Fonterra Whareroa
Monitoring Programme
Annual Report
2023/24
Technical Report 2024-01

Taranaki
Regional Council

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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 Tāngāhoe 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 Tāngāhoe 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 Tāngāhoe 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 dairy liquids to land; and the discharge of emissions to air.

This report for the period July 2023 to June 2024 describes the monitoring programme implemented by Taranaki Regional Council (the Council) to assess the Company'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 Co-operative Group Ltd demonstrated a level of environmental and administrative performance that required improvement.

The Council's monitoring programme for the year under review included ten scheduled site inspections; three composite samples from the outfall discharge for inter-laboratory comparison; 36 samples of stormwater pond discharges collected for physicochemical analysis; ten grab samples of the outfall discharge for physicochemical and microbiological analysis; two biomonitoring surveys downstream of the stormwater pond discharge points; one biomonitoring survey in relation to the water abstraction, one fish survey, one intertidal survey; 30 deposition gauging samples; two periods of fine airborne particulate (PM_{10}) monitoring in relation to air emissions; four nitrogen oxide (NO_x) samples, and auditing of monitoring data collected by Fonterra.

The site was generally maintained in a satisfactory condition, with no significant issues noted during inspections.

Fonterra was compliant with all water abstraction consent conditions during the year.

Monitoring of the three stormwater ponds indicated compliance with consent conditions in both the Tāngāhoe and unnamed coastal stream discharges. Consent limits were exceeded in three out of ten samples of discharge from the Tawhiti pond, indicating non-compliance with the consent. It is noted that all site stormwater was diverted to wastewater. Fonterra did not discharge to the pond during the monitoring period.

Biomonitoring found no effects related to the stormwater discharges in the Tawhiti Stream or the unnamed coastal stream. Minor localised effects were noted in the unnamed tributary of the Tāngāhoe Stream. Biomonitoring in relation to the consented water abstraction and discharges did not show any significant adverse effects related to these activities in either waterbody.

The volume of wastewater discharge through the outfall was compliant during the 2023/24 monitoring year. The concentrations of suspended solids, fat and COD in the wastewater were compliant throughout the monitoring year.

Inspections and monitoring indicated that the air discharges complied with consent conditions for the majority of the monitoring period. The result of one stack test exceeded the consent limit and Fonterra quickly located and resolved the issue.

Two incidents occurred during the year which resulted in further action by Council. Routine monitoring identified exceedances of various consented limits in the Tawhiti stormwater pond discharge and the high

particulate result as discussed above. Fonterra was asked to provide an explanation for both issues and these were resolved with no further action required from Council.

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.

For reference, in the 2023/24 year, consent holders were found to achieve a high level of environmental performance and compliance for 864 (89%) of a total of 967 consents monitored through the Taranaki tailored monitoring programmes, while for another 75 (8%) of the consents a good level of environmental performance and compliance was achieved. A further 26 (3%) of consents monitored required improvement in their performance, while the remaining two (<1%) achieved a rating of poor.

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 2024/25 year.

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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 2023 to June 2024 by 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 Tāngāhoe and Tawhiti catchments and discharges to the Tasman Sea. This report is the 31st 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 RMA *Resource Management Act 1991* (RMA) and the Council's obligations;
- the Council's approach to monitoring sites though 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 Whareroa 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 2024/25 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 2023/24 year, consent holders were found to achieve a high level of environmental performance and compliance for 864 (89%) of a total of 967 consents monitored through the Taranaki tailored monitoring programmes, while for another 75 (8%) of the consents a good level of environmental performance and compliance was achieved. A further 26 (3%) of consents monitored required improvement in their performance, while the remaining two (<1%) achieved a rating of poor. [1]

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 25ha 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 1996/97 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 construction of a number of new plants, the upgrade of several existing plants, and improvements in waste treatment systems were undertaken during the 1996/97 monitoring period.

[1] The Council has used these compliance grading criteria for more than 20 years. They align closely with the 4 compliance grades in the MfE Best Practice Guidelines for Compliance, Monitoring and Enforcement, 2018

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 (1,845m). 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.

Photo 1 The Fonterra Whareroa site

1.3 Resource consents

Fonterra hold 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 the Company during the period under review.

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

Consent number	Purpose	Granted	Review	Expires
Water abstraction permit				
0047-4	To take water from the Tawhiti Stream and the Tāngāhoe 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
Water discharge permits				

Consent number	Purpose	Granted	Review	Expires
1450-3.1	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
3902-3	To discharge stormwater from the Whareroa milk processing site into an unnamed tributary of the Tāngāhoe River	Feb 2014	-	June 2028
3907-3	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
4133-3.1	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
4927-2.0	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 2027	June 2052
5148-2.0	To discharge river silt and sand from mechanical pre-filtering of river water during abstraction of water, by returning it into the Tāngāhoe River	Nov 2017	June 2027	June 2052
Air discharge permit				
4103-2.3	To discharge emissions into the air from the manufacture and processing of milk products and associated processes	Jul 2018	-	June 2025
5044-2	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*
6257-1.1	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
6273-1.1	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
7465-1	To discharge emissions into the air from the combustion of waste wood packaging	Mar 2009	-	June 2028
Discharges of waste to land				
5036-2	To discharge waste material from stormwater sumps and road sump and unprocessable dairy factory wastes onto and into land	Dec 2012	-	June 2022*
9908-1.1	To discharge dairy liquids onto land and the associated emissions to air, in various locations throughout the Taranaki region	June 2014	June 2026	June 2034
Land use permits				
10208-1.0	To construct, place and use a water intake structure in the bed of the Tāngāhoe River for industrial water supply purposes, including associated discharge of construction stormwater from the site	Feb 2016	June 2028	June 2034
5845-2.0 **11264-1.0**	To use a gabion weir and associated fish pass on the Tawhiti Stream for water intake purposes To dam water in the Tawhiti Stream for water intake purposes	July 2024	June 2028	June 2046
Coastal permits				

Consent number	Purpose	Granted	Review	Expires
5013-2.0	To occupy the Coastal Marine Area with and carry out routine maintenance on: • •a marine outfall pipeline and diffuser structure approximately 1845m long; and • a rock wall approximately 100m long for the protection of the outfall, stream diversion pipelines and associated structures	Nov 2017	June 2026	June 2052

* Continues to operate under s124 of the RMA

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 three 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.

Monitoring of ambient nitrogen oxide (NO_x) 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 Tāngāhoe River, while a summer biomonitoring survey was undertaken at six sites in tributaries of the Tawhiti Stream (two sites), Tāngāhoe 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. A six site triennial biomonitoring survey was also carried out in conjunction with the fish survey to assess the potential impacts of the consented water abstraction and discharges on the macroinvertebrate communities in the river and stream.

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. A survey was undertaken in March 2024. This is next scheduled in the 2026/27 monitoring period.

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 Tāngāhoe Catchment.

Fonterra's independent consultants, Verum Group, carried out powder emission measurements on drier exhaust stacks between September 2023 and February 2024. 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 2023/24 dairy season. A total of ten site inspections were undertaken between August 2023 and May 2024, 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 with no significant issues noted during site inspections.

2.1.2 Water abstraction

Fonterra holds Resource Consent 0047-4.3, which authorises a daily abstraction of up to 30,000m^3/day of water from two locations in the Tāngāhoe Catchment; including the Tawhiti Stream and the Tāngāhoe 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 Tāngāhoe River intake structure

The Council maintains telemetered hydrological recorders in the Tawhiti Stream and Tāngāhoe Rivers, downstream of the abstraction points, to monitor compliance with flow restrictions on Consent 0047-4.3.

Abstraction limits

Condition 1 states that the total amount of water abstracted from the Tawhiti and Tāngāhoe locations over 24 hours (from 06:00 to 06:00) must not exceed 30,000m^3. 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 17,883m^3 which occurred on 22 August 2023. The maximum daily abstraction from the Tāngāhoe River was 24,238m^3 which occurred on 20 January 2024. The maximum combined daily abstraction from both locations was 25,188m^3 on 8 September 2023.

Table 3 Summary of abstraction rate data for 2023/24

Month	Tawhiti Stream			Tāngāhoe River			Total abstraction		
	Mean m^3/day*	Max m^3/day	Breach days	Mean m^3/day	Max m^3/day	Breach days	Mean m^3/day	Max m^3/day	Breach days
July	5,995	10,368	0	2	5	0	5,997	10,370	0
August	10,330	17,883	0	5,446	17,175	0	15,776	19,814	0
September	9,259	15,577	0	12,164	22,586	0	21,423	25,188	0
October	11,821	14,610	0	9962	23,804	0	21,783	24,761	0
November	11,352	12,983	0	10,182	23,996	0	21,534	23,996	0
December	6414	12,034	0	14,768	23,710	0	21,183	23,710	0
January	7,335 (7)	12,010	0	19,155	24,238	0	20,816	24,238	0
February	0	0	0	20,339	23,455	0	20,339	23,455	0
March	6,863 (4)	10,441	0	18,351	22,077	0	19,237	22,077	0
April	34 (1)	34	0	18,582	21,812	0	18,582	21,812	0
May	0	0	0	13,607	19,827	0	13,607	19,827	0
June	735 (1)	735	0	3,429	10,529	0	3,453	10,529	0

* As the Tawhiti Stream was rarely used during January to June the average has been calculated from the days that abstraction occurred (x)

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

In 2023/24, the Tawhiti abstraction rate did not exceed 184L/s when the stream flow rate was less than 800L/s. The Tawhiti Stream flow and abstraction rate are presented in Appendix III.

Minimum flows

Condition 3 states that no abstraction shall occur when the flow immediately downstream of the Tāngāhoe River take site is less than 450L/s (though this can be as low as 273L/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 Tāngāhoe when the flow is between 300 and 450L/s under Condition 4. The minimum flow was maintained above 450L/s during 2023/24 (Appendix II). The minimum flow recorded during the year was 725L/s on 21 February 2024.

Condition 3 also states that no abstraction shall occur when the flow in the Tawhiti Stream is less than 240L/s (though this can be as low as 50L/s during an 'emergency period' of up to 48 hours under

Condition 5). Flow in the Tawhiti Stream did not drop below 240L/s during 2023/24. The minimum recorded flow was 252L/s on 7 March 2024 (Appendix III).

2.1.2.1 Fish survey

A fish survey was undertaken at two sites in the Tawhiti Stream, upstream and downstream of the Fonterra Whareroa water intake weir (Photo 3), on 19 and 20 March 2024. The purpose of the survey was to assess compliance with the fish passage condition of the Consent (5845-1) held for this structure.

Two fish species were recorded in the survey: longfin eel and shortfin eel. Koura were also recorded. The results indicated the fish communities in the Tawhiti Stream were depauperate. Only one shortfin eel was caught upstream of the weir, while two longfin eel and one shortfin eel were captured downstream. Koura were recorded in moderate numbers at each site. The depauperate fish communities in the Tawhiti Stream may be a direct result of the mass fish mortality event in February 2020 caused by an ammonia spill from the upstream Silver Fern Farms site.

The lack of fish diversity and abundance make establishing any meaningful conclusions difficult, and therefore compliance with Consent 5845-1 cannot be confirmed. However, a visual inspection of the fish pass during the survey noted that a perch exists at the toe, which may prevent fish passage for some species. It was recommended that this is remediated and also that surveys continue utilising the netting method at a three year frequency. The use of eDNA could be used in conjunction with traditional surveys to get a better understanding of fish communities as they recover in the catchment.

Photo 3 The weir and fish pass on the Tawhiti Stream

2.1.2.2 Macroinvertebrate monitoring

The Council's 'kick-sampling' technique was used at three sites on the Tāngāhoe River and three sites on the Tawhiti Stream in March 2024 to collect streambed macroinvertebrates. Samples were collected to assess the potential impacts of the consented water abstraction and discharges on the macroinvertebrate communities in the river and stream. Data was processed to determine taxa richness, MCI and SQMCI scores for each site.

The MCI is a measure of the overall sensitivity of the macroinvertebrate community to the effects of nutrient pollution in streams. It is based on the presence/absence of taxa with varying degrees of sensitivity to pollution. The SQMCI takes into account taxa abundance as well as sensitivity to pollution and may reveal more subtle changes in macroinvertebrate communities. Significant differences in either the MCI or the SQMCI between sites indicate the degree of adverse effects (if any) of the discharges being monitored and enable the overall health of the macroinvertebrate communities to be determined.

The abstraction of surface water particularly for extended periods may result in significant adverse effects on the macroinvertebrate communities living within a waterbody by potentially reducing flow velocities, wetted habitat area, and dissolved oxygen levels, and increasing stream temperature, periphyton abundance, macrophytes, pH, and deposited sediment.

The Tāngāhoe River sites had low taxa richness, with all sites recording 12 taxa each (Figure 1). MCI scores were reflective of 'fair' to 'poor' health, with site 2 recording significantly less than the control site 1. However, downstream indicated a significant increase in health with site 3 recording significantly greater than site 2. SQMCI scores were also reflective of 'fair' to 'poor' health, although there were no significant differences between sites.

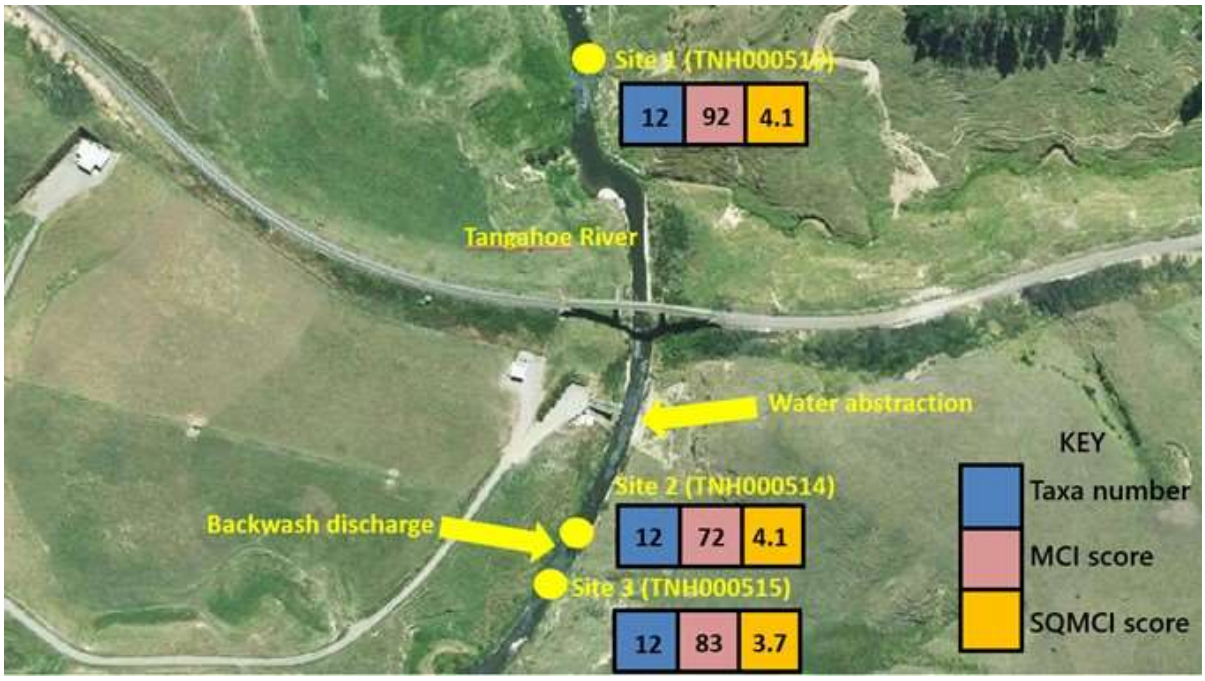

Figure 1 Results of biomonitoring in relation to the water abstraction and backwash discharge point, Tāngāhoe River

The Tawhiti Stream also recorded a low taxa richness, with seven to thirteen taxa recorded at the three sites (Figure 2). MCI scores were reflective of 'fair' to 'poor' health. Site 3, the secondary impact site, recorded significantly less than sites 1 and 2 upstream. SQMCI scores were reflective of 'fair' health, with all sites recording similarly.

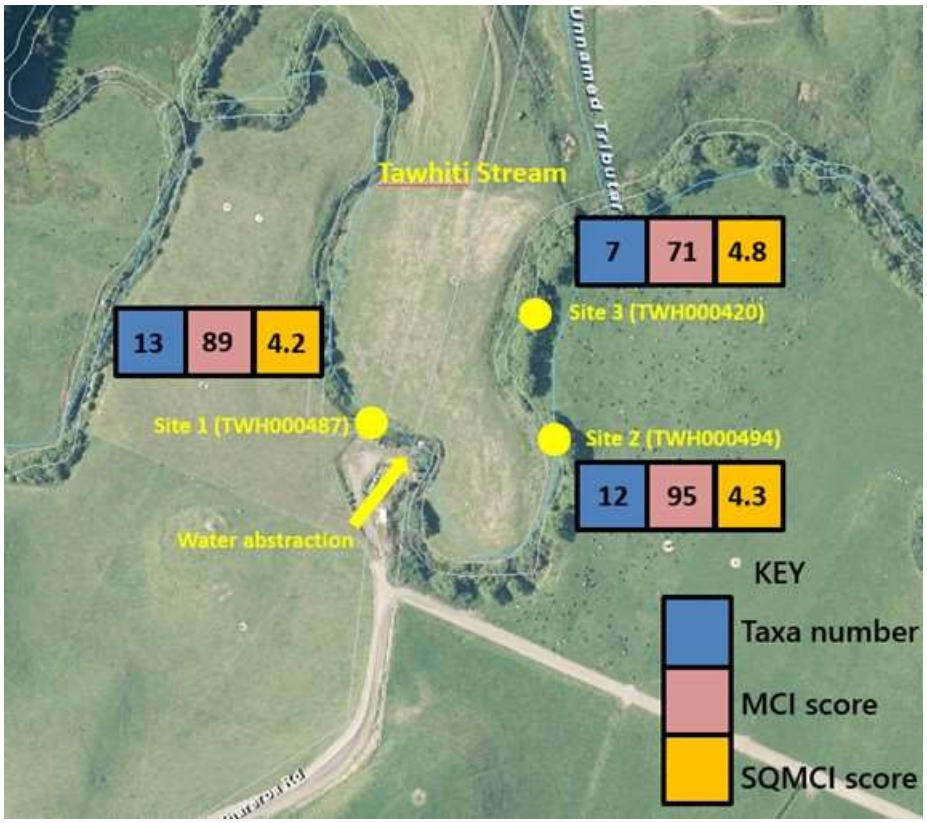

Figure 2 Results of biomonitoring in relation to the water abstraction and backwash discharge point, Tawhiti Stream

In general, macroinvertebrate communities on the Tāngāhoe River and a Tawhiti Stream were largely similar between sites. It is possible that the water abstraction on the Tāngāhoe River had affected the macroinvertebrate community, although results suggest that this is localised. For the Tawhiti Stream, it was likely that unfavourable habitat was contributing to these low scores, however, with a small dataset this is difficult to determine.

2.1.3 Stormwater

Figure 3 Approximate stormwater catchments at the Whareroa site

There are three stormwater catchments covering the Whareroa site. The northern catchment drains to an unnamed tributary of the Tawhiti Stream (Consent 3907-3), the eastern catchment drains to an unnamed tributary of the Tāngāhoe River (Consent 3902-3), while the southern catchment drains to an unnamed coastal stream (Consent 4133-3.1). 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 3.

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 2018/19 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 2023/24 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 Tāngāhoe River), and summer (two sites in an unnamed tributary of the Tawhiti stream, three sites in an unnamed tributary of the Tāngāhoe 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 3902-3.0, 3907-3.0, 4133-3.1)

Parameter	Units	Consent limit*		
		3902-3.0	3907-3.0	4133-3.1
Temperature	°C	25	25	25
Oil and grease	g/m^3	5	5	5
Total residual chlorine	g/m^3	0.2	0.2	0.2
pH	pH	6.0-9.0	6.0-9.0	6.0-9.0
Suspended solids	g/m^3	30	30	100
BOD	g/m^3	10	10	10
BODCF	g/m^3	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.

The samples collected on 7 November and 15 December 2023, and 22 February 2024 exceeded limits for oil & grease. The limit for filtered carbonaceous BOD was also exceeded in the sample collected on 7 November 2023. As three of the ten samples had results which did not comply with consent conditions the discharge was considered to be non-compliant with condition 7 of the consent. Fonterra was asked to provide an explanation for the exceedances, and a letter of response was received. At the time the samples were collected all site stormwater was being diverted to the contingency pond and then pumped to the wastewater system (to then pass out the outfall). Further investigations by Fonterra discovered a leak in the contingency pond which was allowing stormwater to bypass the first two stormwater ponds. This has been repaired. It is noted that the permitted oil and grease limit in the Regional Freshwater Plan is $15g/m^3$, it is recommended that Fonterra apply to change the conditions of their consent to this level.

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_2	Free Cl_2
Unit	g/m^3 $CaCO_3$	g/m^3	g/m^3	g/m^3	µS/cm @ 25°C	g/m^3	pH	g/m^3	FNU	°C	g/m^3	g/m^3
Summary statistics previous data (November 1998 to June 2023)												
Minimum	23	<1.0	<0.5	<3	135	<0.5	6.8	<3	1.0	8.0	<0.07	<0.07
Maximum	157	19	21	210	450	25	9.9	660	350	22.5	0.3	0.3
Median	67	<0.1	1.1	10	298	<0.5	7.5	7	4.5	15.8	<0.1	<0.1
Number	188	133	194	192	193	189	194	191	172	187	189	188
2023/24 monitoring results												
29 Aug 2023	68	< 1.0	< 3	10	262	< 4	7.5	12	3.8	12.0	0.09	0.08

Parameter	Alkalinity	BODCF	BOD	COD	Condy	O&G	pH	SS	Turb.	Temp.	Total Cl_2	Free Cl_2
Unit	g/m^3 $CaCO_3$	g/m^3	g/m^3	g/m^3	µS/cm @ 25°C	g/m^3	pH	g/m^3	FNU	°C	g/m^3	g/m^3
26 Sep 2023	36	1.1	1.3	8	149	4	7.2	3	2.2	12.6	<0.07	<0.07
26 Oct 2023	73	< 1.0	2.2	8	276	< 4	7.7	6	2.9	16.7	-	0.15
7 Nov 2023	40	**3.4**	2.1	8	160	**26**	7.4	< 3	2.9	16.5	0.11	<0.07
15 Dec 2023	73	< 1.0	1.3	12	271	**6**	7.9	5	2.5	18.3	-	<0.07
17 Jan 2024	73	< 1.0	1.7	12	272	< 4	7.8	7	3	21.1	-	-
22 Feb 2024	79	< 1.0	2.3	< 6	286	**8**	7.8	7	3.1	18.3	-	-
20 Mar 2024	75	< 1.0	2.0	6	287	5	7.4	< 3	2.6	15.6	-	-
30 Apr 2024	65	<1.0	0.9	<6	247	<4	7.4	<3	1.6	12.7	-	-
14 May 2024	75	<1.0	0.7	<6	283	<4	7.7	<3	1.7	12.0	-	-
Consent limit*	-	**2.0**	**10**	-	-	**5**	**6.0 – 9.0**	**30**	-	**25**	**0.2**	**-**

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 Tāngāhoe River

Samples of the discharge to the Tāngāhoe 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 Tāngāhoe 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. Samples were not collected during the months from December 2023 to March 2024 as the discharge was blocked while Fonterra investigated ongoing exceedances of consent limits in samples collected from the pond. At no time during the 2023/24 monitoring period was stormwater directed to the ponds, all stormwater was instead sent out via the outfall.

The samples collected on 26 September 2023 both exceeded consent limits for oil and grease, while the sample collected on 7 November 2023 contained elevated BOD, oil and grease, and total chlorine.

As the limits apply to 8/10 samples, the discharge was considered to be compliant with condition 7 of the consent. At the time of writing, stormwater continues to be diverted from the ponds and Fonterra are still undertaking investigations into the cause of the exceedances.

The contaminants not assessed against consent limits were comparable with those from previous surveys.

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

Parameter	Alkalinity	BODCF	BOD	COD	Condy	O&G	pH	SS	Turb.	Temp.	Total Cl_2	Free Cl_2
Unit	g/m^3 $CaCO_3$	g/m^3	g/m^3	g/m^3	µS/cm @ 25°C	g/m^3	pH	g/m^3	FNU	°C	g/m^3	g/m^3
Summary statistics previous data (May 1996 to June 2023)												
Minimum	28	<1.0	<0.8	<6	44	<4	6.8	<2	0.58	8.1	<0.07	<0.02
Maximum	235	11	>250	220	636	240	9.8	110	48	23.5	0.5	0.4

Parameter	Alkalinity	BODCF	BOD	COD	Condy	O&G	pH	SS	Turb.	Temp.	Total Cl_2	Free Cl_2
Unit	g/m^3 $CaCO_3$	g/m^3	g/m^3	g/m^3	µS/cm @ 25°C	g/m^3	pH	g/m^3	FNU	°C	g/m^3	g/m^3
Median	125	<1.0	4.4	20	417	<4	7.9	9	4.9	16.7	<0.1	<0.1
Number	195	134	199	199	199	196	201	199	171	195	194	194
2023/24 monitoring results												
29 Aug 2023	136	< 1.0	< 3	8	432	4	7.5	11	2.0	11.3	0.11	<0.07
26 Sep 2023	168	1.3	5.5	24	469	**11**	7.5	9	8.4	13.4	0.1	0.12
26 Oct 2023	170	1.1	6.3	19	497	< 4	7.9	11	6.4	17.7	0.17	0.07
7 Nov 2023	230	2.0	**13**	52	580	**83**	8.0	31	12	16.7	**0.38**	0.37
15 Dec 2023^	-	-	-	-	-	-	-	-	-	-	-	-
17 Jan 2024^	-	-	-	-	-	-	-	-	-	-	-	-
22 Feb 2024^	-	-	-	-	-	-	-	-	-	-	-	-
20 Mar 2024^	-	-	-	-	-	-	-	-	-	-	-	-
30 Apr 2024	193	<1.0	1.6	14	596	<4	7.8	<3	2.1	13.6	-	-
14 May 2024	194	1.0	3.1	10	610	<4	8.3	7	4.4	11.6	-	-
Consent limit*	-	**2.0**	**10**	-	-	**5**	**6.0 – 9.0**	**30**	-	**25**	**0.2**	-

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

^ Sample not collected as discharge blocked off

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.

At $6g/m^3$ the oil and grease result on 22 February 2024 was just over the allowable limit of $5g/m^3$. Overall, consent compliance was maintained throughout the year, as eight of the ten samples complied with consent limits. The contaminants not assessed against consent limits were comparable with those from previous surveys.

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_2	Free Cl_2
Unit	g/m^3 $CaCO_3$	g/m^3	g/m^3	g/m^3	µS/cm @ 25°C	g/m^3	pH	g/m^3	FNU	°C	g/m^3	g/m^3
Summary statistics previous data (November 1994 to June 2023)												
Minimum	16	<1.0	<0.8	<3	39	<0.5	6.6	<2	0.8	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	4.7	20	314	<0.5	7.4	12	5.3	15.9	<0.1	<0.1
Number	196	131	200	199	199	198	201	200	169	196	197	198

Parameter	Alkalinity	BODCF	BOD	COD	Cond.	O&G	pH	SS	Turb.	Temp.	Total Cl_2	Free Cl_2
Unit	g/m^3 $CaCO_3$	g/m^3	g/m^3	g/m^3	µS/cm @ 25°C	g/m^3	pH	g/m^3	FNU	°C	g/m^3	g/m^3
2023/24 monitoring results												
29 Aug 2023	68	1.1	< 6	8	309	5	7.6	10	1.6	10.7	0.07	0.09
26 Sep 2023	53	1.4	3.6	16	234	4	7.2	3	1.2	12.4	<0.07	<0.07
26 Oct 2023	73	< 1.0	3.1	10	288	< 4	7.7	5	2.0	16.9	0.13	<0.07
7 Nov 2023	71	1.8	3.6	16	271	7	7.6	4	2.4	16	<0.07	<0.07
15 Dec 2023	76	< 1.0	0.8	10	302	< 4	7.7	< 3	0.72	18.4	-	<0.07
17 Jan 2024	77	< 1.0	8.0	28	271	< 4	7.5	13	5.0	22.2	-	-
22 Feb 2024	86	< 1.0	1.7	7	315	**6**	8.1	4	2.4	19.7	-	-
20 Mar 2024	78	< 1.0	2.6	9	304	< 4	7.8	7	3.3	15.1	-	-
30 Apr 2024	63	<1.0	1.5	10	27.9	<4	7.7	5	2.6	11.9	-	-
14 May 2024	73	<1.0	1.1	<6	31.2	<4	7.9	4	2.2	11.1	-	-
Consent limit*	-	**2.0**	**10**	-	-	**5**	**6.0 – 9.0**	**100**	-	**25**	**0.2**	-

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

2.1.3.2 Freshwater biological inspections (spring survey)

Streambed macroinvertebrates were collected from three sites in an unnamed tributary of the Tāngāhoe River in early December 2023 to investigate the effects of Fonterra's 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)

The MCI is a measure of the overall sensitivity of the macroinvertebrate community to the effects of nutrient pollution in streams. It is based on the presence/absence of taxa with varying degrees of sensitivity to pollution. The SQMCI takes into account taxa abundance as well as sensitivity to pollution, and may reveal more subtle changes in communities. Significant differences in either the MCI or the SQMCI between sites indicate the degree of adverse effects (if any) of the discharges being monitored and enable the overall health of the macroinvertebrate communities to be determined. EPT taxa quantifies the number of mayflies, stoneflies and caddisflies present in the sample, and this can also be expressed as a proportion of the total number of desirable taxa (%EPT) which is another useful statistic to gauge macroinvertebrate health.

Taxa richness was low and decreased in a downstream direction, with 11, 8 and 7 taxa present at sites 1, 2 and 3, respectively (Figure 4). The number of EPT taxa was very low, with sites 1, 2 and 3 having one, zero and one taxon present, respectively, and a percentage of EPT taxa of 9%, 0% and 14%, respectively.

MCI scores also decreased in a downstream direction, with 80, 73 and 69 units recorded at sites 1, 2 and 3, respectively. These scores categorized site 1 as having 'fair' macroinvertebrate community health and sites 2 and 3 as having 'poor' health. Site 3 recorded an MCI score significantly lower than site 1. SQMCI scores were 3.1, 4.7 and 4.3 units at sites 1, 2 and 3, respectively, with site 1 scoring a significantly lower SQMCI score than sites 2 and 3. These scores were reflective of 'poor' macroinvertebrate community health at site 1 and 'fair' health at sites 2 and 3.

Upon reviewing the macroinvertebrate fauna results, site 1 exhibited the highest MCI score, as it was the only location among sampled sites where the 'highly sensitive' Hydraenidae beetle was identified. However, despite this, site 1 recorded the lowest SQMCI score while site 2, on the other hand, achieved the highest SQMCI score. The lower SQMCI at site 1 was largely due to the 'tolerant' Ostracoda being only recorded as 'abundant' at site 2, while it was 'very abundant' at site 1. Additionally, site 2 recorded an increase in the 'moderately sensitive' Amphipoda taxon, which was 'extremely abundant' at sites 2 and 3, but 'very abundant' at site 1.

Overall, although site 1 (the upstream location) had the highest MCI score, the SQMCI score indicated that the macroinvertebrate community downstream of the Fonterra Whareroa stormwater discharges was in better health than at the upstream site. Therefore, there was no evidence that the Fonterra Whareroa stormwater discharges had significant negative effects on the macroinvertebrate community health in the unnamed tributary of the Tāngāhoe River.

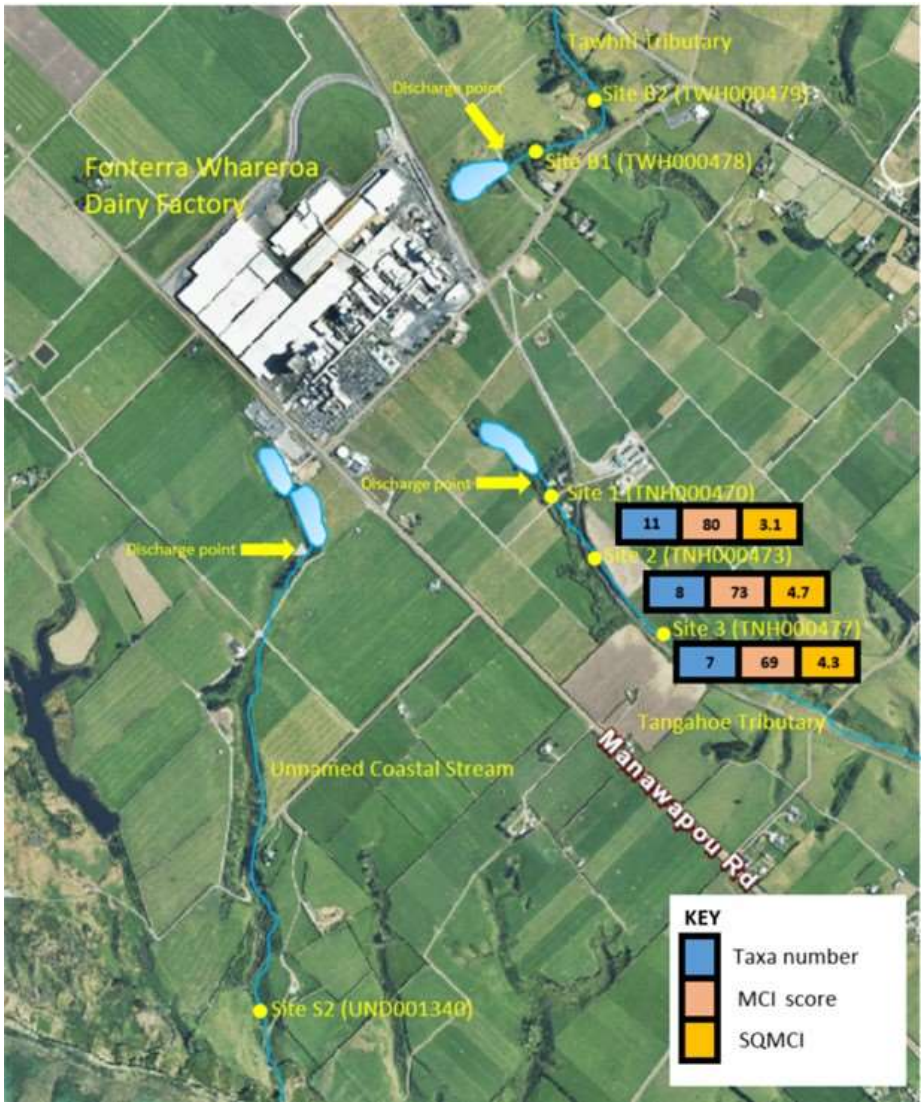

Figure 4 Spring biomonitoring sites with taxa number, MCI scores and SQMCI scores for each site

2.1.3.3 Freshwater biomonitoring (summer survey)

Streambed macroinvertebrates were collected from six sites in tributaries of the Tawhiti Stream (two sites), Tāngāhoe River (three sites) and an unnamed coastal stream (one site) in late February 2024, to investigate the effects of the 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 5).

Unnamed tributary of the Tawhiti Stream (Sites B1 and B2)

The taxa richness for the Tawhiti Stream sites was high, with 26 taxa identified at site B1 and 27 taxa at site B2. Notably, site B2 surpassed its previous highest record by one additional taxon. However, the number of EPT taxa was very low with both sites each recording one EPT taxon and 4% EPT abundance.

The MCI scores were similar between both sites, with 72 units recorded at site B1 and 70 units recorded at B2. These scores categorized both sites as having 'poor' macroinvertebrate community health. The SQMCI scores were also similar between the two sites, with site B1 scoring 2.7 units and site B2 scoring 3.0 units. These scores were reflective of 'very poor' macroinvertebrate community health at both sites.

Overall, sites B1 and B2 scored very similar or the same results in all macroinvertebrate indices, suggesting there was no evidence that the Fonterra Whareroa stormwater discharges had significant negative effects on the macroinvertebrate community health in the unnamed tributary of the Tawhiti Stream.

Unnamed tributary of the Tāngāhoe River (Sites 1-3)

Taxa richness was low and increased in a downstream direction, with 11, 13 and 14 taxa present at sites 1, 2 and 3, respectively. Further, the number of EPT taxa was very low, with sites 1, 2 and 3 having zero, three and one taxa/taxon present, respectively and a percentage of EPT taxa of 0%, 23% and 7%, respectively.

MCI scores were 62, 86 and 71 units at sites 1, 2 and 3, respectively, with site 2 recording a significantly greater MCI score compared to sites 1 and 3. These scores categorized site 2 as having 'fair' macroinvertebrate community health and sites 1 and 3 as having 'poor' health. The SQMCI scores were 2.8, 3.7 and 3.9 at sites 1, 2 and 3, respectively, with site 1 scoring a significantly lower SQMCI score compared to sites 2 and 3. These scores were reflective of 'very poor' macroinvertebrate community health at site 1 and 'poor' health at sites 2 and 3.

Overall, site 1 recorded the lowest results in all macroinvertebrate indices of the three sites in the unnamed tributary of the Tāngāhoe River, which could potentially be attributed to the stormwater discharge. However, the improvement of all metrics and similar results between sites 2 and 3 suggests that these effects were likely only limited to site 1.

Unnamed coastal stream (Site S2)

Taxa richness was moderate with 11 taxa present at site S2. Current taxa richness was lower compared to the median of control sites in lowland coastal streams in similar altitudes. Further, the number of EPT taxa was very low, with only one taxon present and an EPT percentage of 9%.

The MCI score was 98 units, which categorized site S2 as having 'fair' macroinvertebrate community health. The current MCI score was significantly greater the median of control sites in lowland coastal streams of similar altitudes. The SQMCI score was 4.9 units, categorizing this site as having 'fair' macroinvertebrate community health. The current SQMCI score was greater than the median of control sites in lowland coastal streams of similar altitudes, although not significantly.

Overall, macroinvertebrate community indices at site S2 were generally higher than the median values observed at the control sites of similar altitudes, indicating no evidence that Fonterra Whareroa stormwater discharges had significant negative effects on macroinvertebrate community health in the unnamed coastal stream.

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

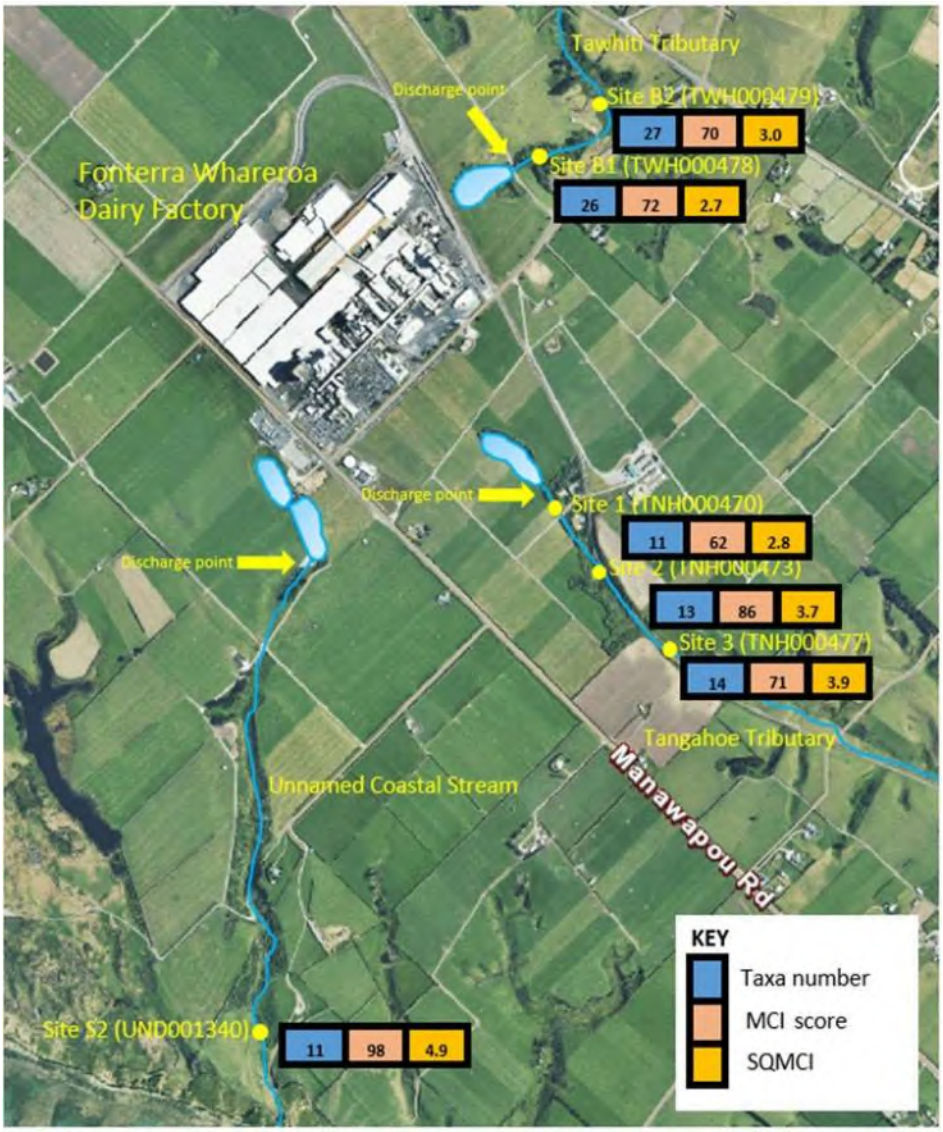

Figure 5 Summer biomonitoring sites with taxa number, MCI scores and SQMCI scores for each site

2.1.4 Wastewater

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

A discharge of up to 40,000m^3/day of dairy factory wastewater is provided for by Consent 1450-3.1. 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 2023/24

Month	Mean volume (m^3/day)	Maximum volume (m^3/day)	No. of non-compliance days (> 40,000m^3/day)
July	4,746	10,573	0
August	16,979	22,623	0
September	26,060	29,796	0
October	26,939	29,442	0
November	26,698	28,659	0
December	25,676	27,952	0
January	24,149	26,581	0
February	23,041	27,551	0
March	21,476	23,862	0
April	20,397	24,841	0
May	13,812	21,140	0
June	2,269	6,496	0

The highest maximum daily discharge volume was 29,796m^3, on 25 September 2023. The month with the highest average daily discharge volume was October 2023 (26,698m^3), coinciding with the period of highest processing throughput. As with the previous 12 monitoring periods, the maximum allowable discharge rate of 40,000m^3/day was not exceeded.

Daily discharge volumes for the 2023/24 monitoring period are presented in Figure 6. 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 7 to 9 and summarised in Table 9 and Table 10. The data shows that Fonterra were compliant with the relevant consent limits for the duration of the monitoring period.

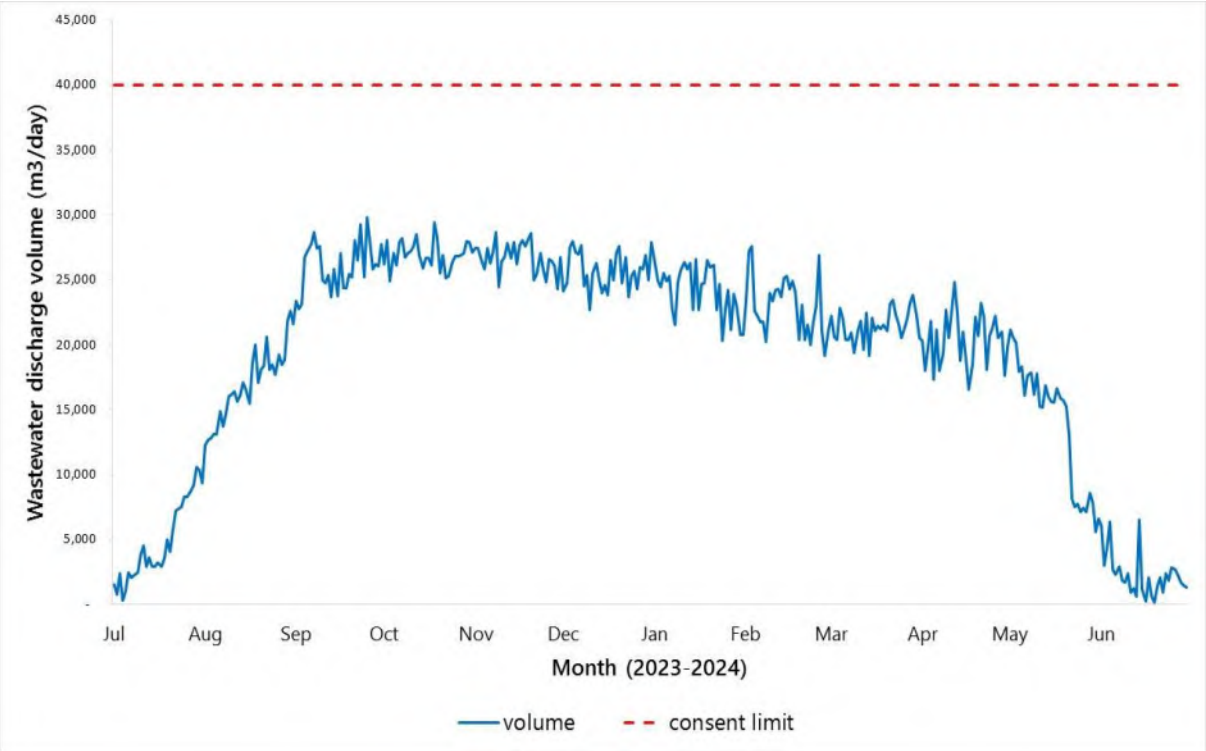

Figure 6 Daily volumes of wastewater discharged through the ocean outfall

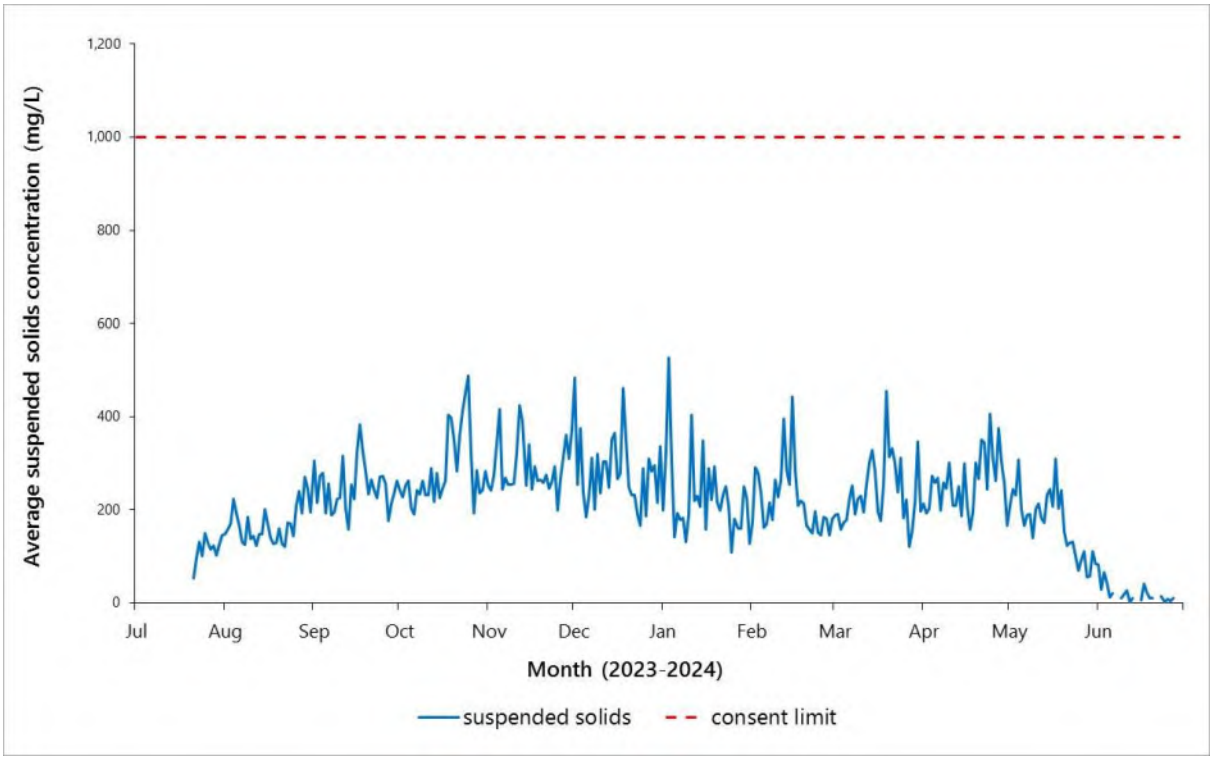

Figure 7 Daily, average concentrations of suspended solids in wastewater discharge, based on 24 hour time-proportioned composite samples

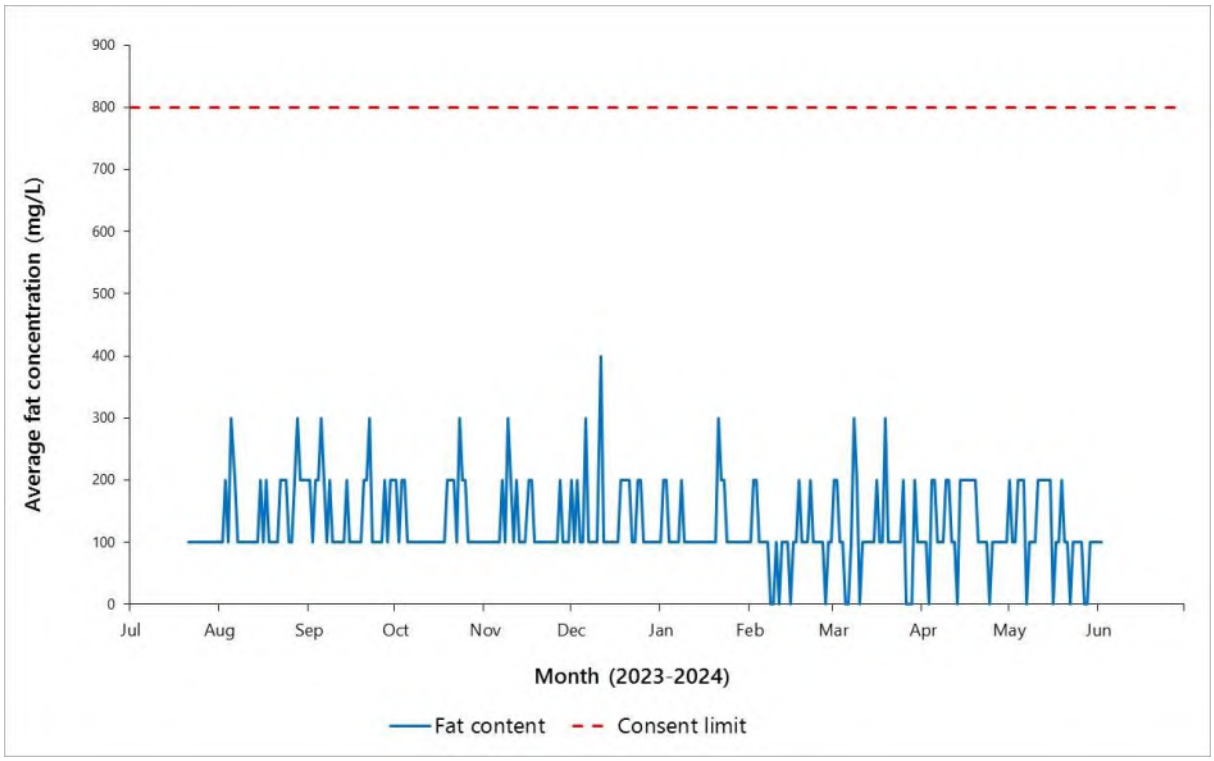

Figure 8 Daily, average concentrations of fats in wastewater discharge, based on 24 hour time-proportioned composite samples

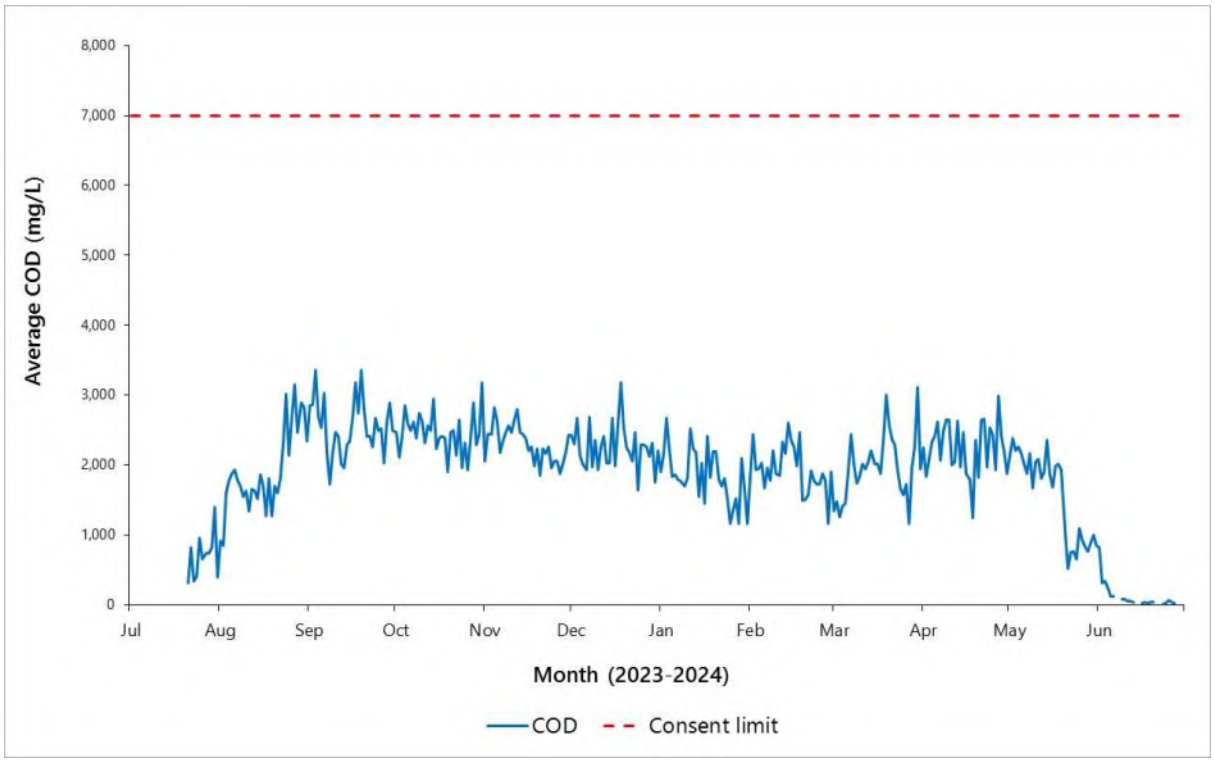

Figure 9 Daily, average COD in wastewater discharge, based on 24 hour time-proportioned composite samples

It should be noted that these data relate to 24 hour time-proportioned samples, and therefore represent daily average values. The Council analysed three 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).

Table 9 Summary of daily wastewater discharge composition data (2023/24)

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	150	0	100	100	0	688	1397	0
August	168	270	0	155	300	0	1889	3150	0
September	249	384	0	150	300	0	2547	3353	0
October	284	488	0	132	300	0	2453	3175	0
November	291	424	0	127	300	0	2296	2819	0
December	282	484	0	142	400	0	2256	3185	0
January	227	526	0	123	300	0	1846	2675	0
February	221	442	0	97	200	0	1935	2604	0
March	238	454	0	113	300	0	1964	3106	0
April	257	406	0	123	200	0	2,339	2,992	0
May	171	310	0	116	200	0	1,570	2,380	0
June*	21	82	0	-	-	-	122	813	0
Consent limit	**≤ 1,000**			**≤ 800**			**≤ 7,000**		
Total no. of breach days	0			0			0		

* Last milk to site was 28 May, only suspended solids and COD testing is undertaken during the off season

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 2009/10. For the 2023/24 monitoring year, 7,078,030m^3 of wastewater was discharged through the outfall. This was a decrease compared with 2022/23. The annual wastewater discharge volume over the previous five year period has remained below the peak in 2014/15 of 8,398,542m^3 (Table 10, Appendix III). The estimated total mass of COD, suspended solids and fats all decreased compared to the previous four years, with the estimated total mass discharged for all three parameters the lowest recorded to date (Table 10, Appendix III).

Levels of fat in the wastewater can vary depending on how much milk the site processes, the different types of products that are made each year, and how well the factories control their processes. However, such a significant reduction while the volume of wastewater has increased is likely due to the successful operation of the new DAF plant.

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^3)	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
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
2022/23	7,330,942	2,133	291	1,019	139	17,074	2,329
2023/24	7,078,030	1,564	221	892	126	13,654	1,929

* Data was collected from 21 July 2023 (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 ten occasions during the 2023/24 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 2023/24

Parameter	COD	Conductivity	*E. coli*	Enterococci	pH	SS	Temp.	O&G
Unit	**g/m³**	**µS/cm @ 25°C**	**cfu/100 ml**	**cfu/100 ml**	**pH**	**g/m³**	**°C**	**g/m³**
Summary statistics (July 2010 to June 2023)								
Minimum	10	288	<1	<3	2.0	3	13.2	<4
Maximum	8,320	9,360	>160,000	8,500,000	12.5	2,000	43.6	870
Median	2,150	2,310	50	57,000	10.6	280	30.9	120
Number	168	167	150	133	168	168	133	166
2023/24 monitoring results								
29 Aug 2023	3,600	2,680	5,400	< 100	4.3	640	28.6	144
26 Sep 2023	2,300	2,250	11,000	5,700,000	7.1	510	34.4	210
26 Oct 2023	780	900	4,100	< 100	8.6	47	28.8	22
7 Nov 2023	1,810	1,506	> 160,000	22,000,000	6.0	182	33.1	85
15 Dec 2023	2,800	2,820	14,000	2,400,000,000	5.3	230	34.4	75
17 Jan 2024	2,200	1,943	< 180	36,000	4.0	210	34.4	90
22 Feb 2024	1,790	4,510	< 180	28,000	12.0	164	36.0	48
20 Mar 2024	1,800	1,864	1,300	31,000,000	4.3	121	30.3	42
30 Apr 2024	2,000	3,030	<18	46,000	11.8	260	29.6	83
14 May 2024	2,700	816	<180	<1,000	1.9	420	32.7	174
Consent limit	**7,000**	-	-	-	-	**1,000**	-	**800**

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); suspended solids, COD and fat (Oil & Grease), 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, with a new minimum of 1.9 in the May sample. The results collected during the year for COD were within the range of previous results and generally close to the historical median.

2.1.4.3 Discharge inter-laboratory comparisons

An inter-laboratory comparison was performed on three occasions during the 2023/24 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 (2023/24)

Parameter	Unit	7 November 2023			15 December 2023			30 April 2024		
		TRC	Fonterra	Agree	TRC	Fonterra	Agree	TRC	Fonterra	Agree
COD	g/m^3	2,100	2,337	✓	1,910	2,667	*	2,000	1,882	✓
pH	pH	6.2	9.4	*	5.8	6.1	✓	5.0	10.7	**
Suspended solids	g/m^3	220	268	✓	280	364	*	430	166	**

Note: ✓ = acceptable agreement
* = within 10% - 25% difference from the mean
** = significantly different (i.e. > 25% difference from the mean)

Of the nine comparisons, four were within the acceptable agreement range, while three were within 10-25% of the mean. The other two results 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 not great, especially with regards to pH. Variations are potentially due to the way the samples are collected and also how they are stored prior to sending to Hills laboratory. It is recommended that this process is reviewed to make sure it is being carried out correctly and consistently.

2.1.5 Marine ecological monitoring

2.1.5.1 Intertidal reef 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 (between 16 January and 15 February, post-peak season) (Figure 10). 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 11 and 12.

Figure 10 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 2024 summer survey results. The site with the lowest species richness and diversity results was Pukeroa Reef, one of the potential impact sites. However, this site still presented significant sand inundation at the time of the survey (21%). Nevertheless, the sand coverage decreased from the previous monitoring period (36% in summer 2023), which was likely the driver of increase in richness and diversity compared to the previous monitoring period. The potential impact site located at 350 m NW of the outfall had very similar species richness and diversity to the control site at Waihi Reef. The other potential impact site located 200m SE of the outfall showed the highest values for species richness and diversity observed in this monitoring period.

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.

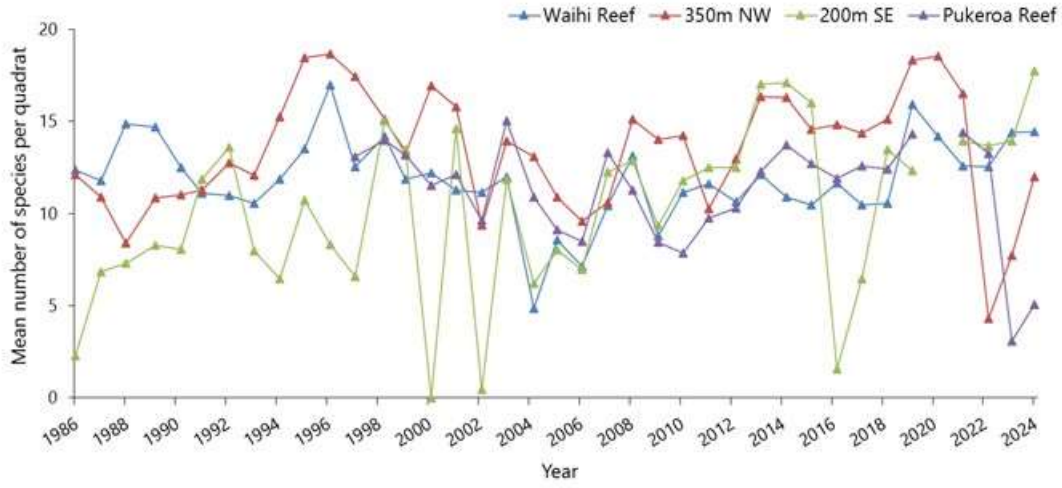

Figure 11 Mean number of species per quadrat for summer surveys (1986-2024)

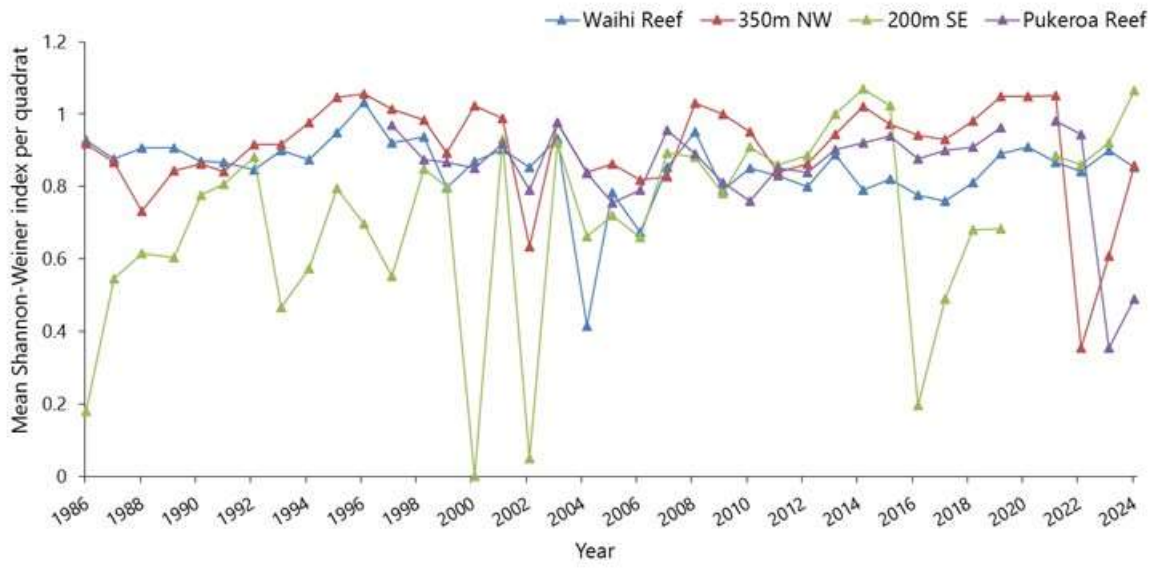

Figure 12 Mean Shannon-Weiner Indices per quadrat for summer surveys (1986-2024)

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 125mg/m^3. A separate limit is in place for Powder-3, whereby powder emissions from this facility shall not exceed 150mg/m^3.

Fonterra's independent consultant, Verum Group, carried out powder emission measurements on dryer exhaust stacks between 25 September 2023 and 29 February 2024. 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 4103-2.3.

Table 13 Emission source analysis results for 2023/24 (special condition 7)

Date	Plant		Emission concentration (mg/m^3 0°C, 1 atm, dry gas)	Emission control
25 September 2023	Alamin Dryer	Dryer stack	0.5	Baghouse
26 & 29 February 2024	Casein	Dryer stack 1	38	Dual cyclones
		Dryer stack 2	26	Dual cyclones
6 December 2023	Powder-2 (SMP)	Dryer stack	7.6	Baghouse
29 February 2024	Powder-4 (MPC)	Dryer stack	8.7	Wet Scrubber
6 December 2023	Powder-4 (SMP)	Dryer stack	11	Wet Scrubber
27 September 2023	Powder-5 (small stacks)	East stack	100	Dual cyclones
		West stack	45	Dual cyclones

Date	Plant		Emission concentration (mg/m^3 0°C, 1 atm, dry gas)	Emission control
27 September 2023	Powder-5 (large stacks)	North stack	69	Dual cyclones
		South stack	55	Dual cyclones
25 September 2023	WPC dryer	Exhaust	1.4	Baghouse
Consent limit		**125**		

Table 14 Emission source analysis results for 2023/24 (special condition 8)

Date	Plant (product)		Emission concentration (mg/m^3 0°C, 1 atm, dry gas)	Emission control
27 March 2024	Powder-3 (WMP)	East stack	30	Cyclone
		West stack	33	
		Fluid Bed Exhaust	21	
27 February 2024	Powder-3 Dryer (BMP)	East stack	70	
		West stack	75	
		Fluid Bed Exhaust	**180**	
Consent limit		**150**		

The results from the majority of the dryers were below the emissions concentration limit based on the testing that was undertaken (Table 13, Table 14). The results from the Powder-3 Dryer fluid bed exhaust exceeded the consent limit of 150mg/m^3. Further investigation by Fonterra found that the dryer was malfunctioning and this was fixed.

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 2023. 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 13.

Figure 13 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 130mg/m^2/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^2/day) for each monitoring site during 2023

Site ID	Run 1	Run 2	Run 3	Run 4	Run 5	Run 6
	8 to 28 August	28 Aug to 18 September	18 Sep to 9 October	9 to 31 October	31 Oct to 20 November	20 Nov to 11 December
AIR002409	72	124	**328**	**263**	94	**226**
AIR002416	47	7	50	30	33	28
AIR002422	47	37	63	30	13	66
AIR002424	50	8	31	35	33	33
AIR002426	17	30	37	7	14	32
Council guideline	**130mg/m^2/day**					

As expected, the highest TDMP values were recorded at the staff car park entrance (AIR002409) (Table 15, Figure 14). 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.

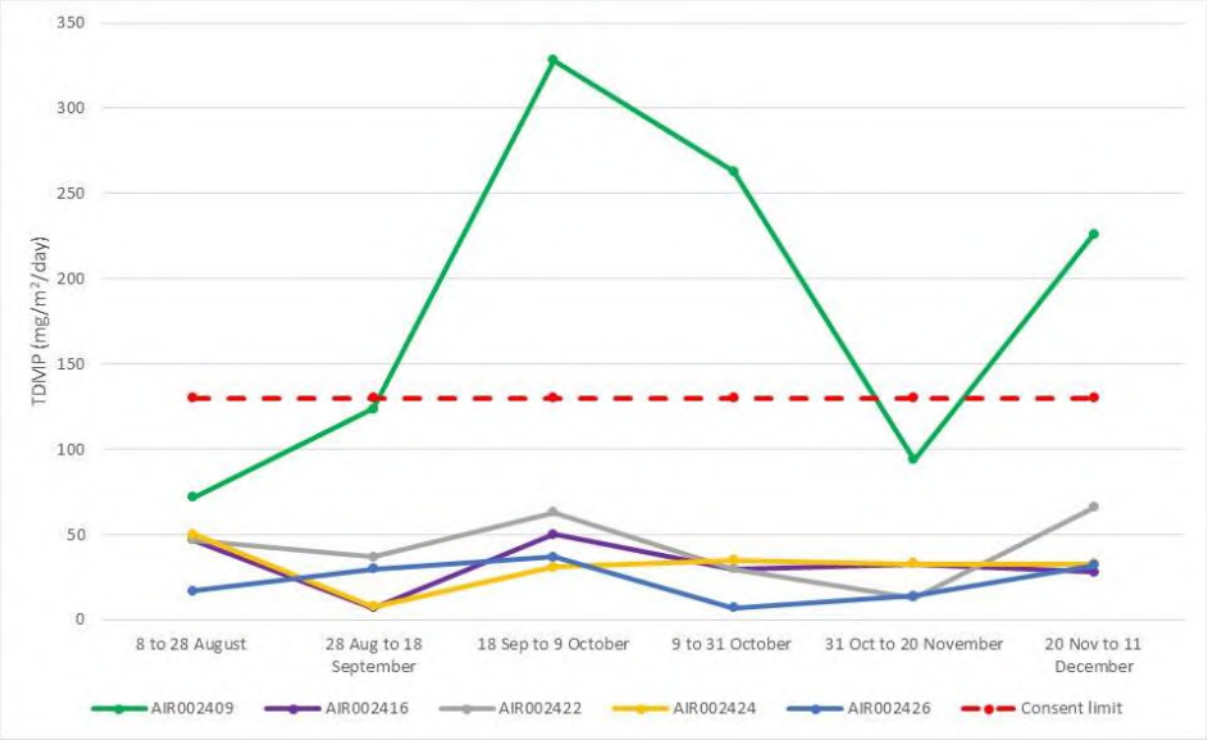

Figure 14 Milk powder fallout at air deposition sites surrounding Whareroa (August to December 2023)

2.2.4 Inhalable particulate (PM10) monitoring

Fine particulate less than 10µm in diameter (PM_{10}) and less than 2.5µm ($PM_{2.5}$) can enter deep into the lungs significantly reducing the exchange of gases across the lung walls. At high concentrations these can cause health impacts ranging from increased susceptibility to asthma and respiratory illness through to increased risk of premature death. PM_{10} and $PM_{2.5}$ come from multiple natural and anthropogenic sources including sea spray, crustal matter, and in particular, the combustion of fossil fuels.

Special condition 10 of Consent 4103 sets a limit on the emissions of PM_{10} to the atmosphere from the site to a maximum of 50µg/m³ (24-hour average). This is also the Ambient Air Quality Standards (AAQS) limit.

During the reporting period, a "DustTrak" aerosol monitor was deployed on two occasions (28 February and 22 April 2024) in the vicinity of the dairy complex, with the instrument placed in a down-wind position at the start of the deployment. Unfortunately, neither of the deployments lasted for the required 24 hours due to battery issues. The results from the sampling runs are shown in Table 16.

The maximum concentrations of PM_{10} and $PM_{2.5}$ recorded during monitoring at Fonterra Whareroa were 36µg/m³ and 35µg/m³ respectively, while the 99th percentile of results was 26µg/m³ for PM_{10} and 25µg/m³ for $PM_{2.5}$. While a 24-hour average to compare against the AAQS can't be derived from the limited data, based on the 99 percentile results off concentrations of PM_{10} and $PM_{2.5}$, the relevant health assessment criteria were not likely to have been exceeded during the deployment.

Table 16 Results of fine particulate monitoring at Fonterra Whareroa

Pollutant	Maximum (µg/m³)		99%ile (µg/m³)		Mean (µg/m³)	
	Run 1	Run 2	Run 1	Run 2	Run 1	Run 2
PM_{10}	17	36	16	26	12	14
$PM_{2.5}$	15	35	15	25	10	13

2.2.5 Nitrogen dioxide

A portion of total NO_x includes nitrogen dioxide (NO_2) which can cause adverse health impacts as a result of short and long-term exposure durations. Short-term exposure to high concentrations can result in the inflammation of airways which may exacerbate asthma and other pre-existing respiratory problems. Long-term exposure to NO_2 may adversely impact lung development in children and may lead to the development of asthma. The risk of developing certain forms of cancer and premature death also increases with long-term exposure to NO_2.

As a conservative approach the raw NO_x data are used as a proxy for NO_2 and the calculated time weighed averages (TWAs) are compared to the relevant health-based assessment criteria for NO_2 in Table 17 below.

Table 17 NOx levels and theoretical 1 hour and 24 hour maxima for each air monitoring site at Fonterra (2023/24)

18 Jan – 8 Feb 2024	NOx µg (Lab)	1h µg/m³ (Cal)	24h µg/m³ (Cal)
AIR002410	1.0	3.5	1.8
AIR002411	0.3	1.0	0.55
AIR002412	0.3	1.0	0.55
AIR002413	0.3	1.0	0.55
Consent limit		**200**	**100**

The calculated total NO_x measured at each monitoring site was reported as between 0.3µg (which is the laboratory minimum level of detection) and 1.0µg. The calculated 1-hour TWA for the sites was between 1.0-3.0µg/m³, which is substantially lower than the AAQS limit of 200µg/m.

Similarly, the calculated 24-hour average TWA concentration at each of the monitoring locations was comparatively low with the concentrations calculated to be between 0.55-1.8µg/m³. These results are significantly lower than the NO_2 AAQG of 100µg/m³.

Only a portion of NO_X is NO_2 and therefore the actual concentration of NO_2 at the monitoring locations will be less than reported. The 1-hour and 24-hour results are likely to be largely representative of background concentrations in rural areas.

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 2023/24 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
22-Feb-2024	During routine monitoring the oil and grease level in the Tawhiti pond exceeded the limit of 5g/m^3. The consent allows for 2/10 samples to exceed this level, this was the third exceedance.	N	Explanation requested	A letter requesting an explanation was sent and a response received. The subsequent samples collected in March, April and May all complied fully with consent limits. At the time of the samples being collected site stormwater was being pumped from the contingency pond to the wastewater system. Further investigation by Fonterra found a leak in the contingency pond and this was repaired.
12-Mar-2024	Self-notification was received from Fonterra concerning particulate emission concentrations that had contravened resource consent conditions. The fine particle reading from one of the stacks during annual testing on 27 February 2024 was 180mg/m^3 (consent limit is 150mg/m^3).	N	Explanation requested	Further investigation by Fonterra found that the breach was a result of a malfunction which has subsequently been fixed. No further action was taken by Council.

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.

Two incidents occurred during the year which resulted in further action by Council. Routine monitoring identified exceedances of various consented limits in the Tawhiti stormwater pond discharge. As three of the ten samples had results which did not comply with consent conditions the discharge was considered to be non-compliant with condition 7 of the consent. Fonterra was asked to provide an explanation for the exceedances and a letter of explanation was received. Fonterra have since identified a leak in the contingency pond that was allowing stormwater to bypass the first two stormwater ponds. This has been repaired and will hopefully resolve the issue.

Self-notification was received regarding high particulate emissions from one of the stacks. A malfunction was discovered and immediately resolved with no further action required by Council.

3.1.2 Provision of data and reports

Consent 0047-4.3

Condition 24 requires provision of an Annual Performance Data Summary Report (annually before 31 August). This was provided.

Condition 25 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 28 requires submission of a 'Financial Contribution and Environmental Enhancement report (annually, before 1 August). This was not submitted during the 2023/24 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 was submitted on 22 December 2023.

Condition 16 requires that 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 4103-2.3

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 latest report was produced in August 2018. However, this was only received by Council in December 2020. The report was reviewed and was assessed as not meeting the requirements of the consent. Specifically, there was 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. The final report was submitted and accepted as satisfactory in July 2023. The next report is due in March 2028.

Fonterra have established 'Project Kanuka' at the Whareroa site, the purpose of which is to manage and improve particulate emissions from Powder 3, 4 and 5 plants. This project is well underway with many improvements now implemented.

Consent 5013-2.0 (outfall pipeline and maintenance)

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. Visual inspections and maintenance work were undertaken in early 2024. Reports detailing the work undertaken and recommending future maintenance were received.

Condition 3 requires Fonterra to provide a Maintenance Work Plan describing the work to be carried out, how the work will be undertaken and the programme for completion of the work. This was received for the 2023/24 monitoring period.

Consent 6273-1.1

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 submitted in December 2023.

3.1.3 Monitoring and management plans

Resource Consents 0047-4.3 (water abstraction) and 1450-3.1 (wastewater discharge) contain four special conditions relating to Tangata Whenua Involvement Plans (TWIPs).

0047-4.3

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 2018/19 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 2019/20 year in consultation with Tangata Whenua. The monitoring is to focus on fish and macroinvertebrate communities within the Tāngāhoe River and Tawhiti Stream, as required by condition 16 (in addition to conditions in Resource Consents 4927-2.0 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 2018/19 monitoring year.

3.1.4 Financial contributions and the Environmental Enhancement Fund

Condition 25 of Consent 0047-4.3 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 Tāngāhoe River Catchment that have been agreed to by the Kaitiaki Group and Council. This contribution was received during the 2023/24 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 Tāngāhoe 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 Tāngāhoe 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 Tāngāhoe Catchment. A report 'Tāngāhoe 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.

Phase two of the project was delayed due to other work needing to take priority but got underway in May 2024 with SLR Consulting engaged to:

- Visually assess the Tawhiti Stream features identified in the 2021 report.
- Establish what fish species are currently present upstream of each feature using environmental DNA.
- Assess the cut off meanders with regards to the presence/absence and condition of any induced wetlands.
- Preparation of a brief report detailing the results of the above and presenting potential remediation options.

Seven features in the stream were assessed via site visits on 27 and 28 May 2024. Samples were collected at each site to test for eDNA. A report 'Tawhiti Stream Fish Passage Assessment of instream structures and features' was produced. The report found that there are two significant barriers to fish passage located in the lower reaches of the Tawhiti Stream which substantially influence the species composition of the fish communities upstream. It was recommended that these barriers are investigated further, to inform the decision-making process about how they can be best remediated. Phase three of the project will be discussed at the next three-monthly Kaitiaki Group meeting. A copy of the full report is available from the Council on request.

3.2 Environmental effects of exercise of consents

3.2.1 Abstractions

Fonterra was 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, Tāngāhoe and coastal stormwater ponds was undertaken on ten occasions over the 2023/24 monitoring year. The discharge from the Tawhiti stormwater pond exceeded various parameters (filtered carbonaceous BOD and oil and grease) on three occasions and was deemed to be non-compliant with Consent 3907-3. It is noted that all site stormwater was diverted to waste throughout the monitoring period, with no discharges to the pond.

At the discharge from the coastal pond, one parameter (oil & grease), exceeded the consent limit on one occasion. As exceedances in more than two samples are required for consent non-compliance, this discharge is deemed to have been compliant throughout 2023/24.

At the discharge from the Tāngāhoe ponds, two samples contained exceedances in various parameters (chlorine, oil and grease and BOD) As exceedances in more than two samples are required for consent non-compliance, this discharge is deemed to have been compliant throughout 2023/24.

Surveys was carried out at three sites in the Tāngāhoe River and three sites in the Tawhiti Stream in March 2024 assess the potential impacts of the consented water abstraction and discharges on the macroinvertebrate communities. Overall, macroinvertebrate communities in the Tāngāhoe River and a Tawhiti Stream were largely similar between sites. It is possible that the water abstraction on the Tāngāhoe River had affected the macroinvertebrate community, although results suggest that this is localised. For the Tawhiti Stream, it was likely that unfavourable habitat was contributing to the low scores; however, with a small dataset this is difficult to determine.

A survey was carried out at three sites in an unnamed tributary of the Tāngāhoe River in early December 2023 to investigate the effects of the Fonterra dairy factory stormwater discharge on macroinvertebrate health. Overall, although site 1 (the upstream location) had the highest MCI score, the SQMCI score indicated that the macroinvertebrate community downstream of the Fonterra Whareroa stormwater discharges was in better health than at the upstream site. Therefore, there was no evidence that the Fonterra Whareroa stormwater discharges had significant negative effects on the macroinvertebrate community health in the unnamed tributary of the Tāngāhoe River.

The summer survey undertaken in six sites in tributaries of the Tawhiti Stream (two sites), Tāngāhoe River (three sites) and an unnamed coastal stream (one site) found there was no evidence that the Fonterra Whareroa stormwater discharges had significant negative effects on the macroinvertebrate community health in the unnamed tributary of the Tawhiti Stream or in the unnamed coastal stream. Minor localised adverse effects were evident in the unnamed tributary of the Tāngāhoe River.

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 ten wastewater grab samples and undertook three 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 most Council inspections, and an intertidal ecological survey was undertaken.

The limit on the daily volume of wastewater discharged was not exceeded during the 2023/24 season. Results of composite monitoring by Fonterra found that COD, fat and suspended solids concentrations remained compliant throughout the year.

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

Table 19 Wastewater discharge compliance history 2016-2024

Year	Discharge volume	Suspended solids	Fat	COD	Number of non-compliance days
2015/16	-	12	2	-	14
2016/17	-	-	-	-	0
2017/18	-	1	2	-	2
2018/19	-	-	1	-	1
2019/20	-	-	-	-	0
2020/21	-	-	-	-	0
2021/22	-	-	-	-	0
2022/23	-	1	-	-	1
2023/24	-	-	-	-	0

Wastewater grab samples were collected by the Council on ten 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 1450-3.1.

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 2023/24 monitoring period, emissions to air were monitored with visual inspections, odour surveys, testing of particulate emissions, gauging of milk powder deposition, and measurement of ambient nitrogen concentration.

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

The majority of emission source analysis (stack testing) results of particle emissions from the drier facilities were compliant with consent conditions. One result exceeded the consent limit. This was found to be the result of a malfunction, which was fixed.

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.

Inhalable particulate (PM_{10}) monitoring concluded that levels of PM_{10} were likely to be below relevant air quality guidelines.

Fonterra remained compliant with NO_x limits stipulated in Consent 6273-1.1 during the 2023/24 monitoring period. Ambient NO_x concentrations at Fonterra Whareroa were found to be low.

3.3 Evaluation of performance

A tabular summary of the consent holder's compliance record for the year under review is set out in Tables 20-36.

Table 20 Summary of performance for Consent 0047-4.3

Purpose: To take water from the Tawhiti Stream and the Tāngāhoe River for various plant purposes		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
1. Combined total abstraction limit of 30,000m^3 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 800L/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
4. Reduced minimum flow in Tāngāhoe River for maximum of 21 days	Council's telemetered site, not required	N/A
5. Maintenance of minimum flows during an emergency situation of no more than 48 hours	Council's telemetered sites	Yes
6. Report requirement following an emergency situation	Liaison with consent holder	Yes
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 previously installed at Tāngāhoe intake. Screens installed at Tawhiti intake during March 2023	Yes
10. Monthly report required regarding rationale for use of Tawhiti intake.	Liaison with consent holder, no longer required once condition 9 has been met	N/A
11. Certification of water meters and data loggers	Equipment inspected by Council	Yes
12. Preparation, implementation and compliance with all plans required by consent	Kaitiaki Group meetings, self-reporting, Council monitoring	Yes
13. Preparation and submission of Tangata Whenua Involvement Plan (TWIP)	Tangata Whenua Involvement Plan (version 2) provided to Council previously	Yes
14. Purpose of the TWIP	Council review	Yes
15. Minimum requirements of the TWIP	Council review	Yes
16. Provision for consent holder review and amendment of TWIP	Review not undertaken during monitoring period	N/A
17. Monitoring Plan requirement	Monitoring undertaken as per plan	Yes
18. Provision of Monitoring Plan to Fish and Game for review	Liaison with consent holder	Yes
19. Implementation and compliance with Monitoring Plan	Liaison with consent holder	Yes
20. Preparation of Low Flow Contingency Plan	Plan received April 2018	Yes
21. Recording and reporting of turbidity, abstraction volumes and river flow in accordance with consent	Council review	Yes

Purpose: To take water from the Tawhiti Stream and the Tāngāhoe River for various plant purposes		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
22. Consent holder to notify Council if measuring or recording equipment malfunctions	No issues during monitoring year	N/A
23. Equipment to be readily accessible for Council Officers to inspect and verify	Council inspection	Yes
24. Provision of Annual Performance Data Summary Report by 31 August	Report received	Yes
25. Water Efficiency BPO Report	Report due June 2021, not received	**No**
26. Provision of financial contribution for the mitigation of adverse environmental effects	Payment for 2023/24 year received	Yes
27. Specification for financial contribution	Council review	Yes
28. Annual provision of Financial Contribution and Environmental Enhancement Report (FCEER)	Report not received	**No**
29. 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		**High** **Improvement required**

N/A = not applicable

3.3.1 Water discharges

Table 21 Summary of performance for Consent 1450-3.1

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?**
1. Discharge to only occur through outfall and diffuser	Diving inspections	Yes
2. Discharge volume not to exceed 40,000m^3 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
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 provided	Yes
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) previously provided to Council	Yes
11. Purpose of the TWIP	Council review	Yes
12. Minimum requirements of the TWIP	Council review	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?**
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, update requested but not provided	**No**
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	**No**
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	Not required	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		**High** **Improvement required**

N/A = not applicable

Table 22 Summary of performance for Consent 3902-3.0

Purpose: To discharge stormwater into an unnamed tributary of the Tāngāhoe River		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
1. Adopt best practicable option to prevent or minimise adverse effects	Site inspections, liaison with consent holder	Yes
2. Catchment area not to exceed 10ha	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 – several exceedances. Abatement notice issued	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 Overall assessment of administrative performance in respect of this consent		**High** **High**

N/A = not applicable

Table 23 Summary of performance for Consent 3907-3.0

Purpose: To discharge stormwater into an unnamed tributary of the Tawhiti Stream		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
1. Adopt best practicable option to prevent or minimise adverse effects	Site inspections	Yes
2. Catchment area not to exceed 13ha	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	**No. Three samples exceeded consent limits**
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 Overall assessment of administrative performance in respect of this consent		**Improvement required** **High**

N/A = not applicable

Table 24 Summary of performance for Consent 4133-3.1

Purpose: To discharge stormwater to the unnamed coastal stream		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
1. Adopt best practicable option to prevent or minimise adverse effects	Site inspections	Yes
2. Catchment area not to exceed 21ha	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
Overall assessment of consent compliance and environmental performance in respect of this consent Overall assessment of administrative performance in respect of this consent		**High** **High**

N/A = not applicable

Table 25 Summary of performance for Consent 4927-2.0

Purpose: To discharge river silt and sand to the Tawhiti Stream		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
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 option for review in June 2027	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		**N/A** **N/A**

N/A = not applicable

Table 26 Summary of performance for Consent 5148-2.0

Purpose: To discharge river silt and sand into the Tāngāhoe River		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
1. No adverse effects beyond mixing zone	Fish and biomonitoring surveys	Fish survey inconclusive
2. Preparation of a Monitoring plan	Monitoring plan prepared	Yes
3. Implementation and compliance with Monitoring plan	Liaison with consent holder	Yes
4. Optional review provision re. environmental effects	Next option for review in June 2027	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		**Good** **High**

N/A = not applicable

3.3.2 Coastal permits

Table 27 Summary of performance for Consent 5013-2.0

Purpose: To occupy CMA with, and maintain, a rock wall, outfall and diffuser structure		
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 received	Yes
3. Provision of Maintenance Work Plan, if necessary	Maintenance Work Plan received	Yes
4. Confirmation of completion of works, if undertaken	Liaison with consent holder	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 Overall assessment of administrative performance in respect of this consent		**High** **High**

N/A = not applicable

3.3.3 Air discharges

Table 28 Summary of performance for Consent 4103-2.3

Purpose: To discharge emissions to air from the manufacture and processing of milk products		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
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 provided in July 2023, next due in March 2028	Yes
5. Consent authorises discharges to air according to application	Consent holder liaison	Yes
6. Use of most appropriate process equipment and controls to minimise emissions and impacts	Consent holder liaison	Yes
7. Powder emissions to atmosphere <125mg/m^3 (subject to condition 8)	Emission source analysis (stack testing)	Yes
8. Powder emissions to atmosphere from Powder-3 <150mg/m^3	Emission source analysis (stack testing)	**One result exceeded the limit**
9. Limits on depositions beyond boundary	Inspections, deposition gauging	Yes
10. PM_{10} not to exceed 50µg/m^3	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		**Good** **High**

N/A = not applicable

Table 29 Summary of performance for Consent 5044-2

Purpose: To discharge emissions into the air from the disposal of laboratory wastes, and stormwater and sump cleanings onto and into land		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
1. Adoption of BPO to minimise adverse effects on the environment	Liaison with consent holder	Yes
2. Exercise of consent in accordance with application	Site inspections, liaison with consent holder	Yes
3. Approval of a management plan	Air Management Plan March 2019 (version 4) – supplied	Yes

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

N/A = not applicable

Table 30 Summary of performance for Consent 6257-1.1

Purpose: To discharge emissions to air from dual fuel boilers		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
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 60m	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 100mg/Nm^3	Consent not yet exercised	N/A
11. Sulphur dioxide discharges not to exceed 385kg/hr	Consent not yet exercised	N/A
12. Discharges of particulate not to exceed 43kg/hr	Consent not yet exercised	N/A
13. Discharges of nitrogen oxides not to exceed 319kg/hr	Consent not yet exercised	N/A
14. Maximum ground level concentration of sulphur dioxide not to exceed 350mg/m^3	Consent not yet exercised	N/A
15. Maximum ground level concentration of nitrogen dioxide not to exceed 350mg/m^3	Consent not yet exercised	N/A
16. Maximum ground level concentration of PM_{10} not to exceed 50mg/m^3	Consent not yet exercised	N/A

Purpose: To discharge emissions to air from dual fuel boilers		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
17. 17. Maximum ground level concentration of each or any metal not to exceed guideline values	Consent not yet exercised	N/A
18. 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
29. Review of conditions	Next optional review in June 2028	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		**N/A** **N/A**

N/A = not applicable

Table 31 Summary of performance for Consent 6273-1.1

Purpose: To discharge emissions into the air from 'Cogen I' and 'Cogen II' co-generation energy generating plants		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
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. Report received December 2023	Yes
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 < 350µg/m^3 (1 hour exposure) or < 125µg/m^3 (24-hour exposure)	Not monitored during period under review	N/A
9. Carbon monoxide < 10mg/m^3 (8-hour exposure) or <30mg/m^3 (one-hour exposure)	Not monitored during period under review	N/A
10. Sum of nitrogen oxides not to exceed 48g/s	Not monitored during period under review	N/A

Purpose: To discharge emissions into the air from 'Cogen I' and 'Cogen II' co-generation energy generating plants		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
11. Nitrogen dioxide not to exceed 200µg/m^3 (one-hour average) or 100µg/m^3 (24-hour average)	Not monitored during period under review	N/A
12. PM_{10} not to exceed 50µg/m^3 (24-hour average)	Not monitored during period under review	N/A
13. Control of emissions so that max concentration of any contaminant is not increased by more than 1/30th of the relevant Workplace Exposure Standard	Not monitored during period under review	N/A
14. Minimum height of discharge 17.5m 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 Overall assessment of administrative performance in respect of this consent		**High** **High**

N/A = not applicable

Table 32 Summary of performance for Consent 7465-1

Purpose: To discharge emissions into the air from the combustion of waste wood packaging		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
1. Only untreated timber packaging to be burned	Consent no longer exercised	N/A
2. Total volume not to exceed 4m^3	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
Overall assessment of consent compliance and environmental performance in respect of this consent Overall assessment of administrative performance in respect of this consent		**N/A** **N/A**

N/A = not applicable

3.3.4 Discharges of waste to land

Table 33 Summary of performance for Consent 5036-2

Purpose: To discharge waste material onto land		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
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 50m of bore, 25m of surface water, 100m 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 50mm 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
18. Optional review provision re. environmental effects	Consent expired in June 2022	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		**High** **High**

N/A = not applicable

Table 34 Summary of performance for Consent 9908-1.1

Purpose: To discharge dairy liquids onto land and the associated emissions to air, in various locations throughout the Taranaki region		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
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. Submit amended Dairy Liquids Spreading Management Plan	Dairy Liquids Spreading Management Plan June 2024 (version 13) – supplied to Council	Yes
3. Exercise of consent in accordance with Dairy Liquids Spreading Management Plan	Liaison with consent holder	Yes
4. Notify the Council of the intent to discharge dairy liquids to land prior to July 15 annually	Notification provided	Yes
5. Discharge shall not result in any liquids ponding for more than 30 minutes	Not monitored during year under review, no complaints received	N/A
6. Discharge shall not result in any liquids reaching surface water, any subsurface drainage system or any adjacent property	Liaison with consent holder	Yes
7. Best practicable option to minimise environmental effects	Not monitored during year under review, no complaints received	N/A
8. No spray drift beyond the boundary of the property	Not monitored during year under review, no complaints received	N/A
9. Sodium adsorption ratio not exceeding 15	Not monitored during year under review	N/A
10. Nitrogen loading rate shall not exceed limits provided in consent	Not monitored during year under review	N/A
11. Discharge shall not occur within the minimum buffer distances provided in consent	Consent holder liaison, farm register and data review	Yes
12. Consent holder to determine locations of urupa or marae that require buffer zones	Liaison with consent holder	Yes
13. No discharge within, adjacent to or directly impacting on any Statutory Acknowledgement Area	Consent holder liaison, farm register and data review	Yes
14. No offensive or objectionable odour beyond property boundary	Not monitored during year under review, no complaints received	N/A
15. Notify the Council within 48 hours of any accidental discharge	Liaison with consent holder, no accidental discharge during monitoring period	Yes
16. Maintain a complaints register	Liaison with consent holder, no complaints received during the year	Yes
17. Notify the Council of event having significant adverse effect on water quality	No such events occurred during the year	Yes
18. Record of application sites	Not requested during period under review	N/A
19. Farm register	Land Information Register v6 June 2024	Yes
20. Consent shall lapse in 2019 if not exercised	Consent has been exercised	N/A
21. Optional review of consent	Next optional review in June 2026	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		**High**
Overall assessment of administrative performance in respect of this consent		**High**

N/A = not applicable

3.3.5 Land use permits

Table 35 Summary of performance for consents 5845-2.0 and 11264-1.0

Purpose: To use a gabion weir and associated fish pass on the Tawhiti Stream for water intake purposes (Consent 5845-2.0 To dam water in the Tawhiti Stream for water intake purposes (Consent 11264-1.0)		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
1. Exercise of consent in accordance with application	Liaison with consent holder	Yes
2. Height of weir not to exceed 0.47m	Weir height established	Yes
3. Structure to provide for the passage of fish	Visual assessment and fish survey	**Inconclusive**
4. Weir to be maintained to prevent flooding and erosion	Visually assessed as compliant	Yes
5. Weir to be maintained so that it remains fit for purpose	Visually assessed as compliant	Yes
6. Optional review of consent	Next optional review in June 2028	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		**High** **High**

N/A = not applicable

Table 36 Summary of performance for Consent 10208-1.0

Purpose: To construct, place and use a water intake structure in the bed of the Tāngāhoe River		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
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
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

Purpose: To construct, place and use a water intake structure in the bed of the Tāngāhoe River		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
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 Overall assessment of administrative performance in respect of this consent		**N/A** **N/A**

N/A = not applicable

Table 37 Evaluation of environmental performance over time

Year	High	Good	Improvement req	Poor
2019/20	-	-	✓	-
2020/21	-	-	✓	-
2021/22	-	-	✓	-
2022/23	-	-	✓	-
2023/24	-	-	✓	-

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 2022/23 Annual Report

In the 2022-2023 Annual Report, it was recommended:

1. THAT in the first instance monitoring of air emissions from the Whareroa plant in the 2023/24 year continues at the same level as in 2022/23.
2. THAT, monitoring of water discharges (including stormwater) and abstractions for the Whareroa plant in the 2023/24 year continues at the same level as in 2022/23.
3. THAT, subject to recommendation 4, freshwater and marine ecological monitoring in the 2023/24 year continues at the same level as in 2022/23.
4. THAT following the trial taonga species survey on Pukeroa Reef, as required by Resource Consent 1450-3.1, further discussion is had with iwi about how methodology could be improved going forward.
5. THAT combined inspections of the Whareroa plant for monitoring of air emissions and water discharges in the 2023/24 year continues at the same level as in 2022/23.
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 2023/24, monitoring may be adjusted to reflect any additional investigation or intervention as found necessary.

8. THAT the option for a review of Resource Consents 4927-2.0 and 5148-2.0 in June 2024, as set out in condition 4 of the consents, not be exercised, on the grounds that the current conditions are adequate.

Recommendations 1, 2, 3, 5, 7 and 8 were implemented. Recommendations 4 and 6 have not yet been undertaken.

3.5 Alterations to monitoring programmes for 2024/25

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 2024/25 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 2024/25.

4. Recommendations

1. THAT in the first instance monitoring of air emissions from the Whareroa plant in the 2024/25 year continues at the same level as in 2023/24.
2. THAT monitoring of water discharges (including stormwater) and abstractions for the Whareroa plant in the 2024/25 year continues at the same level as in 2023/24.
3. THAT, subject to recommendation 4, freshwater and marine ecological monitoring in the 2023/24 year continues at the same level as in 2022/23.
4. THAT following the trial taonga species survey on Pukeroa Reef, as required by Resource Consent 1450-3.1, further discussion is had with iwi about how methodology could be improved going forward.
9. THAT combined inspections of the Whareroa plant for monitoring of air emissions and water discharges in the 2024/25 year continues at the same level as in 2023/24.
5. THAT Fonterra initiates a review of the current oil and grease stormwater consent limit, given the recent change in test method.
6. THAT Fonterra supply outstanding reports as required by consent conditions.
10. THAT should there be issues with environmental or administrative performance in 2024/25, monitoring may be adjusted to reflect any additional investigation or intervention as found necessary.

Glossary of common terms and abbreviations

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

AAQS	Ambient Air Quality Standards, Ministry of the Environment, 2004.
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 carbon to carbon dioxide and 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 in µS/cm.
Cumec	A volumetric measure of flow- 1 cubic metre per second ($1m^3s^{-1}$).
DAF	Dissolved Air Flotation.
DO	Dissolved oxygen.
DRP	Dissolved reactive phosphorus.
E. coli	*Escherichia coli*, 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.
$g/m^2/day$	grams/$metre^2$/day.
g/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^2	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_4	Ammonium, normally expressed in terms of the mass of nitrogen (N).
NH_3	Unionised ammonia, normally expressed in terms of the mass of nitrogen (N).
NO_3	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_{10}	Relatively fine airborne particles (less than 10 micrometre diameter, respectively).
PM_{10}, $PM_{2.5}$, $PM_{1.0}$	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	*Resource Management Act 1991* 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.
TWA	Time weighed average

For further information on analytical methods, contact a manager within the Environment Quality Department.

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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.

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 ± 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.

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^3/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^3, 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.

<u>Monitoring Plan</u>

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.*

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.

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.

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:

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

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.

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.

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:

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

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.

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^3) 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^3) 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 ($g/m^2/day$); and/or
    b) a suspended milk powder level of 1 milligram per cubic metre (mg/m^3).

10. The consent holder shall control all emissions of fine particulates (PM_{10}) to the atmosphere from the site, in order that the maximum ground level concentration of fine particulates (PM_{10}) arising from the exercise of this consent measured under ambient conditions does not exceed 50 micrograms per cubic metre ($\mu g/m^3$) (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.

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.

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.

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:

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

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:	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.

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

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

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.

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 (mg/Nm^3) adjusted to 12% carbon dioxide (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 (kg/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 (kg/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 (kg/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_{10}) 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_{10} 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 $1/30^{th}$ 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_{10} 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_{10} (monitoring to be carried out to a recognised standard, by an accredited laboratory).

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_{10} 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.

7. Diesel combusted in the boilers shall comply with Schedule 2 of the Engine Fuel Specifications regulations 2011, or subsequent amendments.

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^3) (eight- hour average exposure), or 30 milligrams per cubic metre (mg/m^3) (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 ($\mu g/m^3$) (one-hour average), or 100 micrograms per cubic metre ($\mu g/m^3$) (twenty-four hour average), at or beyond the boundary of the site.

12. The consent holder shall control all emissions of fine particulates (PM_{10}) to the atmosphere from the site, in order that the maximum ground level concentration of fine particulates (PM_{10}) arising from the exercise of this consent measured under ambient conditions does not exceed 50 micrograms per cubic metre ($\mu g/m^3$) (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 $1/30^{th}$ 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.

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

_____

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 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.

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.

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 Regonal 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.

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.

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

Land Use Consent and 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
Decision Date:	29 July 2024
Commencement Date:	29 July 2024

Conditions of Consent

Consent Granted:	To use a gabion weir and associated fish pass on the Tawhiti Stream for water intake purposes (consent 5845-2.0) To dam water in the Tawhiti Stream for water intake purposes (consent 11264-1.0)
Expiry Date:	1 June 2046
Review Date(s):	June 2028, June 2034 and June 2040
Site Location:	339B South Road, Hāwera
Grid Reference (NZTM)	1712861E–5616232N
Catchment:	Tāngāhoe
Tributary:	Tawhiti

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

47 Cloten Road, Private Bag 713, Stratford 4352, New Zealand | 06 765 7127 0800 736 222 | info@trc.govt.nz www.trc.govt.nz

General condition

a. The consent holder shall pay to the Taranaki Regional Council (the 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 exercise of this consent shall be undertaken in general accordance with the documentation submitted in support of applications 5845-2.0 and 11264-1.0. In the case of any contradiction between the documentation submitted in support of these applications and the conditions of this consent, the conditions of this consent shall prevail.

2. The height of the weir shall not exceed 0.47 metres and it shall be located at or about 1712861E–5616232N (NZTM).

3. The structure, and activity of damming, shall provide for the passage of fish

4. The weir shall remain the responsibility of the consent holder and be maintained so that:

   (a) It does not become blocked and at all times allows the free flow of water through it;
   (b) It does not cause any adverse flooding effects on adjacent, downstream, and upstream land; and
   (c) The consent holder repairs any erosion, scour or instability of the stream bed or banks caused by the structure.

5. The consent holder shall maintain the weir so that it remains sound and fit for purpose.

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 2028 and/or June 2034 and/or June 2040, 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 29 July 2024

For and on behalf of
Taranaki Regional Council

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.

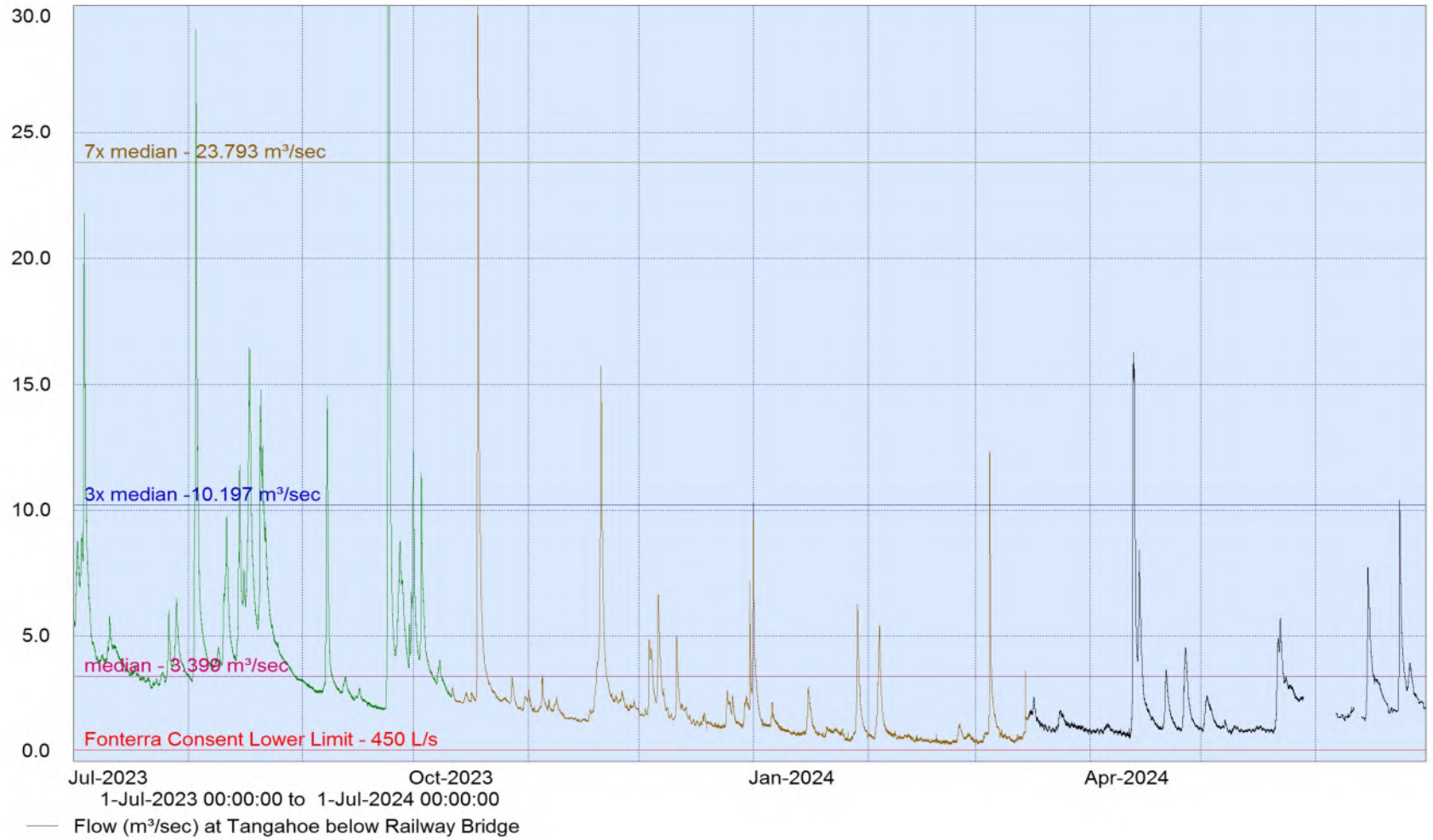
Good: Perhaps some administrative requirements of the resource consents were not met at a particular time however, this was addressed without repeated interventions from the Council staff. Alternatively adequate reason was provided for matters such as the no or late provision of information, interpretation 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.

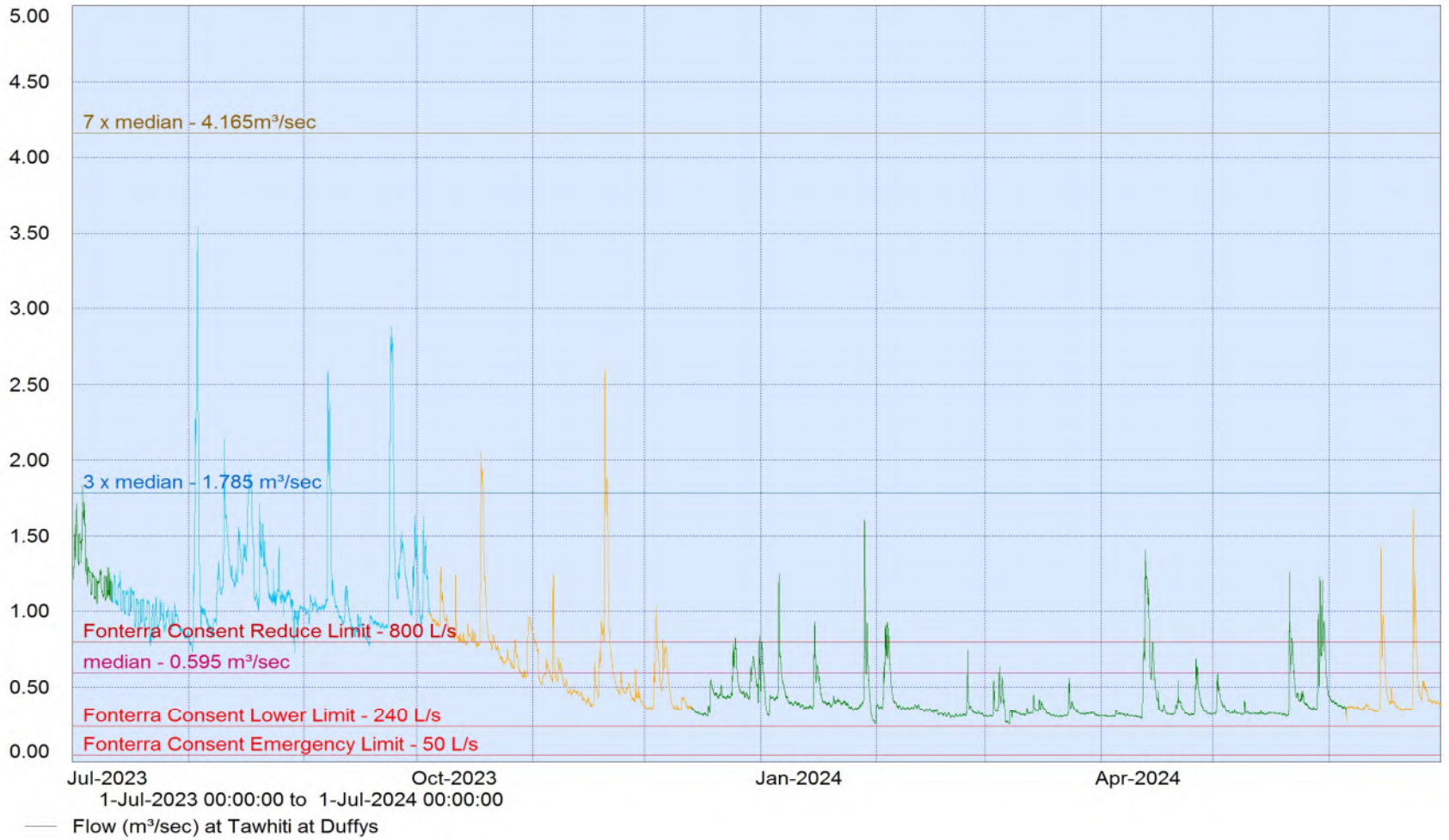
Poor: Material failings to meet the administrative requirements of the resource consents. Significant intervention by the Council was required. Typically there were grounds for an infringement notice.

Appendix III

Fonterra Whareroa water abstraction: Hydrographs and summary statistics 2023/24



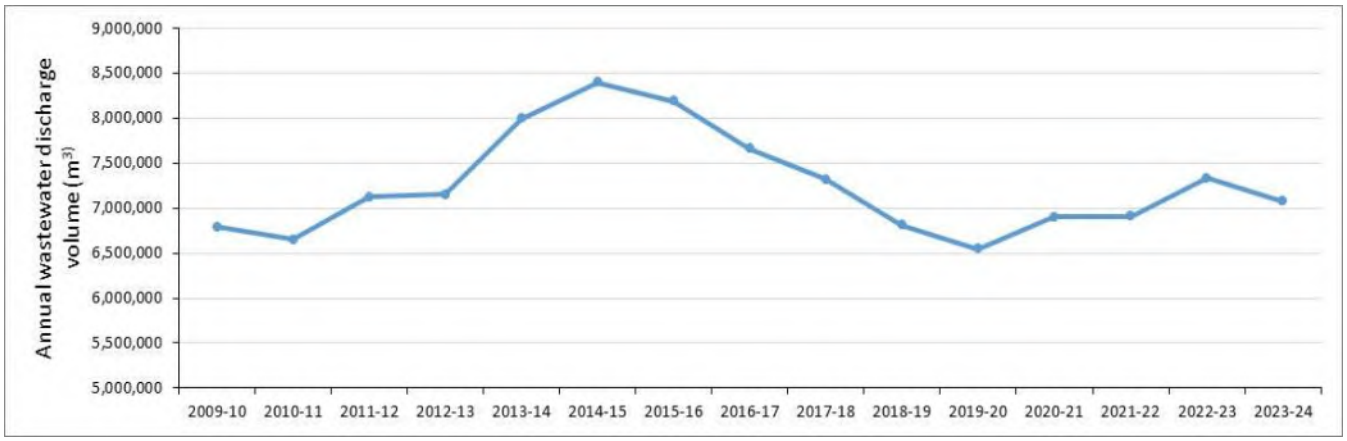
Minimum is 0.661 at 21-Feb-2024 17:35:00
Maximum is 45.32 at 24-Sep-2023 04:30:00
Mean 2.767
Median 2.116
Std Deviation 2.555
COV 0.924

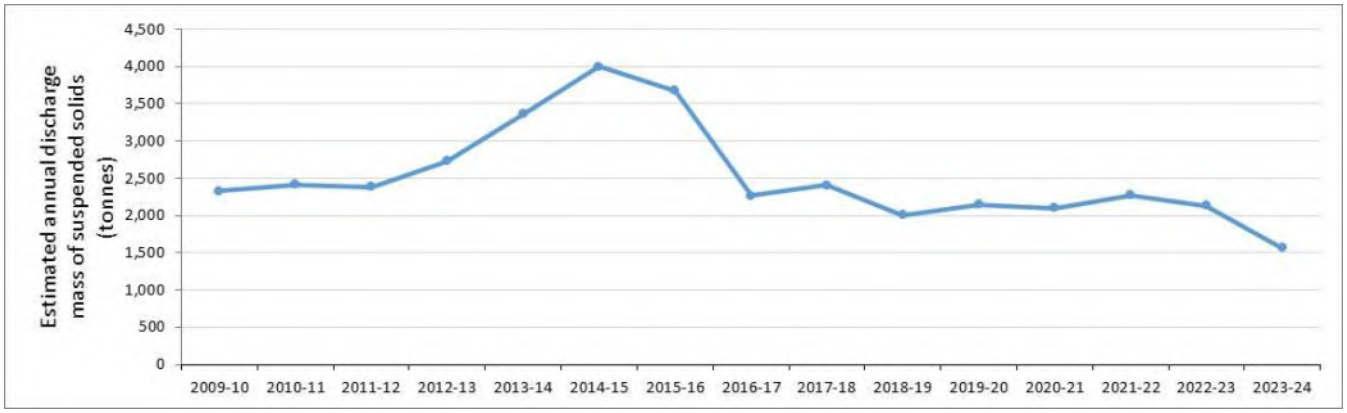


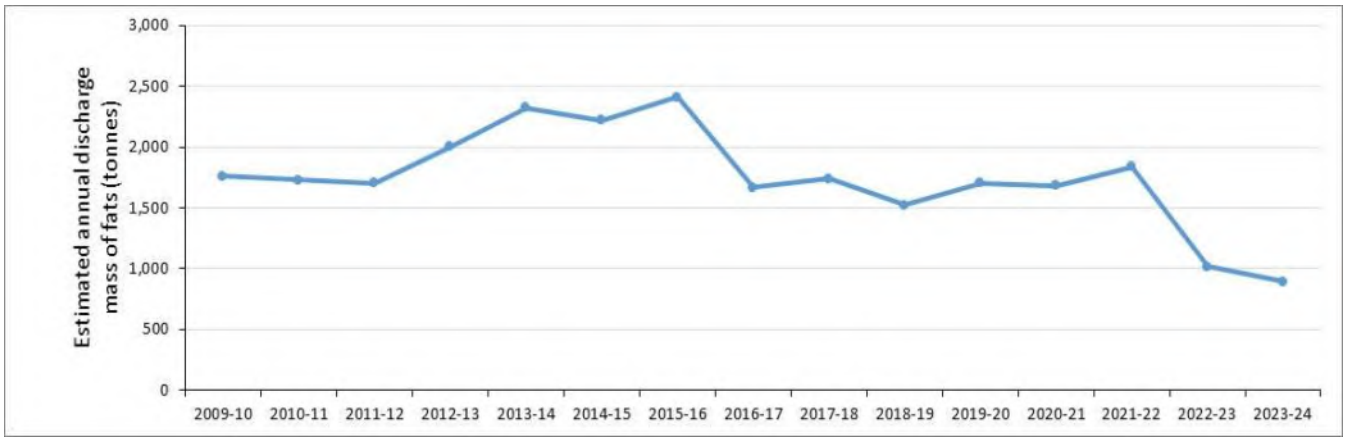
Minimum is 0.252 at 7-Mar-2024 11:25:00
Maximum is 3.539 at 3-Aug-2023 11:30:00
Mean 0.630
Median 0.445
Std Deviation 0.378
COV 0.601

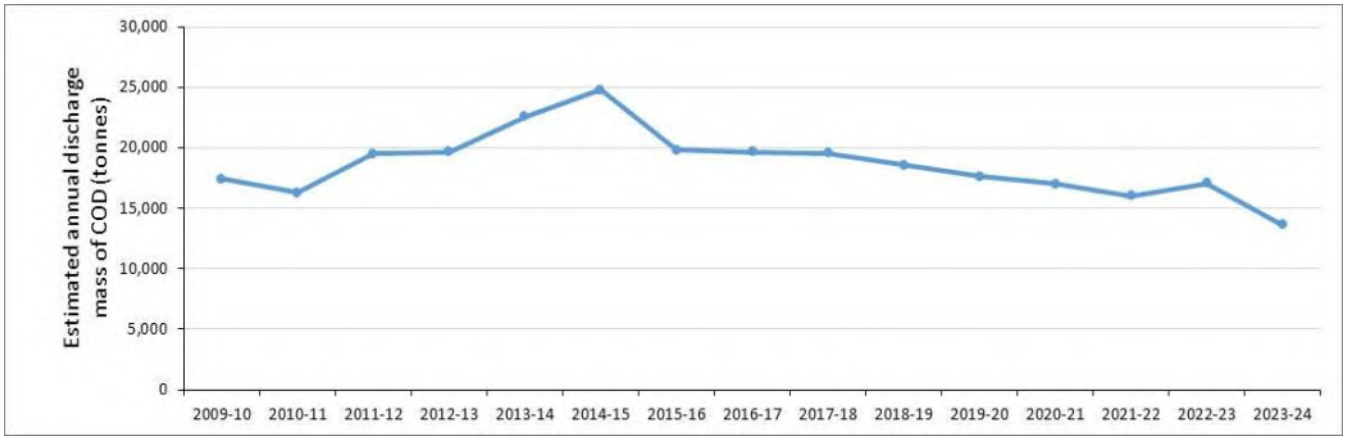
Appendix IV

Fonterra Whareroa wastewater constituent mass loads (Annual estimates 2010-2024)


Annual wastewater discharge volume (m3)
9,000,000
8,500,000
8,000,000
7,500,000
7,000,000
6,500,000
6,000,000
5,500,000
5,000,000
2009-10
2010-11
2011-12
2012-13
2013-14
2014-15
2015-16
2016-17
2017-18
2018-19
2019-20
2020-21
2021-22
2022-23
2023-24


Estimated annual discharge mass of suspended solids (tonnes)
4,500
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
2009-10
2010-11
2011-12
2012-13
2013-14
2014-15
2015-16
2016-17
2017-18
2018-19
2019-20
2020-21
2021-22
2022-23
2023-24


Estimated annual discharge mass of fats (tonnes)
3,000
2,500
2,000
1,500
1,000
500
0
2009-10
2010-11
2011-12
2012-13
2013-14
2014-15
2015-16
2016-17
2017-18
2018-19
2019-20
2020-21
2021-22
2022-23
2023-24


Estimated annual discharge mass of COD (tonnes)
30,000
25,000
20,000
15,000
10,000
5,000
0
2009-10
2010-11
2011-12
2012-13
2013-14
2014-15
2015-16
2016-17
2017-18
2018-19
2019-20
2020-21
2021-22
2022-23
2023-24