of this resource consent by giving notice of review during the month of June 2017 and/or June 2020, and/or June 2023, and/or June 2026, and/or June 2029, and/or June 2032 for the purpose of ensuring that the conditions are adequate to deal with any adverse effects on the environment arising from the exercise of this resource consent, which were either not foreseen at the time the application was considered or which it was not appropriate to deal with at the time.

Signed at Stratford on 03 June 2014

For and on behalf of  
Taranaki Regional Council

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A D McLay  
**Director - Resource Management**



**Land Use Consent**  
**Pursuant to the Resource Management Act 1991**  
**a resource consent is hereby granted by the**  
**Taranaki Regional Council**

Name of  
Consent Holder: Fonterra Limited  
PO Box 444  
Hawera 4640

Decision Date: 25 February 2016

Commencement Date: 25 February 2016

**Conditions of Consent**

Consent Granted: To construct, place and use a water intake structure in the bed of the Tangahoe River for industrial water supply purposes, including associated discharge of construction stormwater from the site

Expiry Date: 1 June 2034

Review Date(s): June 2022, June 2028

Site Location: 135 Hicks Road, Hawera

Legal Description: Lot 2 DP 372563 (Site of structure)

Grid Reference (NZTM) 1715770E-5612494N

Catchment: Tangahoe

*For General, Standard and Special conditions  
pertaining to this consent please see reverse side of this document*

### General condition

- a. The consent holder shall pay to the Taranaki Regional Council all the administration, monitoring and supervision costs of this consent, fixed in accordance with section 36 of the Resource Management Act 1991.

### Special conditions

1. The water intake structure shall be constructed in accordance with information provide with the application, specifically:
  - The Assessment of Environmental effects prepared by *Planz Consultants Limited*, referenced 14425 and dated *December 2015*;
  - *Intake Screen Concept Plans* prepared by *Beca Consultants Limited*, referenced 3253783-CE, drawing numbers 5000; 5001 & 5002 and dated 16/11/15; and
  - *Fonterra Water Intake – Tangahoe Stream Crossing Sections*, prepared by *BTW Consultants Limited*, drawing number and dated 19/01/15.

In the case of any contradiction between the drawing(s) and the conditions of this consent, the conditions of this consent shall prevail.

2. Prior to the commencement of the works, the consent holder shall install suitable signage at the upstream and downstream approach of the site, advising the public of the potential navigation hazard. The signage shall be maintained throughout the life of the water-intake structure.
3. Before commencing any earthworks, the consent holder shall ensure that they (or their representatives) meet on site with a Taranaki Regional Council officer who is directly responsible for monitoring compliance with the conditions of this consent. The purpose of the meeting shall be to obtain specific advice from the Taranaki Regional Council about the measures required to ensure compliance with conditions 5 and 6.
4. The consent holder shall ensure that prior to the commencement of earthworks, the erosion control measures are installed in accordance with the *Erosion and Sediment Control Plan* prepared by *Fulton Hogan Limited*, titled, *Tangahoe Intake Upgrade: Erosion and Sediment Control: Stream Control / Construction Methodology*, referenced ESC #001 and dated 25 January 2016.
5. The sediment control measures necessary to comply with the conditions of this consent shall be constructed before soil is exposed at the site and shall remain in place, in respect of any particular area, until that area is stabilised. The obligation described in this condition shall cease to apply, and accordingly the erosion and sediment control measures may be removed, in respect of any particular area only when the site is stabilised.

*Note: For the purpose of conditions 5 and 6, 'stabilised' in relation to any site or area means inherently resistant to erosion or rendered resistant, such as by using rock or by the application of basecourse, colluvium, grassing, mulch, or another method to the reasonable satisfaction of the Chief Executive, Taranaki Regional Council and as specified in the Taranaki Regional Council's Guidelines for Earthworks in the Taranaki Region, 2006. Where seeding or grassing is used on a surface that is not otherwise resistant to erosion, the surface is considered stabilised once, on reasonable visual inspection by an officer of the Taranaki Regional Council, an 80% vegetative cover has been established.*

## Consent 10208-1.0

6. All earthworked areas shall be stabilised vegetatively or otherwise as soon as is practicable and no longer than 6 months after the completion of soil disturbance activities.
7. At least 7 working days prior to the commencement of works the consent holder shall notify the Taranaki Regional Council of the proposed start date for the work. Notification shall include the consent number and a brief description of the activity consented and shall be emailed to [worknotification@trc.govt.nz](mailto:worknotification@trc.govt.nz).
8. Any concrete work carried out in the river bed shall be completely separated from running water, by a temporary coffer-dam and/or diversion using sand bags or some other form of contained fill.
9. The consent holder shall ensure that any concrete placed in the channel is not exposed to flowing water for a period of 48 hours after it has been placed.
10. The consent holder shall ensure that the placement of the bank protection structures (gabions and/or mass block) proposed in Stage 3 of the Erosion and Sediment Control Plan (ESCP) is undertaken when the coffer dam proposed under Stage 2 of the ESCP is in place. The bank protection structures shall be embedded in the bed of the stream by at least 500 mm.
11. No instream works shall take place between 1 May and 31 October inclusive.
12. The consent holder shall ensure that the area and volume of stream bed disturbance is, as far as practicable, minimised and any areas that are disturbed are, as far as practicable, reinstated.
13. The consent holder shall take all reasonable steps to:
  - a. minimise the amount of sediment discharged to the stream;
  - b. minimise the amount of sediment that becomes suspended in the stream; and
  - c. mitigate the effects of any sediment in the stream.
14. The consent holder shall at all times adopt the best practicable option, as defined in section 2 of the Resource Management Act 1991, to prevent or minimise any actual or likely adverse effect on the environment associated with the discharge of contaminants from the site.
15. During the exercise of this consent, and on completion of the works, no stockpiles, mounds, depressions, trees/vegetation, holes or surplus material shall be left in a position where it may adversely affect the flow of water.
16. On completion of works, the banks of the Tangahoe River shall be no steeper than the existing natural banks. Where the bank consists of fill, the fill must be well compacted with batter slopes no steeper than 2 horizontal to 1 vertical.
17. The works shall remain the responsibility of the consent holder and be maintained so that any erosion, scour or instability of the stream bed or banks that is attributable to the works carried out as part of this consent is remedied by the consent holder.

18. In the event that any archaeological remains are discovered as a result of works authorised by this consent, the works shall cease immediately at the affected site and tangata whenua and the Chief Executive, Taranaki Regional Council, shall be notified within one working day. Works may recommence at the affected area when advised to do so by the Chief Executive, Taranaki Regional Council. Such advice shall be given after the Chief Executive has considered: tangata whenua interest and values, the consent holder's interests, the interests of the public generally, and any archaeological or scientific evidence. The New Zealand Police, Coroner, and Historic Places Trust shall also be contacted as appropriate, and the work shall not recommence in the affected area until any necessary statutory authorisations or consents have been obtained.
19. This consent shall lapse on 31 March 2021, unless the consent is given effect to before the end of that period or the Taranaki Regional Council fixes a longer period pursuant to section 125(1)(b) of the Resource Management Act 1991.
20. In accordance with section 128 and section 129 of the Resource Management Act 1991, the Taranaki Regional Council may serve notice of its intention to review, amend, delete or add to the conditions of this resource consent by giving notice of review during the month of June 2022 and/or June 2028, for the purpose of ensuring that the conditions are adequate to deal with any adverse effects on the environment arising from the exercise of this resource consent, which were either not foreseen at the time the application was considered or which it was not appropriate to deal with at the time.

Signed at Stratford on 25 February 2016

For and on behalf of  
Taranaki Regional Council

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A D McLay  
**Director - Resource Management**

## Appendix II

Categories used to evaluate environmental and  
administrative performance

## Categories used to evaluate environmental and administrative performance

Environmental performance is concerned with actual or likely effects on the receiving environment from the activities during the monitoring year. Administrative performance is concerned with the Company's approach to demonstrating consent compliance in site operations and management including the timely provision of information to Council (such as contingency plans and water take data) in accordance with consent conditions.

Events that were beyond the control of the consent holder and unforeseeable (that is a defence under the provisions of the RMA can be established) may be excluded with regard to the performance rating applied. For example loss of data due to a flood destroying deployed field equipment.

The categories used by the Council for this monitoring period, and their interpretation, are as follows:

### Environmental Performance

**High:** No or inconsequential (short-term duration, less than minor in severity) breaches of consent or regional plan parameters resulting from the activity; no adverse effects of significance noted or likely in the receiving environment. The Council did not record any verified unauthorised incidents involving environmental impacts and was not obliged to issue any abatement notices or infringement notices in relation to such impacts.

**Good:** Likely or actual adverse effects of activities on the receiving environment were negligible or minor at most. There were some such issues noted during monitoring, from self-reports, or during investigations of incidents reported to the Council by a third party but these items were not critical, and follow-up inspections showed they have been dealt with. These minor issues were resolved positively, co-operatively, and quickly. The Council was not obliged to issue any abatement notices or infringement notices in relation to the minor non-compliant effects; however abatement notices may have been issued to mitigate an identified potential for an environmental effect to occur.

For example:

- High suspended solid values recorded in discharge samples, however the discharge was to land or to receiving waters that were in high flow at the time;
- Strong odour beyond boundary but no residential properties or other recipient nearby.

**Improvement required:** Likely or actual adverse effects of activities on the receiving environment were more than minor, but not substantial. There were some issues noted during monitoring, from self-reports, or during investigations of incidents reported to the Council by a third party. Cumulative adverse effects of a persistent minor non-compliant activity could elevate a minor issue to this level. Abatement notices and infringement notices may have been issued in respect of effects.

**Poor:** Likely or actual adverse effects of activities on the receiving environment were significant. There were some items noted during monitoring, from self-reports, or during investigations of incidents reported to the Council by a third party. Cumulative adverse effects of a persistent moderate non-compliant activity could elevate an 'improvement required' issue to this level. Typically there were grounds for either a prosecution or an infringement notice in respect of effects.

### Administrative performance

**High:** The administrative requirements of the resource consents were met, or any failure to do this had trivial consequences and were addressed promptly and co-operatively.

**Good:** Perhaps some administrative requirements of the resource consents were not met at a particular time, however this was addressed without repeated interventions from the Council staff. Alternatively

adequate reason was provided for matters such as the no or late provision of information, interpretation of 'best practical option' for avoiding potential effects, etc.

**Improvement required:** Repeated interventions to meet the administrative requirements of the resource consents were made by Council staff. These matters took some time to resolve, or remained unresolved at the end of the period under review. The Council may have issued an abatement notice to attain compliance.

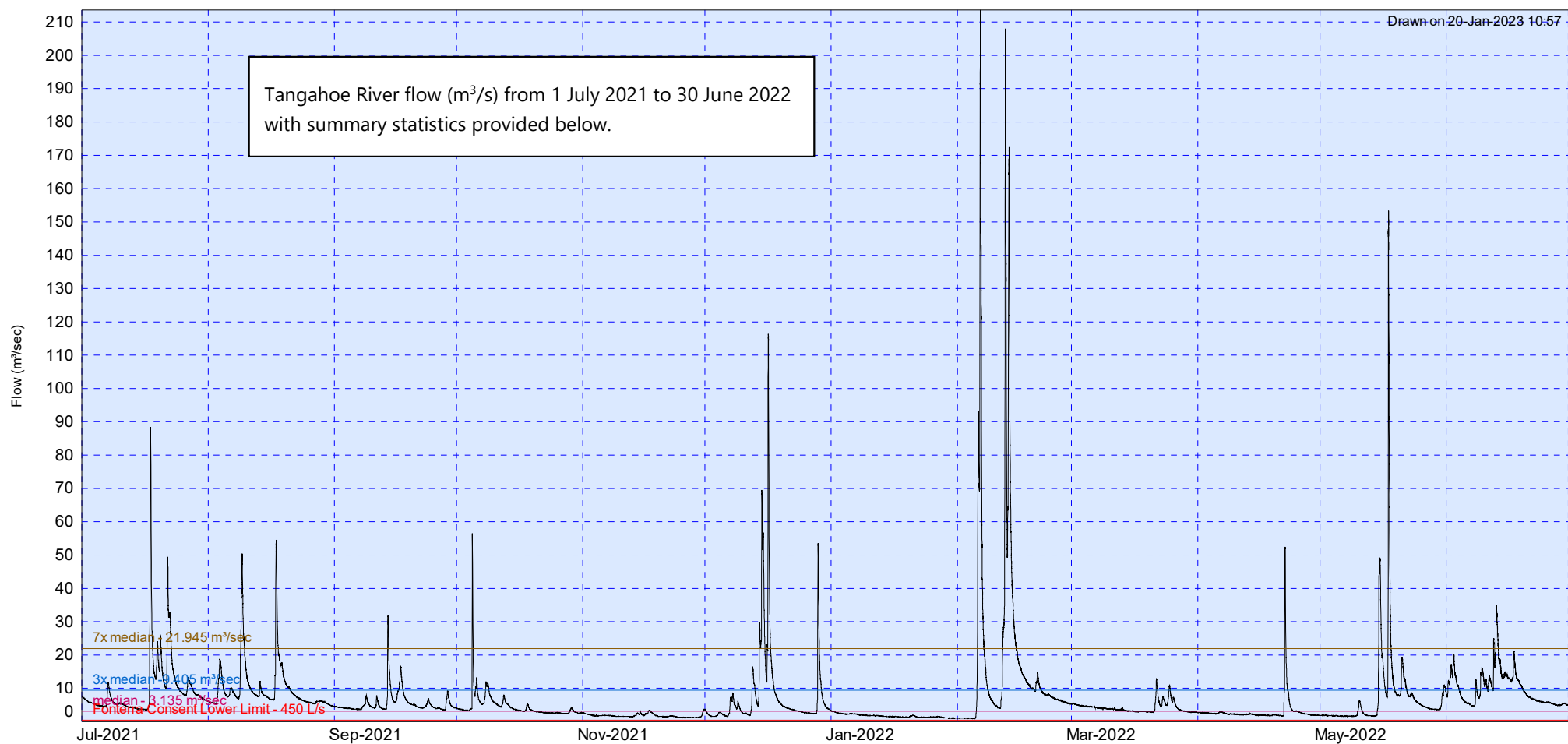
**Poor:** Material failings to meet the administrative requirements of the resource consents. Significant intervention by the Council was required. Typically there were grounds for an infringement notice.



## Appendix III

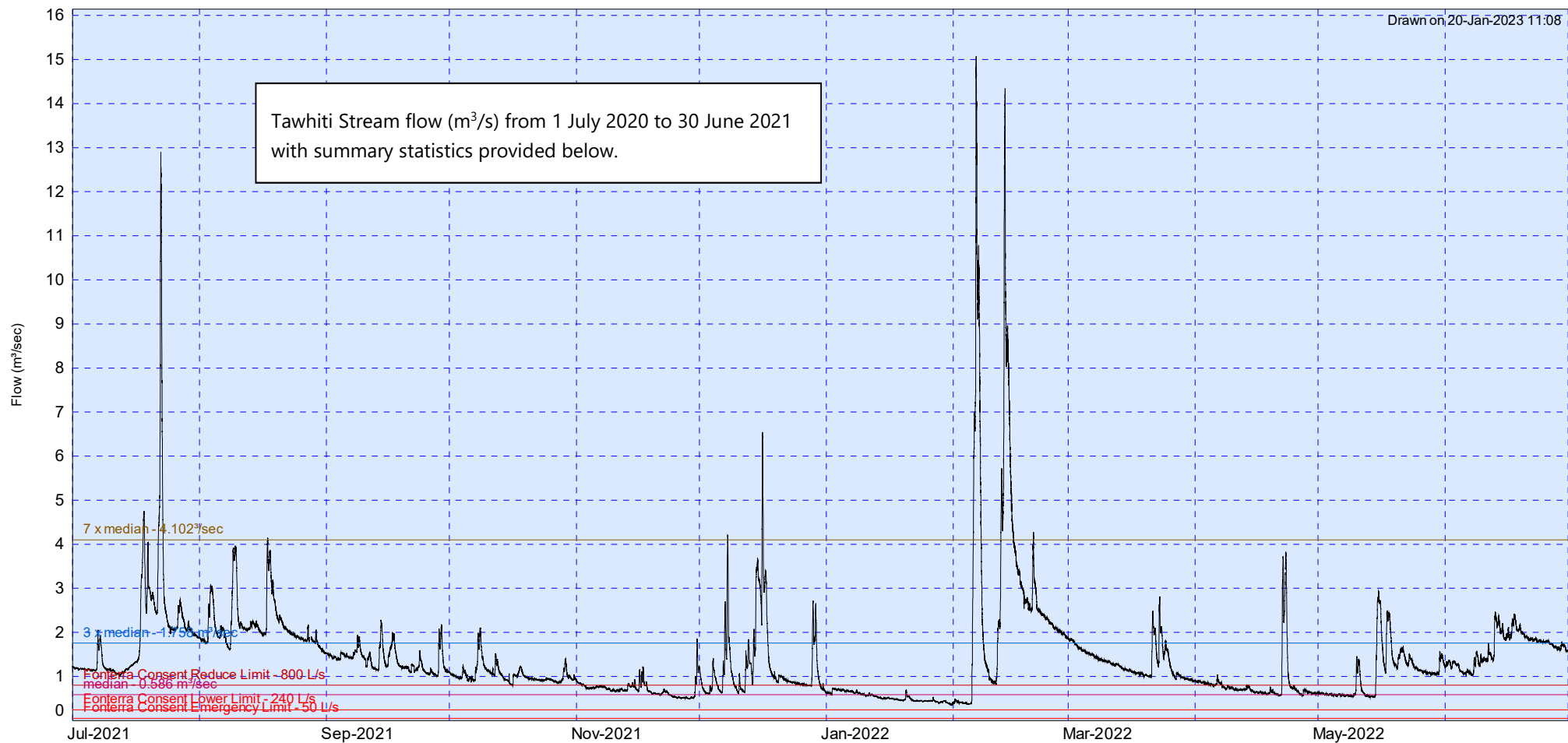
### Fonterra Whareroa water abstraction: Hydrographs and summary statistics 2022-2023





Flow (m<sup>3</sup>/sec) at Tangahoe below Railway Bridge  
From 1-Jul-2021 00:00:00 to 1-Jul-2022 23:59:00

Minimum is 0.944 at 4-Feb-2022 23:05:00  
Maximum is 125.566 at 12-Feb-2022 23:00:00  
Mean 7.060  
Median 4.162  
Std Deviation 11.581  
COV 1.640



Flow (m<sup>3</sup>/sec) at Tawhiti at Duffys  
From 1-Jul-2021 00:00:00 to 1-Jul-2022 23:59:00

Minimum is 0.373 at 4-Feb-2022 23:15:00  
Maximum is 9.387 at 6-Feb-2022 23:55:00  
Mean 1.377  
Median 1.125  
Std Deviation 0.991  
COV 0.720

## Appendix IV

Fonterra Whareroa wastewater constituent mass loads  
(Annual estimates 2010-2022)



