ANZCO Foods Eltham Ltd

Monitoring Programme
Annual Report
2023/24
Technical Report 2024-13

Taranaki
Regional Council

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Taranaki Regional Council
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Executive summary

ANZCO Foods Eltham Ltd (the Company) operates a meat processing plant located at Eltham, in the Waingongoro Catchment. Until May 2014, the site was known as Riverlands Eltham. The plant has an associated wastewater treatment system from which treated effluent is disposed of either to land or to surface water.

This report covers the Company's processing season from 1 October 2023 to 30 September 2024 and describes the monitoring programme implemented by the Taranaki Regional Council (the Council) to assess the Company's environmental 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, the Company demonstrated a good level of environmental performance and a high level of administrative performance.

The Company held seven resource consents during the review period, which included a total of 85 conditions setting out the requirements that the Company must satisfy. The Company held one consent to allow it to take and use water, two consents to discharge effluent and stormwater into the Waingongoro River, two consents to discharge effluent and solids to land, one consent for structures in watercourses, and one consent to discharge emissions into the air at the plant site.

Monitoring is carried out by both the Company and the Council. The Company monitors water abstraction rate, effluent flow rate and composition, receiving water quality, odour at the plant boundaries, effluent loadings and soil and herbage for irrigation areas. The Council undertakes inspections of the plant site and irrigation areas. Monitoring includes effluent quality checks and inter-laboratory comparisons, surface water and ground water quality monitoring, air quality and biological monitoring.

The Council's monitoring programmes for the period under review included three compliance monitoring inspections, 34 groundwater and 39 surface water samples collected for physicochemical analysis, two biomonitoring surveys of receiving waters and review of Company data.

The daily abstraction rate and volume was exceeded on occasion however, the exceedances fell within the 5% margin of error allowed for machinery operation. Enforcement action was not necessary. The abstraction of water from the Waingongoro River was not found to have any adverse effect on the river.

The results of the physicochemical monitoring related to the discharge of treated wastewater into the Waingongoro River confirmed that the site was compliant with consent conditions at the time of sampling. No adverse downstream effects were noted during visual surveys of the receiving environment.

The biomonitoring surveys did not identify any detrimental impact on the river caused by discharges from the meat processing plant to water.

During the 2023/24 monitoring period, 69.8% (294,664m^3) of the total plant effluent was irrigated to grazed pasture on Stuart Road, corresponding to a nitrogen load of 44,530.84kg. The irrigation occurred over 39 weeks between October 2023 and July 2024. Annual nitrogen loading in excess of 300kg N/ha/year was detected on seven paddocks during the monitoring period under review. In their annual performance report, the Company noted that in May 2024, automated weekly reports which detail the Nitrogen loading status across each paddock were implemented. The Company has been contacted to investigate and explain the exceedances. The Council monitors environmental effects of wastewater irrigation to land. No significant adverse effects were detected in surface water sites or groundwater bores during the monitoring year under review.

During the 2023/24 monitoring year, Council sampling recorded one minor exceedance above the recommended drinking water standard for nitrate-nitrogen in one of the monitoring bores. Surface water

results indicate that there were no significant changes in surface water quality at the Stuart Road block during the year under review.

No irrigation of treated wastewater occurred at the Paulwell Farm block during the 2023/24 monitoring year. The Council's baseline monitoring of ground and surface water analytes showed stable trends through the year. The baseline results likely reflect the effects of general onsite farming practices.

No incidents were reported in relation to the Company's air discharge consent. Effects were noticeable on a localised scale (Level 1) around the wastewater treatment ponds. However, these were considered mild and were not detected by Council Officers beyond the site boundary during inspections.

The Company's self-monitoring data were submitted by the 31/10/2024. Due to changes in the Company's reporting system, the Council requested additional information to complete the compliance monitoring report. The data were supplied promptly.

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.

This report includes recommendations to be implemented during the 2024/25 monitoring period.

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1. Introduction

1.1 Compliance monitoring programme reports and the Resource Management Act 1991

1.1.1 Introduction

This report describes the monitoring undertaken by Taranaki Regional Council to determine compliance with the resource consents held by ANZCO Foods Eltham Ltd (the Company) during the period 1 October 2023 to 30 September 2024. The Company operates a meat processing plant situated on London Street, Eltham within the Waingongoro Catchment. The period under review in this report coincides with the killing season and the Company's financial year.

The Company held seven resource consents relating to the Company's surface water take and discharges to water, land, and air during the reporting period. The consents include a number of special conditions which set out specific requirements the Company must satisfy.

This report covers the results and findings of the monitoring programme implemented by the Council with respect to the consents held by the Company.

One of the intents of the *Resource Management Act 1991* (RMA) is that environmental management should be integrated across all media, so that a consent holder's use of water, air, and land should be considered from a single comprehensive environmental perspective. Accordingly, the Council generally implements integrated environmental monitoring programmes and reports the results of the programmes jointly. This report is the 32nd combined annual report and the 35th water-related report by the Council and its predecessors for the Company.

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 and the Council's obligations;
- the Council's approach to monitoring sites though annual programmes;
- the resource consents held by the Company;
- the nature of the monitoring programme in place for the period under review; and
- a description of the activities and operations conducted by the Company at the Eltham 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 2023-2024 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 and administrative 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 meat processing plant is situated in the Waingongoro Catchment, on the outskirts of Eltham in South Taranaki (Figure 1). There has been a meat processing plant on the site since approximately 1894.

The meat processing plant has the capacity to process about 200,000 beef units and 120,000 calves per year. The beef season runs from early October to mid-July, peaking between January and May depending on livestock availability. Generally, peak kill occurs earlier and is higher in dry seasons owing to the reduced availability of stock feed. Calves are slaughtered between July and September. The majority of the processed output is exported. There are no fellmongery or rendering facilities. Blood and renderable material are taken off-site for processing.

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

Water for plant operation is abstracted from the Waingongoro River and drawn from the Eltham town supply. The river abstraction point is situated at the upstream boundary of the site, immediately above the confluence with a small tributary that runs past the stockyards. The water taken from the river augments the supply of potable water from the municipal system.

Wastewater is derived from four sources: killing, gutting (paunch material), processing, and the stockyards. On-site wastewater treatment comprises of solids separation, followed by biological degradation.

Paunch contents are segregated by 'dry dumping' into hoppers, dewatered, and trucked off-site for use in vermiculture. Liquid effluent from paunch opening areas and the stockyards is passed through a 0.5mm rotary screen. The screened solids are disposed of with the paunch material. All red meat streams are discharged to a sump through a coarse bar screen and pumped through a rotary screen. The separated solids are de-watered in a press and removed daily to an off-site rendering plant. The remaining liquid is then combined with the screened paunch/stockyard effluent and is discharged to the lagoon system. All blood is transported off-site for processing, which was an operational change that commenced in the 2018/19 year.

The on-site treatment system consists of eight lagoons in series with a total volume of about 40,000m^3. The first five (ponds 1, 2, 3, 3A and 4), about 20,000m^3 in volume, are anaerobic. The sixth (pond 5) is an aerated facultative lagoon, about 3m in depth, with aeration capacity of 44kW. The seventh (pond 6), about 4.8m in depth, is for settling and allows some denitrification. The final lagoon (pond 7) is shallow, with a maximum depth of 1.5m and an area of 0.76ha.

Effluent from the final lagoon is discharged either to land by irrigation or to the Waingongoro River during times of high flow. The disposal system is managed to maximise discharge to land, thereby minimising any potential adverse effects on the river.

The current irrigation area is a dairy farm immediately across the river from the plant that is accessed from Lower Stuart Road. The area irrigated increased progressively, from 60ha when the reticulation system was commissioned in January 2001, to 265ha in 2012-2013.

Irrigation at an additional area (Paulwell Farm, Figure 3) was due to commence during the 2021/22 monitoring year, however, to date (January 2024), this has not occurred as the additional land has not been required.

When effluent is discharged to the river, it is through a variable-rate pump via a pipe that projects over the river by about one third of its width. Flow is measured at a v-notch weir above the pipe inlet and is recorded electronically.

Figure 1 The Company's meat processing plant and sampling points in the near vicinity

1.3 Resource consents

The Company holds seven resource consents that are monitored under this programme, the details of which are summarised in Table 1.

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 1 Summary of resource consents held by the Company

Consent number	Purpose	Granted	Review	Expires
Water abstraction permits				
5437-3.1	To take and use water from the Waingongoro River	13/10/2017	-	01/06/2029
Water discharge permits				
1968-4	To discharge stormwater into the Waingongoro River	09/07/2012	-	01/06/2029
2039-4.1	To discharge treated wastewater into the Waingongoro River	13/10/2017	June 2026	01/06/2029
Air discharge permit				
4644-3	To discharge emissions to air	05/05/2016	June 2029	01/06/2035

Consent number	Purpose	Granted	Review	Expires
Discharges of waste to land				
5569-1	To discharge up to 3,500m^3 of treated wastewater by irrigation onto and into land (Stuart Road)	15/12/2000	-	01/06/2026
5736-2	To discharge up to 3,500m^3 of treated wastewater by irrigation onto and into land (Eltham Road)	09/07/2012	-	01/06/2026
Land use permits				
5739-2	To erect, place and maintain a pipeline under the bed of the Waingongoro River	02/05/2017	June 2029	01/06/2035

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.

Monitoring in relation to the meat processing plant is undertaken by the Company and the Council and is outlined below.

1.4.2 Monitoring by the Company

Monitoring undertaken by the Company consists of four primary components outlined below.

1.4.2.1 Water abstraction

The volume of water abstracted from the Waingongoro River is monitored continuously and is provided directly to the Council electronically. A record is kept of the volume of water taken from the Eltham town supply.

1.4.2.2 Discharge to Waingongoro River

The rate of wastewater discharge to the river is monitored continuously and is provided directly to the Council electronically. The chemical composition of the discharge and the receiving water upstream and downstream is monitored as prescribed by the Council. The frequency of chemical monitoring is performed at least weekly by ANZCO, while monthly effluent monitoring (as required by the consent) is conducted by Industrial Chemistry Services (ICS).

The chemical composition of wastewater is monitored at several points within the wastewater treatment system as part of the management of that system. The Company makes a financial contribution to Council for riparian planting and management in the Waingongoro Catchment, which aids in the ongoing protection and enhancement of the water course and its ecosystems.

1.4.2.3 Discharge to land

Wastewater discharge rate to land is monitored continuously and provided to the Council. The chemical composition of the discharge and the soil, herbage and adjacent surface waters of the irrigation areas are

monitored as prescribed by the Council, or as required in the Company's Effluent Management Plan. An assessment of the results is also provided in the Company's annual environmental monitoring report.

1.4.2.4 Odour surveys

Odour surveys are carried out at four points around the plant boundary at approximately weekly intervals. The frequency may be increased if significant odour is detected.

1.4.3 Monitoring by Taranaki Regional Council

The consent monitoring programme for the Company's site undertaken by the Council consists of six primary components as described below.

1.4.3.1 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.

1.4.3.2 Review of the Company's monitoring data

The monitoring data gathered by the Company is provided to the Council by the 30 October each year. It is reviewed to determine compliance with resource consent conditions and to assess trends in water usage, in wastewater discharge volume and composition and effects on the Waingongoro River, land irrigation areas, and in odour generation. There is a large amount of data that is collected and reviewed by the Council to assess consent compliance. This summarised in Table 2.

Table 2 Data provision requirements

Information to be provided	To be reported	Where monitoring and data provision requirement specified	Usual means of provision of data
Date, time, rate and volume of discharge of wastewater to the Waingongoro River (15 minute intervals, ±5% accuracy)	Within 2 hours of being recorded	Conditions 4 & 5 of wastewater discharge Consent 2039-4.1	Electronically, transmitted daily
Discharge water quality and flow. Weekly grab samples	Not specified	Management plan required by condition 6 of Consent 2039-4.1	Emailed. Data provided annually or upon request
Receiving water quality and flow. Weekly grab samples	Not specified	Management plan required by condition 6 of Consent 2039-4.1	Emailed. Data provided annually or on request
Results of odour surveys. Weekly air surveys	To be reported monthly	Management plan required by condition 7 of Consent 4644-3.0	Emailed
Date, time, rate and volume of abstraction from the Waingongoro River (15minute intervals, ±5% accuracy)	Within 2 hours of being recorded	Special conditions 2 & 6 of abstraction Consent 5347-3.1	Electronically, transmitted daily
Annual report on compliance with condition 6 and water conservation measures etc	30 October each year	Condition 8 of Consent 5437-3.1	Emailed

Information to be provided	To be reported	Where monitoring and data provision requirement specified	Usual means of provision of data
• Daily volume of wastewater discharged in cubic metres; • Date, time and location of the discharge within the discharge area and the depth of application; • Total nitrogen applied to any application area in kilograms; • Any incidents or equipment malfunctions that resulted or could have resulted in variances from predicted discharge quality or quantity; • The discharge area where crops are harvested; • The date of harvesting for each area and the weight of dry matter removed; and • The nitrogen content of the dry matter removed.	These records are to be submitted to TRC upon request and be contained within the annual report.	Management plan required by condition 2 of Consent 5569-1 and condition 9 of Consent 5736-2	Specified data email to Council
The annual report will contain: • The results of wastewater, groundwater and soil samples taken; • A map showing the location of the soil samples; • The nitrogen budget outlining all input and output quantities and qualities; • A record of any complaints received about the discharge; • The results of any self- compliance assessment; and • Any remedial measures taken by ANZCO in relation to any complaints received or any potential non-compliance.	Annual compliance report will be prepared and provided to TRC by the 30th October each year	Management plan required by condition 2 of Consent 5569-1 and condition 9 of Consent 5736-2	Annual report and specified data email to Council

1.4.3.3 Site inspections

A Council officer inspects the plant on four occasions, two of the four inspections coincide with interlaboratory sampling. The main points of interest are the water abstraction system, plant processes with potential or actual discharges to receiving watercourses, including contaminated stormwater and process wastewaters, and sources of emission to air. The land used for irrigation is also inspected for any signs of ponding or adverse effects from the discharge and the neighbourhood is surveyed for environmental effects, particularly odour.

1.4.3.4 Physiochemical monitoring

A number of sampling surveys are undertaken each year. The surveys have been established to monitor compliance and environmental effects, if any, from the wastewater and stormwater discharges to the Waingongoro River and the wastewater discharges to land. The monitoring surveys that relate to the discharge to water are outlined in section 1.4.3.4.1 and those related to discharges to land are outlined in section 1.4.3.4.2. The location of surface water and groundwater monitoring sites are displayed in Figure 2 and Figure 3. Figure 2 shows the sites that are monitored for discharges to land and water in the vicinity of

the Company's site and Stuart Road. Figure 3 shows the sites that are monitored for discharges to land at Paulwell Farm. The shading indicates the consented areas used for wastewater irrigation. Descriptions of each site are summarised in Table 3, Table 4 and Table 5.

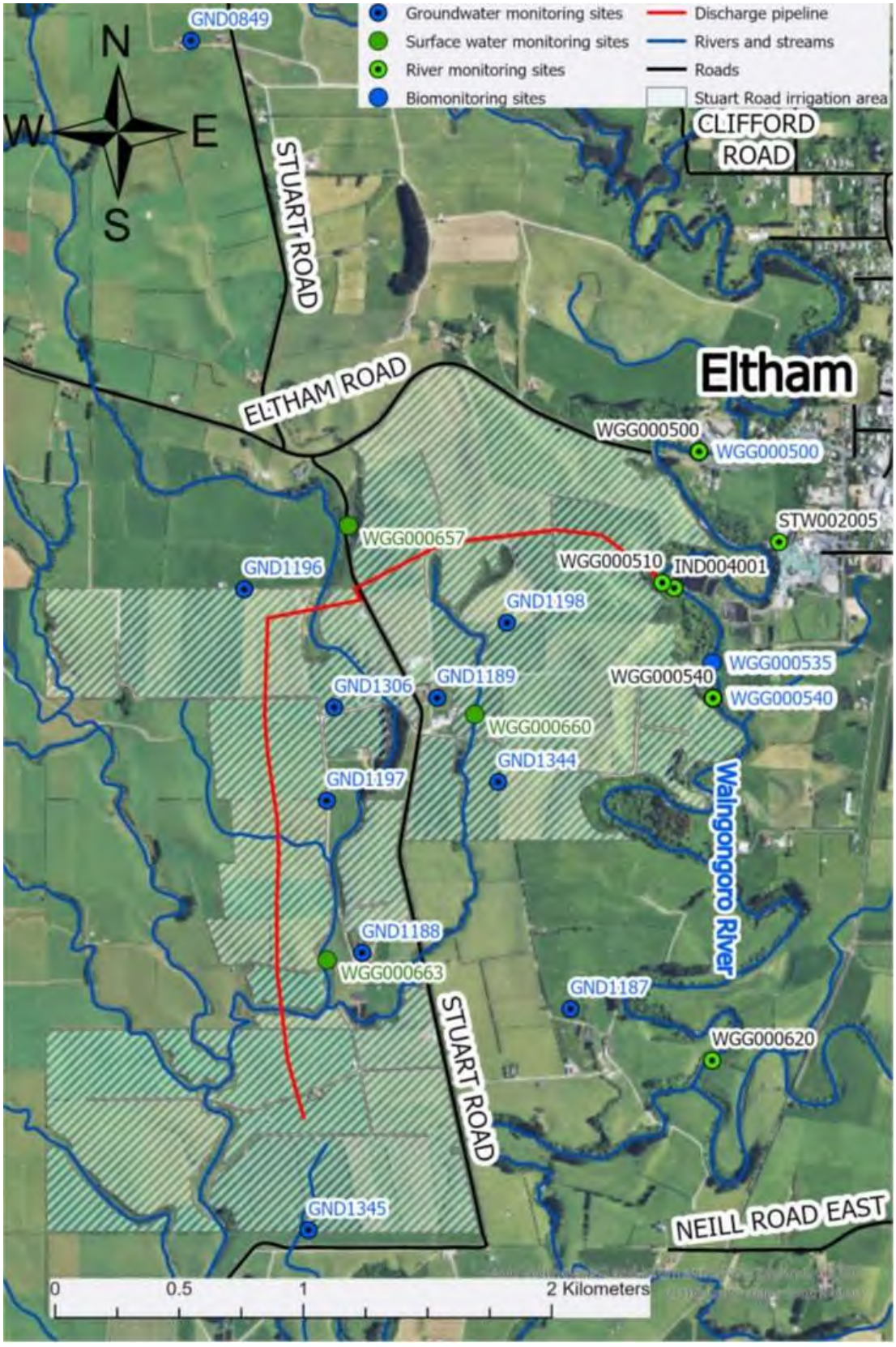


Figure 2 Groundwater and surface water monitoring locations – Plant site and Stuart Road irrigation area

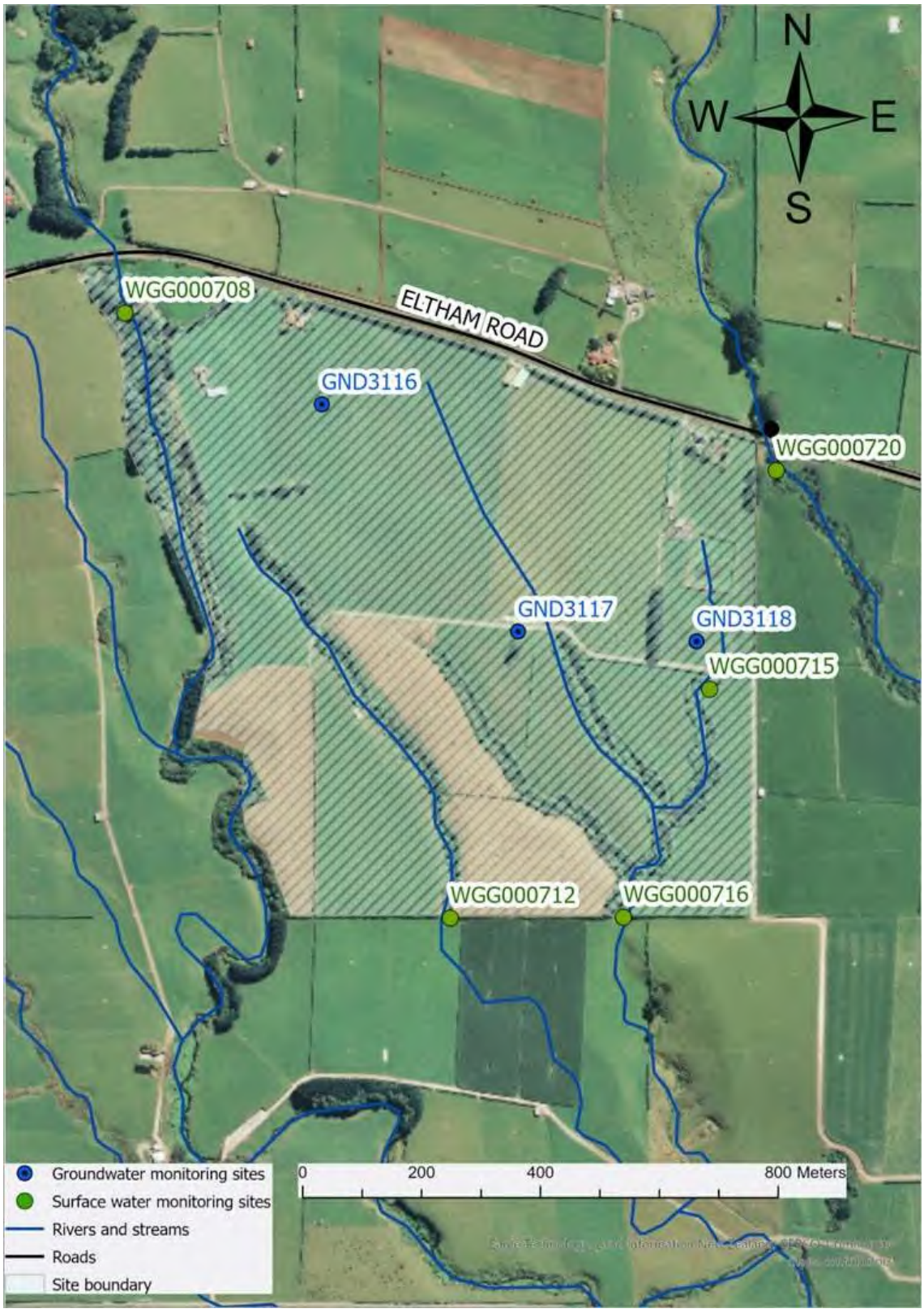


Figure 3 Groundwater and surface water monitoring locations – Paulwell Farm, Eltham Road

1.4.3.4.1 Monitoring of discharges to water (surface water)

Scheduled monitoring by the Council is conducted on two occasions each year in relation to the discharge of stormwater (STW002005) and wastewater (IND004001) to the Waingongoro River. Up to seven surface water sites are sampled during these surveys (Table 3).

The stormwater discharge is sampled from a stormwater drain located directly above the weir on the Waingongoro River. This is undertaken to ensure that any stormwater discharged from the site meets consent requirements.

The four primary sites that are sampled to assess compliance against the conditions of the consent for the discharge of wastewater to the river are also used for the purposes of inter-laboratory comparison. This is generally conducted alongside the full surface water surveys.

Site WGG000620 (Figure 2) was added to the monitoring programme following agreement with submitters at the pre-hearing meeting on 18 June 2012 which related to the replacement of Consent 2039. The purpose of the monitoring at this site is to assess nutrient attenuation further along the catchment.

Table 3 Surface water monitoring site details, discharges to water (Interlab)

Site	Type	Eastings	Northings	Description
IND004001	Discharge (Consent 5569-1)	1710611	5634427	Sampled from the pond sump prior to discharging to the river
STW002005	Stormwater (Consent 1968-4)	1710939	5634565	Culvert situated upstream of weir, 5-10m before entering the receiving waters
WGG000500	Upstream control (all discharges)	1710576	5634824	At Eltham Rd bridge, above all site activities
WGG000503	Upstream river confluence (upstream stormwater)	1710875	5634569	On the Company's site, by the water take structure
WGG000510	Impact (stormwater), control (wastewater)	1710574	5634444	Approximately 65m upstream of the wastewater discharge and ~580m downstream of the stormwater discharge
WGG000540	Downstream impact	1710727	5634084	400m downstream of the wastewater discharge location
WGG000620	Downstream impact	1710708	5632961	2.5km downstream of discharge location

Additional monitoring may be carried out if any breach of consent conditions occurs, or if there is a significant difference between the inter-laboratory results provided by the Company and the Council's surface water monitoring results. Differences of up to 10% in interlab sampling results may be acceptable provided that results are within consented limits.

1.4.3.4.2 Monitoring of discharges to land (groundwater and surface water)

Groundwater in the vicinity of the wastewater irrigation areas on Lower Stuart Road is monitored approximately quarterly at 10 sites for any effects on the aquifer and nearby shallow surface water resources. The farm supply well GND1189 was removed from the programme in the 2020/21 year as the well is no longer used as a water supply source due to elevated nitrates. The last sample collected from this bore was in September 2020. Five surface water sites, two of which have recently been added to the programme, are also sampled during these surveys to assess whether the discharges to land are having an adverse effect on the tributaries within the irrigation area. The sites associated with these surveys are shown in Figure 2 and the site details are outlined in Table 4.

Monitoring surveys are also undertaken approximately quarterly to monitor compliance against the consent for the irrigation of wastewater to land at Paulwell Farm. Three groundwater sites and four surface water sites are sampled (Figure 3 and Table 5).

Table 4 Monitoring site details for the Stuart Road irrigation area

Site	Type	Eastings	Northings	Description	Bore/well depth (m)
GND1678	Unlined supply well	1710054	5635266	64A Eltham Rd, Eltham	14.3
GND1196	Monitoring bore	1709272	5634442	Monitoring bore A, Lower Stuart Rd, Eltham	8.5
GND0849	Up gradient – not genuine monitoring bore install	1709130	5636145	Upper Stuart Rd, Eltham	14.9
GND1187	Supply well – Potable (three houses)	1710269	5633127	205 Lower Stuart Rd, Eltham	6.7
GND1188	Supply well	1709623	5633310	200 Lower Stuart Rd, Eltham	27.0
GND1197	Monitoring bore	1709520	5633783	Monitoring bore B, Lower Stuart Rd, Eltham	9.1
GND1198	Monitoring bore	1710088	5634327	Monitoring bore C, Lower Stuart Rd, Eltham	8.6
GND1306	Old supply well	1709547	5634072	Well 2, Lower Stuart Rd, Eltham	7.2
GND1344	Monitoring bore	1710054	5633834	Monitoring bore D2, Lower Stuart Rd, Eltham	8.8
GND1345	Monitoring bore	1709444	5632453	Monitoring bore E, Lower Stuart Rd, Eltham	8.8
WGG000657	Up gradient	1709599	5634635	Lower Stuart Road culvert	-
WGG000660	Impact	1709984	5634044	800m upstream of Lower Stuart Road culvert	-
WGG000663	Impact	1709513	5633289	1.8km downstream of WGG000657, above dairy ponds	-
WGG000718	Impact	1708692	5634144	Paddock 9 Joblin Farm, Lower Stuart Rd, Eltham	-
WGG000744	Impact	1709120	5632869	Track adjacent to Paddock G18, Joblin Farm, Lower Stuart Rd, Eltham	-

Table 5 Monitoring site details for the Paulwell Farm irrigation area

Site	Type	Eastings	Northings	Description	Bore/well depth
GND3116	Impact monitoring bore	1708237	5635121	BH01, northwestern	10.3
GND3117	Impact monitoring bore	1708488	5634823	BH02, central	10.3
GND3118	Impact monitoring bore	1708720	5634807	BH03, eastern	10.3
WGG000708	Up gradient (in buffer area)	1707983	5635243	80m downstream of Eltham/Opunake Road	-
WGG000712	Impact (central)	1708395	5634453	Entrance to piped section at Paulwell/Hawkes boundary	-
WGG000715	Impact (southern boundary)	1708736	5634745	80mdownstream of old effluent ponds.	-
WGG000716	Impact (southern boundary)	1708620	5634451	Entrance to piped section at Paulwell/Hawkes boundary	-

1.4.3.5 Biomonitoring surveys

Surveys of streambed macroinvertebrates and algae collected from several sampling sites in the Waingongoro River are carried out on a biannual basis, during spring and during summer/autumn under

low flow conditions. An additional survey may be carried out if a particularly low receiving water flow coincides with high kill rate at the plant.

Biological surveys determine whether the discharge of stormwater and treated wastewater from the site has had a detrimental effect upon macroinvertebrate assemblages in the river. Biomonitoring site details are summarised in Table 6 and locations are displayed in Figure 2.

Table 6 Biomonitoring site details

Site No	Site code	Grid reference	Location
1	WGG000500	E1710576 N5634824	Eltham road bridge (upstream of discharge)
2	WGG000535	E1710725 N5634193	Approximately 300m downstream of the discharge
3	WGG000540	E1710727 N5634084	Approximately 200m downstream of rail bridge and approximately 400m downstream of discharge

1.4.3.6 Water level monitoring station

The Council maintains a water level monitoring station on the Waingongoro River at Eltham Road, about One kilometer above the river discharge point. The equipment at the station records river level, river flow and temperature. This data is then telemetered to the Council.

The flow information is useful for estimating the available dilution factor for discharging wastewater to the river.

2. Results

2.1 Inspections

During the period under review, the Council conducted three out of four scheduled site inspections to assess the compliance status of the Company's activities. These inspections were carried out around the production plant and Stuart Road irrigation site on 18 December 2023, 20 June 2024 and 19 September 2024.

18 December 2023

The area around the settlement ponds was tidy and well maintained. Ponds 1 and 2 were hidden beneath a cover of vegetation and soil. The majority of the discharge pipe from Pond 2 to 3 was submerged; the discharge from pond 2 to 3 appeared greenish-brown. Pond 3 was almost entirely covered by foam indicating good microbial activity. An odour was intermittently detected. The water in pond 3A appeared brown and stagnant and foam was present at its surface. Pond 4 was covered by greenish-brown sludge. The water was stagnant and was discharging into Pond 5 at a low rate. The odour at this pond was mild. Pond 5 was covered in a greenish brown sludge. One aerator was operating at the time of inspection. Pond 7 was not discharging to the river and the water appeared brown. Little to no odour was detected around ponds 7 and 5. The river appeared clear at the discharge point, downstream and upstream near the water take structure.

The site around the meat plant was tidy and well maintained. The water intake structure and stormwater drains were unobstructed and the paunch and by-products loading area was clean. No odour detected elsewhere around the site and beyond the meat plant boundary. The site was deemed compliant at the time of inspection.

20 June 2024

A compliance monitoring inspection was completed in tandem with the interlaboratory (Interlab) sampling. A laydown area was noted to have been constructed to the south of the process facility near some geotextile bags.

Water samples were collected from the discharge and at upstream and downstream sites. The final pond was not discharging to the river at time of inspection but was discharging to land at a rate of 53.7m^3/h. Aerators were operating on several of the middle ponds. A distinct earthen, organic odour was evident in this area, but this was not detected beyond the site boundary. Pond 3 had floating sludge mat which may have been related to the polymer contained within the geotextile bags. Five geotextile bags were observed in situ at the time of inspection. There was room for more with the potential to stack new units on top of the current bags. Inspections of the site drains revealed that they were clear and functioning well. A stormwater sample was obtained. The water take as at 12:15 was recorded as 76.7m^3/hour. The weir was inspected, and the flow of water was unimpeded. The waste loading area by the water take structure was tidy. The site was found compliant at the time of the inspection but pending sample review. The facility was due to close from the 26/6/2024 to the 15/7/2024. Groundwater sampling was conducted to monitor the effects of irrigation to land on the 31/5/2024. Overall compliance would be contingent upon the return of compliant sampling results. The results demonstrated that the site was compliant with consented limits at the time of inspection.

12 September 2024

A compliance monitoring inspection was conducted in tandem with the interlab sampling. Water samples were collected from the discharge and at upstream and downstream sites. The final pond was discharging to the river at a rate of 71m^3/h. Pond 7 had been recently desludged and looked very tidy. Aerators were operating on pond 5. An earthen, organic odour was apparent around several of the ponds; however the odour was not regarded to be at an offensive level and was not detected beyond the boundary. All drains were noted to be clear and functioning well. A storm water sample was collected. The water take rate was recorded as 76.6m^3/hour at 10:40am. The weir was inspected the water appeared to be flowing unhindered over the structure. The waste loading area near the water intake was tidy. The site was due to close from 28/9/2024 for a month. Groundwater sampling was conducted for the irrigation to land program on the 5/09/2024. The results of the sampling demonstrated that the site was compliant with consent conditions at the time of the inspection.

2.1.1 Other inspections or assessments

Four office assessments relating to minor exceedances of the abstraction rate and the abstraction volume monitored under Consent 5437-3.1 occurred during the period under review. All exceedances were within the 5% margin of error. The Company was informed that it should not be abstracting water beyond the consented limit even though the exceedances were minor.

22 February 2024

The Company hosted a community meeting to discuss the pond desludging process. Representatives from the Company, the Council and the community were present. A contractor was engaged by ANZCO to de-sludge the ponds. This would involve using a polymer to flocculate the sludge. The flocculated sludge would then be transferred to geobags which take up to two and a half weeks to fill. The geobags can be stored onsite for many years. No odour would be generated. The Company was considering options for sludge disposal.

1 May 2024

A community meeting was organised by the Company. Stakeholders were shown the location of the geobags and the set up for the desludging process. Pond 7 would be desludged first. Filtered water would then be pumped into Pond 2 and follow the usual treatment pathway.

12 June 2024

The Council met with the Company's environmental consultants to discuss the addition of sampling sites to the Stuart Rd sampling run. The results from these sites would be used in the Assessment of Environmental Effects (AEE) for the renewal of Consent 5569-1 in 2026.

2.2 Provision of the consent holder data

The consent holder provides data on abstraction volumes, discharge rates and effluent quality on a regular basis as laid out in the various management plans, or at the request of the Council. Any changes to the irrigation and discharge systems are also provided. During the monitoring period there were no changes to the discharge systems or related issues reported.

The data provided by the Company that has been reviewed by the Council is summarised below.

2.2.1 Abstraction data

Abstraction of water from the Waingongoro River is permitted under Consent 5437-3.1. The Company is permitted to take up to 1,972m^3 per day at a rate of up to 22.8L/s. Data is to be recorded electronically at 15minute intervals, to an accuracy of ± 5%. This data is provided daily to the Council for assessment.

The daily abstraction limit was mostly complied with throughout the period under review (Figure 4). A total volume of 348,406m^3 was abstracted. The consent limit of 1,972m^3/day was exceeded on occasion during the monitoring period, however there was no exceedance beyond the 5% upper limit of 2,070.6m^3/day. The maximum abstraction volume was measured at 2,045.00m^3/day on 2 November 2023. The abstraction rate limit of 22.8L/s was exceeded for a short period of time at the start of the monitoring year, however there were no exceedances beyond the 5% margin of error (Figure 5).

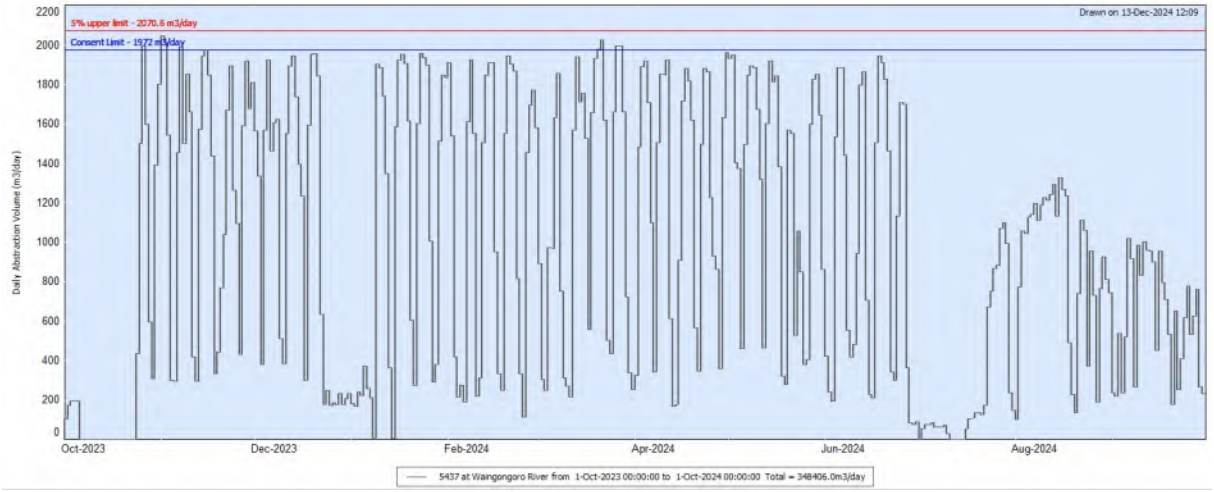


Figure 4 Daily abstraction volume from 1 October 2023 to 30 September 2024, electronic record

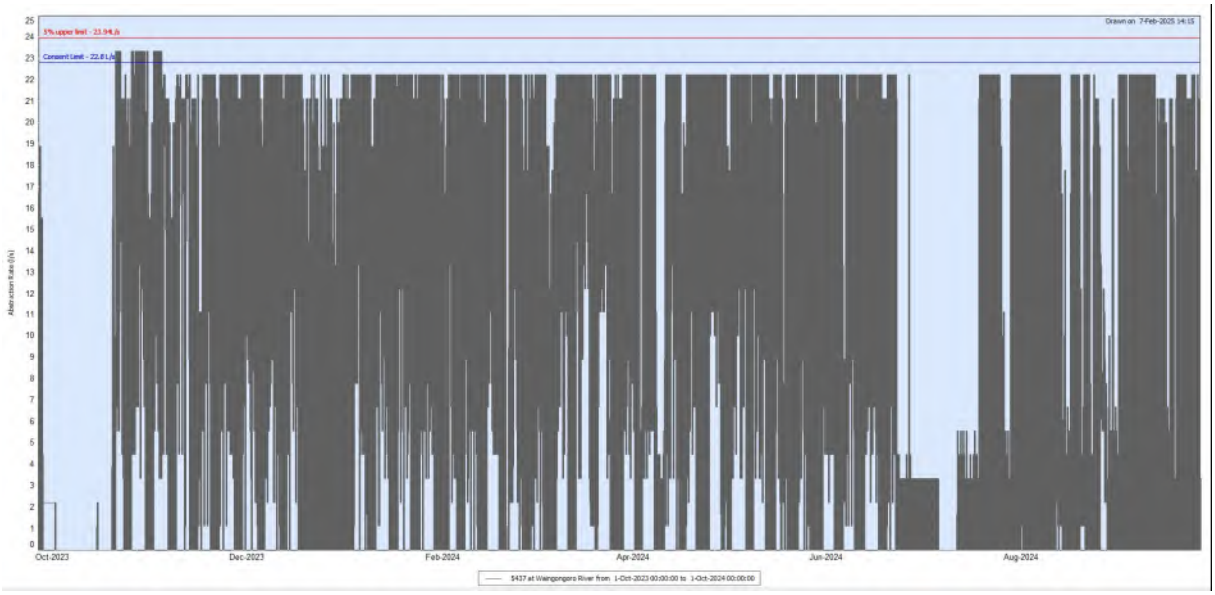


Figure 5 Abstraction rate from 1 October 2023 to 30 September 2024

The Company also provided a report for the year under review that included the weekly volumes abstracted from the Waingongoro River and the weekly volumes of water taken from the municipal supply. The data have been used to show the approximate monthly abstraction volumes from the river and the town supply (Figure 6). For the period under review, a total of 474,806m^3 of water was drawn for use, with 310,943m^3

abstracted from the Waingongoro River under Consent 5437-3.1, and 163,863m^3 sourced from the Eltham town water supply.

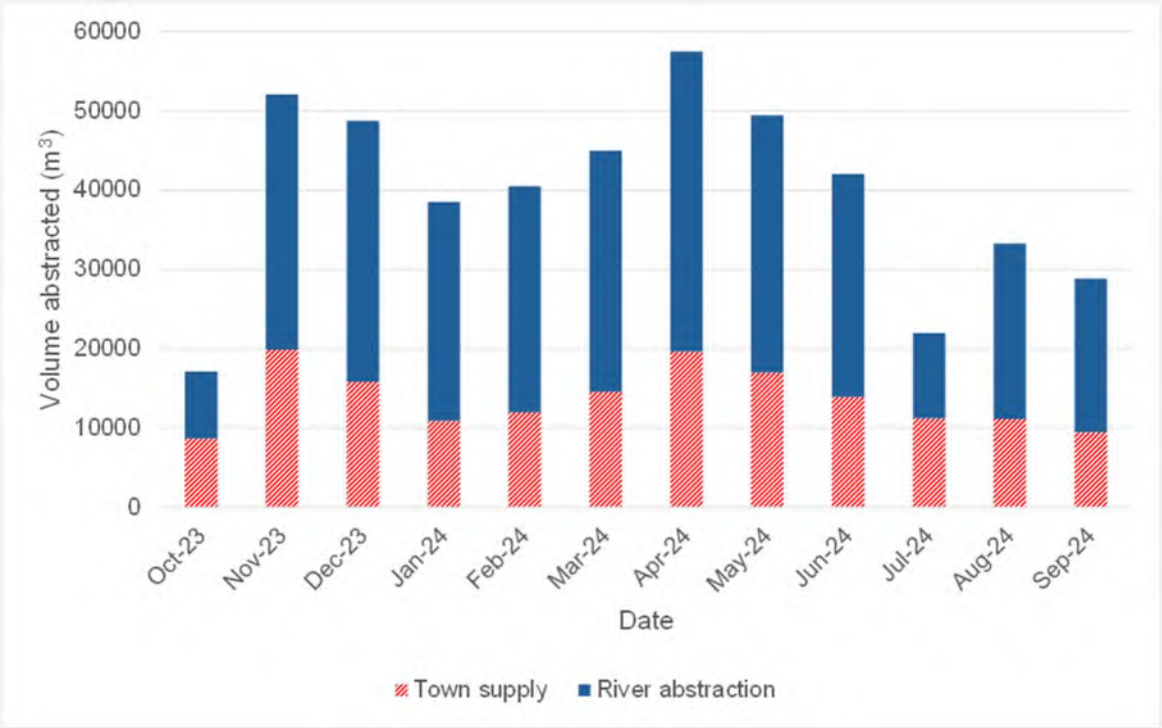


Figure 6 Monthly river abstraction and municipal water supply volumes from 2 October 2023 to 30 September 2024

The Company is also required to provide a water use report under the requirements of Consent 5437. The report summarises the results of data collected for the 2023/24 compliance monitoring period and provides the details of any water conservation measures undertaken during the previous year.

Regarding water conservation initiatives, the Company is using water conservation switches, handwash timers and non-potable water from waste (such as washdown and cleaning in areas and processes not used in food production) in plant processes that do not require high quality potable water. The Company has also implemented the 'Triple M programme' which "Measures, Monitors and Manages" all process streams within their meat processing plants.

2.2.2 Discharge data

The three consents that the Company holds to provide for the discharge of effluent from the site contain a number of consent requirements that work together to ensure that any environmental effects from the discharge are minimised. One of the ways in which this is managed is that wastewater is preferentially discharged to land to minimise discharge to the river. The management plans required by the consents must detail how this will be achieved. Limits are also set on the volume of water discharged to the river per day (3,500m^3) and the rate at which it can be discharged (81L/s).

2.2.2.1.1 Discharge of treated wastewater to the river, Consent 2039-4

Discharge to the river should only occur when discharges to land cannot occur. Discharges to the river preferentially occurs during periods of high flow in the river, to provide adequate dilution of the discharge. During low flow periods discharge occurs to land via the irrigation system.

In the period under review, based on the daily data provided to the Council via telemetry, a total of 127,917.6m^3 of effluent was discharged to the river under Consent 2039-4 between 1 October 2023 and

30 September 2024. Figure 7 shows that the daily discharge limit of 3,500m^3/day was complied with. A comparison of the daily discharge data from the Company and the flow in the Waingongoro River at Eltham Road shows that the discharges to the river occurred mostly occurred at times when there was above median flow in the river. The 15minute average discharge rates were also well below the maximum permitted rate of 81L/s (Figure 8).

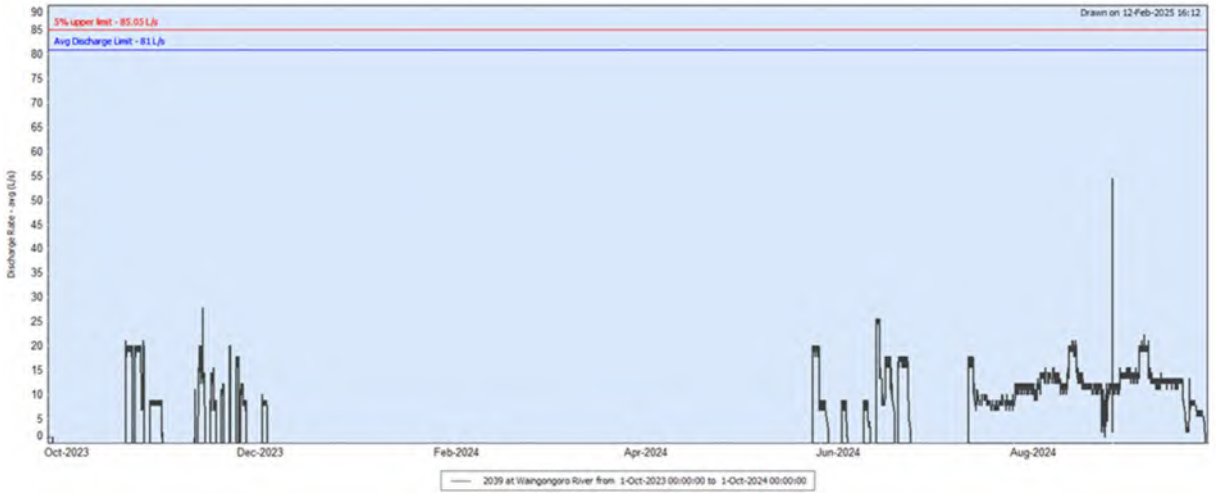


Figure 8 Effluent discharge rate to the Waingongoro River from 1 October 2023 to 30 September 2024

The maximum daily discharge of 1,969.98m^3 was recorded on 20 June 2024 and the maximum average rate over a 15minute interval of 54.44L/s was recorded on 1 September 2024.

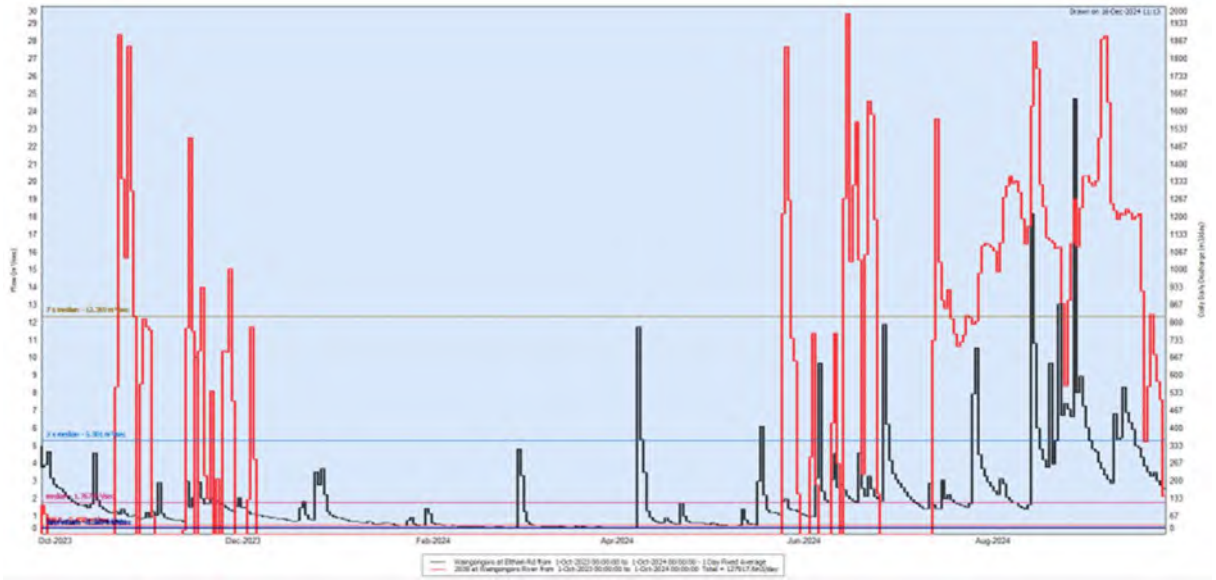


Figure 7 Daily effluent discharge to the Waingongoro River and river flow at Eltham Road from 1 October 2023 to 30 September 2024

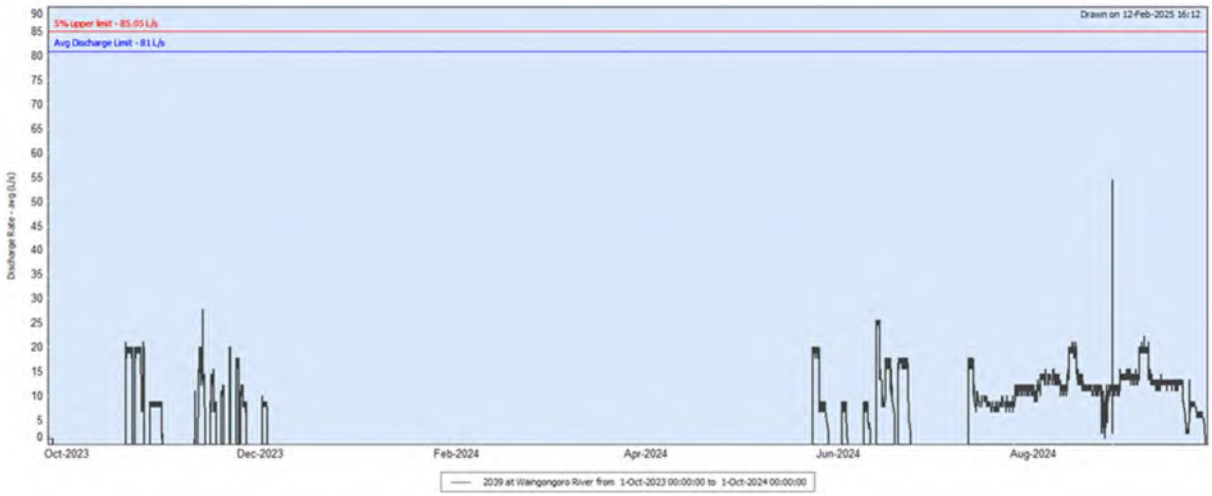


Figure 8 Effluent discharge rate to the Waingongoro River from 1 October 2023 to 30 September 2024

The volume of effluent irrigated onto land is currently provided in terms of a weekly volume, as is the total effluent discharged from the plant. During the monitoring period a total of 127,514m^3 of effluent was discharged to the river, which equated to 30.2% of the total effluent discharged during the monitoring period (422,178m^3). During the monitoring period, average river flows were lower than mean flows recorded historically from 1974 to date September 2024, except in August and September 2024 when the river flow was lower than the historical mean (Figure 9).

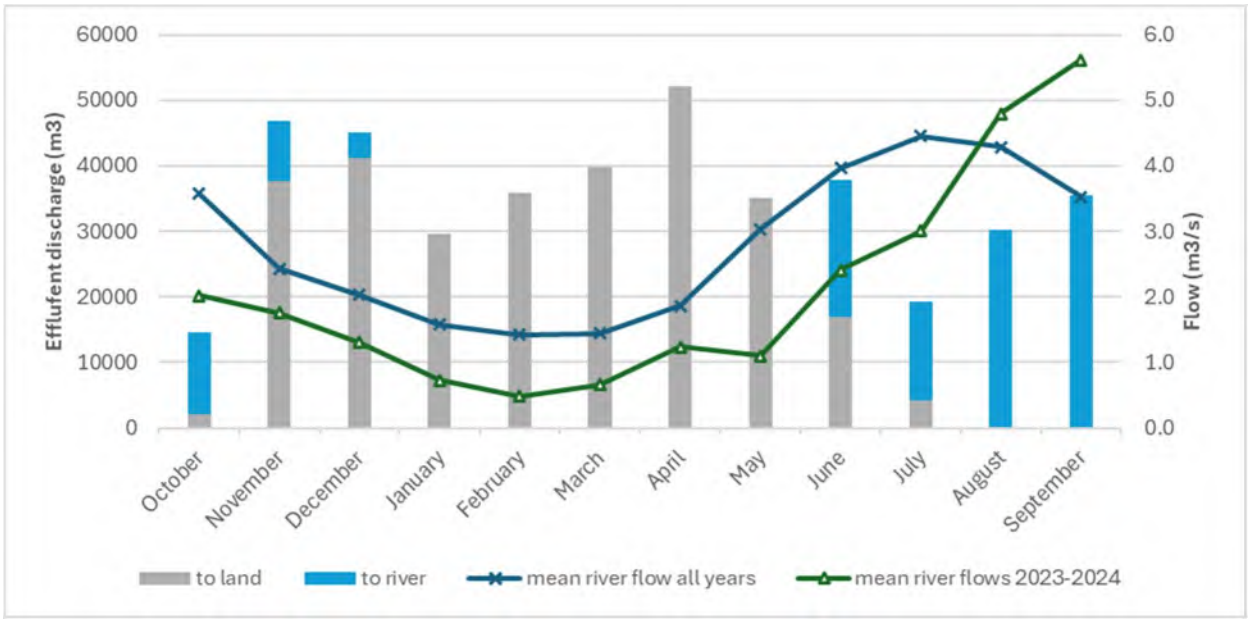


Figure 9 Effluent discharged to land and to the river, from 1 October 2023 to 30 September 2024

2.2.2.2 Discharge of stormwater to the river, Consent 1968-4

Stormwater is discharged directly to the river. Restrictions on the quality of the stormwater and any consequential impacts on the river are covered by consent conditions. The Company does not currently undertake any self-monitoring with respect to this discharge.

2.2.2.3 Discharge of treated wastewater to land data, consents 5569-1 and 5736-2

The reporting requirements for the self-monitoring data collected by the Company in relation to the discharge of effluent to land are specified in the Effluent Management Plan, which has been written to meet

the spray irrigation management plan requirements of the consent. The plan states the self-monitoring data that will be collected and also states that the data will be reported to the Council in the form of an Annual Compliance Report by 30 October each year.

Between November 2023 and May 2024, the Company predominantly discharged to land. In October 2023 and in July 2043, the Company mainly discharged to the river. In August and September 2024, the discharges were solely to the river (Figure 6). A total of 294,664m^3 or 69.8% of total discharge was irrigated to land during the monitoring period.

2.3 Results of receiving environment monitoring

To monitor for any significant impacts of the discharge on the river, water quality parameters are monitored at various locations along the river. Groundwater and surface water monitoring is also undertaken at and around any site receiving discharge to land. Inspections are undertaken at the site, adjoining areas and any discharge locations where impacts could potentially occur.

2.3.1 Surface water and discharge monitoring undertaken by the Council

Surface water quality sampling in relation to the river discharge for the period under review was conducted on 20 June 2024 at six sites and on 12 September 2024 at seven sites (Figure 1 and WGG000620 in Figure 2). The Inter-laboratory comparison was carried out concurrently. The results of this monitoring are provided in section 2.3.1, Table 9.

Three sites are located upstream of the treated wastewater discharge (WGG000500, WGG000503 and WGG000510), one site at the discharge location (IND004001) and two sites are located downstream of the discharge (WGG000540 and WGG000620). Black disc measurements were also taken upstream and downstream of the discharge to assess compliance with the requirements of Consent 2039-4.1. Stormwater sampling was undertaken by the Council during the sampling rounds. The stormwater discharge (STW002005) is located between sites WGG000503 and WGG000510. Sampling was not undertaken during or immediately following any heavy rainfall periods when stormwater runoff would be at its highest volume.

The results of surface water sampling undertaken by the Council are presented in Table 7 and Table 8.

Limits have been set on some water quality parameters in the river after adequate mixing has occurred. A summary of these limits related to the wastewater discharge Consent 2039-4.1 are as follows:

- Filtered carbonaceous biological oxygen demand (CBOD) must not exceed 2g/m^3;
- Dissolved oxygen (DO) must remain above 6g/m^3; and
- Maximum total ammonium concentration for a given pH must remain below the concentrations indicated in Table 1 of the discharge Consent 2039-4.1.

The Sodium Adsorption Ratio (SAR) of the wastewater must not exceed 15 (Consent 5736-2) and 10 (Consent 5569-1).

The monitoring programme was carried out as per the requirements of the consent conditions and associated discharge management plans. Results from the stormwater discharge were compliant with the resource consent conditions on both occasions. Results from the treated wastewater discharge and downstream sites indicated that the discharge did not have adverse effects upon the receiving environment. For a pH of 7.6 and 7.7 at the interlab sampling, total ammoniacal nitrogen concentration was lower than 2.07g/m^3 and 1.87g/m^3 respectively in the receiving water, dissolved oxygen concentration for the downstream environment was greater than 6g O_2/m^3 on both occasions, and $CBOD_5$ was lower than 2g/m^3 as specified in the consent conditions.

Results indicate that phosphorus, nitrate-N and ammonium from the discharge had been significantly diluted by the time they reached the downstream monitoring location. Dissolved reactive phosphorus (DRP)

concentration was significantly higher downstream of the discharge in comparison to the upstream site (Figure 10).

A reduced suite of parameters is also analysed as part of the Council's scheduled State of Environment Monitoring (SEM) programme for the Waingongoro River during both low and high flow conditions. This data may be used as a comparator when appropriate.

Water quality monitoring is also undertaken weekly by the Company during periods of discharge to the river and is discussed in section 2.3.2. As a quality assurance measure, surface water quality monitoring by the Council is undertaken in conjunction with the weekly surface water monitoring undertaken by the Company. A comparison of the data is discussed in section 2.3.2 and the data is displayed in Table 9.

Table 7 Surface water quality results 20 June 2024

Parameters	Units	WGG000500	WGG000503	STW002005	WGG000510	IND004001	WGG000540	WGG000620
Sampling time	a.m.	09:45	-	12:00	11:15	11:00	11:30	13:15
Temperature	°C	8.4	-	15.1	8.7	12.2	8.6	9.0
pH	pH unit	7.6	-	7.2	7.6	8.0	7.6	7.7
Conductivity	mS/S	12.3	-	23.5	12.4	187.2	13.2	13.6
DO	g O_2/m^3	12.9	-	-	12.92	5.44	12.96	12.8
	%	-	-	-	112.5	51.7	112.6	112.2
Chloride	g/m^3	12.0	-	-	12.1	83	12.3	12.6
TSS	g/m^3	<3	-	16	4	33	4	< 3
Turbidity	FNU	1.70	-	20	1.62	29	1.45	1.76
$TBOD_5$	g O_2/m^3	< 0.4	-	5.2	1.0	22	0.9	1.1
$CBOD_5$	g O_2/m^3	-	-	-	< 1.0	13.2	< 1.0	< 1.0
COD	g/m^3	-	-	-	-	138	-	-
Enterococci	cfu /100mL	42	-	440	30	670	43	22
Escherichia coli	cfu /100mL	140	-	520	210	7,600	410	240
OAG	g/m^3	-	-	5	-	<7	-	-
Nutrients								
NH_3	g/m^3	< 0.00007	-	0.0024	0.00008	3.6	0.0040	0.0075
NH_4	g/m^3	< 0.010	-	0.52	0.013	154	0.55	0.87
NNN	g/m^3	1.39	-	-	1.37	2.3	1.39	1.47
DRP	g/m^3	0.008	-	< 0.004	0.009	22	0.084	0.132

Table 8 Surface water quality results from 12 September 2024

Parameters	Units	WGG000500	WGG000503	STW002005	WGG000510	IND004001	WGG000540	WGG000620
Sampling time	a.m.	11:55	11:25	10:20	09:15	09:30	10:00	12:35
Temperature	°C	11.6	11.4	12.5	10.8	14.0	11.1	11.8
pH	pH unit	7.5	7.5	7.1	7.7	8.2	7.7	7.5
Conductivity	mS/S	13.3	13.4	26.2	13.6	115.6	14.5	14.6
DO	g O_2/m^3	11.05	11.05	-	11.19	8.70	11.06	10.77
	%	102.6	102.1	-	102	85.2	101.5	100.4
Chloride	g/m^3	13.9	13.6	-	13.5	58	14.2	14.5
TSS	g/m^3	5	< 3	27	< 3	30	< 3	<3
Turbidity	FNU	1.46	1.50	80	2.0	12.8	1.91	1.99
$TBOD_5$	g O_2/m^3	< 0.4	0.4	2.4	6	17	< 0.8	<0.8
$CBOD_5$	g O_2/m^3	-	-	-	< 1.0	1.9	< 1.0	< 1.0
COD	g/m^3	-	-	-	-	67	-	-
Enterococci	cfu /100mL	16	28	< 10	54	40	46	15
Escherichia coli	cfu /100mL	160	240	< 10	120	800	90	54
OAG	g/m^3	-	-	<4	-	<4	-	-
Nutrients								
NH_3	g/m^3	0.00009	0.00008	0.0027	0.00020	3.1	0.0067	0.0040
NH_4	g/m^3	0.012	0.012	1.07	0.020	84	0.65	0.58
NNN	g/m^3	1.91	1.87	0.0027	1.89	11.0	1.96	2.0
DRP	g/m^3	0.013	0.012	< 0.004	0.012	6.9	0.062	0.061

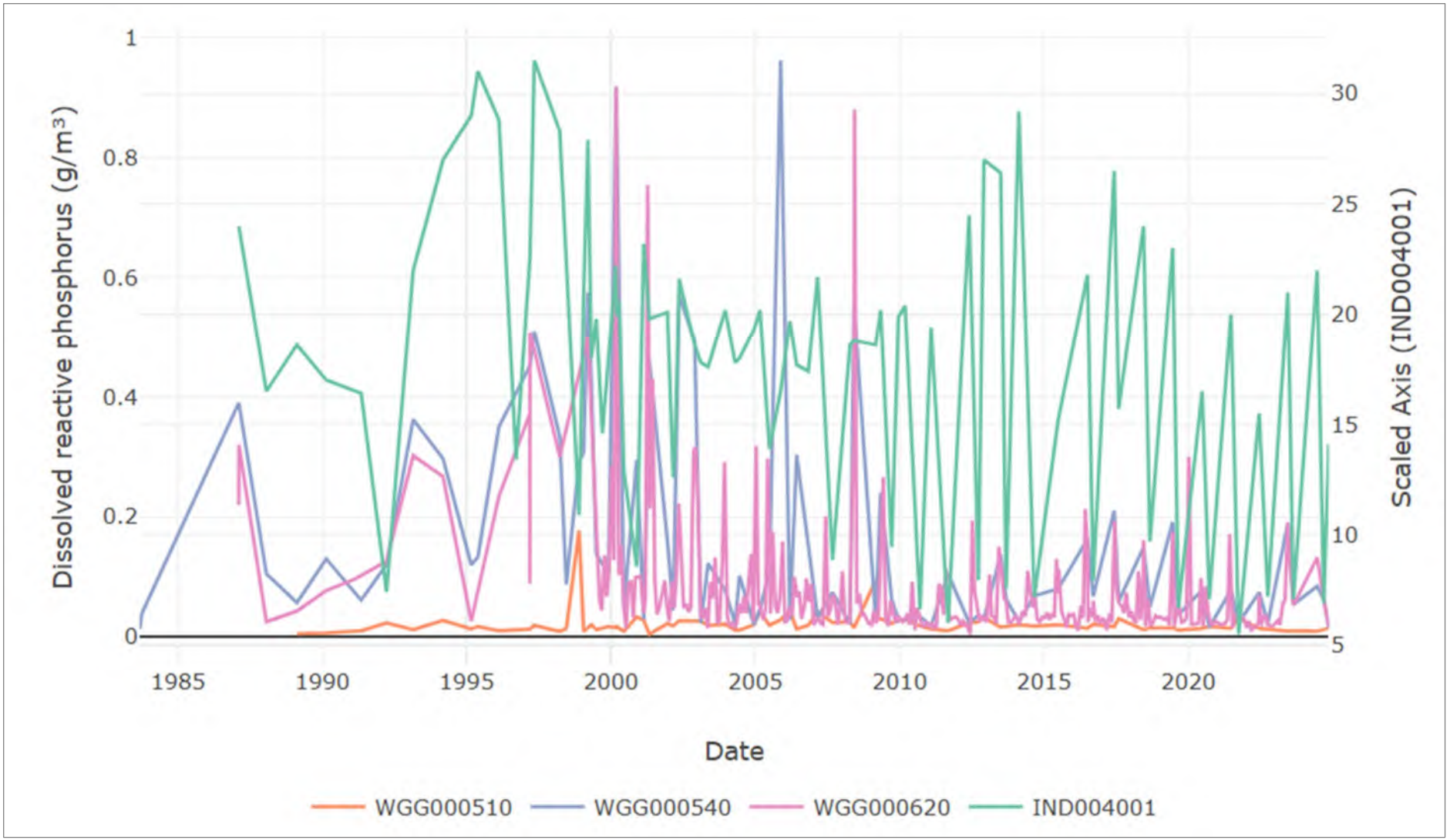


Figure 10 Dissolved reactive phosphorus concentrations

Table 9 A comparison of results from the biannual inter-laboratory surveys

		Parameters	pH	Temperature	NH_4	CBOD	DO	SS
		Units	pH unit	°C	g/m^3	$g\ O_2/m^3$	$g\ O_2/m^3$	g/m^3
Sites	Time	Sampler	20 June 2024					
WGG000510	11:15	TRC	7.6	8.7	0.013	< 1.0	12.92	4
		ANZCO	7.3	8.1	0.02	-	10.1	-
IND004001	11:00	TRC	8.0	12.2	154	13.2	5.44	33
		ANZCO	8.0	11.6	140	*166 (COD)	5.9	70
WGG000540	11:30	TRC	7.6	8.6	0.55	< 1.0	12.96	4
		ANZCO	7.4	8.7	0.59	-	10.1	-
			12 September 2024					
WGG000510	09:15	TRC	7.7	10.8	0.020	< 1.0	11.19	< 3
		ANZCO	7.6	10.6	0.02	-	11.8	-
IND004001	09:30	TRC	8.2	14.0	84	67	8.70	30
		ANZCO	8.2	14.0	96	*83 (COD)	9.7	< 10
WGG000540	10:00	TRC	7.7	11.1	0.65	< 1.0	11.06	< 3
		ANZCO	7.6	10.8	0.72	-	11.8	-

Note: *ANZCO's laboratory does not have the equipment to test for CBOD, this is undertaken by the Council. ANZCO laboratory has the facilities to test for COD and this is undertaken on a weekly basis to monitor the stability of discharge conditions.

2.3.2 Surface water monitoring undertaken by the Company

Monitoring of a reduced suite of analytes is undertaken by the Company weekly and analysed in their on-site laboratory. Downstream dissolved oxygen (DO) concentrations (Figure 11) indicate that DO remained above the 6g/m^3 limit during the monitoring year.

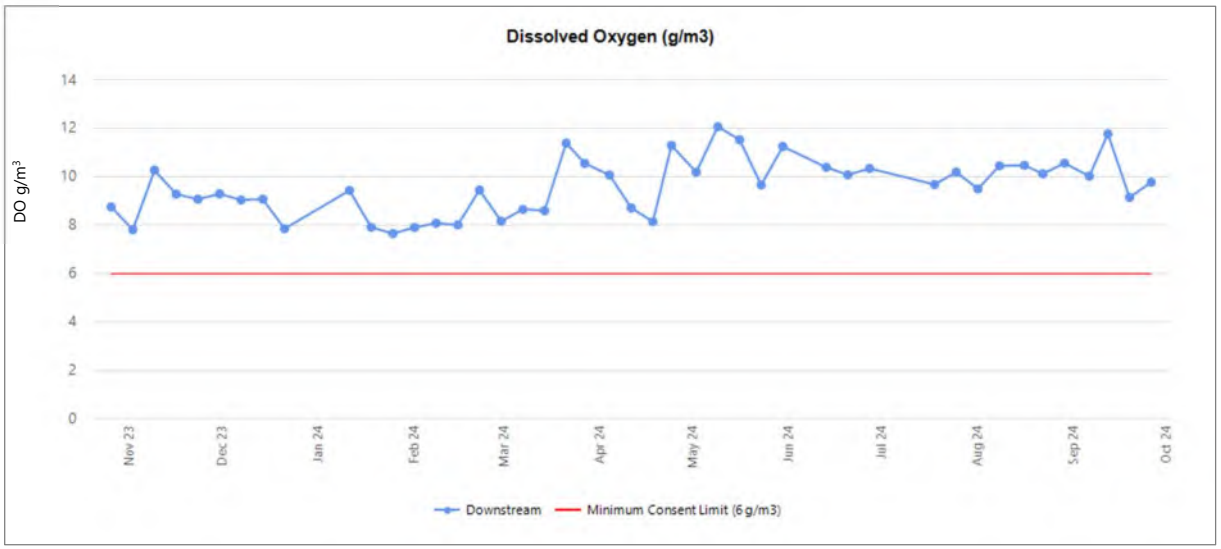


Figure 11 Dissolved oxygen concentrations downstream of discharge

Downstream ammonium (NH_4) and pH are displayed in Table 12. The highest ammonium concentrations can be seen downstream between May and July 2024.

Table 1 in Consent 2039-4.1 describes the maximum total ammonia concentration in the Waingongoro River for a given pH. The total concentration of ammonia during the period under review was compliant with the consent conditions.

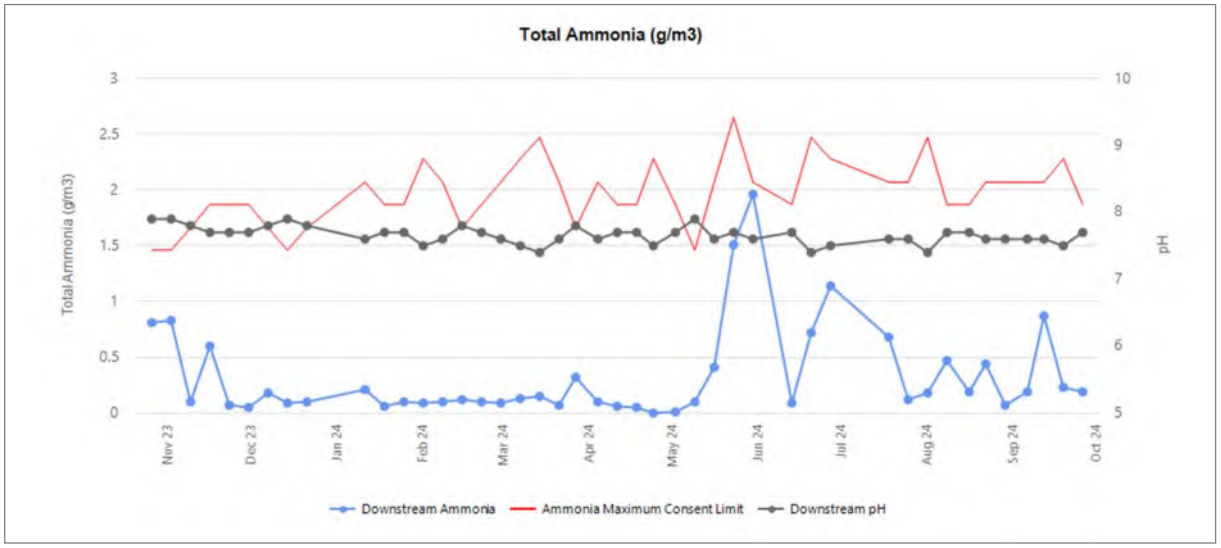


Figure 12 Ammonium and pH concentrations downstream of discharge.

Results from the inter-laboratory comparisons undertaken on 20 June and 12 September 2024 are displayed in Table 9. Although the samples are collected simultaneously, there are some minor differences (generally > 5%) seen between results reported by the Council and the Company's on-site laboratory. The differences between soluble analytes may arise from the heterogeneity of the fluids sampled. The small discrepancies between pH (which is a time sensitive parameter) may be a consequence of samples being analysed outside

of recommended laboratory holding times. Samples indicated that the effects of discharging wastewater to the Waingongoro River were within consented limits.

2.3.3 Discharge to land

Discharge to land by irrigation is permitted under Consent 5569-1 (Stuart Road irrigation area) and Consent 5736-2 (Paulwell Farm irrigation area). Limits have been set on the daily rate of discharge, on the effects of odour and spray drift on the land irrigated and surrounding the activity. The Company is also required to provide a management plan that details how the discharge and any effects will be monitored and minimised. ANZCO considered commencing irrigation at Paulwell farm during the 2021/22 monitoring year, therefore environmental monitoring conducted by the Council started in November 2021. To date (January 2025), irrigation at Paulwell Farm had not started. Monitoring at the Paulwell Farm site is currently undertaken to ascertain background levels prior to irrigation. The sampling undertaken at Stuart Road is to assess any impacts from irrigation on shallow water resources.

Water quality monitoring in the vicinity of the discharges to land irrigated under Consent 5569-1 (Stuart Road irrigation area) is undertaken by the Council at approximately quarterly intervals at ten shallow groundwater monitoring sites and three surface water monitoring sites. Results from sampling undertaken between 1 October 2023 and 30 September 2024 for groundwater monitoring sites are presented in Table 12 to Table 20, and surface water monitoring sites in Table 22 to Table 24.

Water quality monitoring in the vicinity of the discharges to land irrigated under Consent 5736-2 (Paulwell Farm irrigation area) was undertaken by the Council at quarterly intervals at three groundwater monitoring sites and four shallow surface water monitoring sites. Results from sampling undertaken between 1 October 2023 and 30 September 2024 for groundwater monitoring sites are presented in Table 25 to Table 27, and surface water monitoring results are presented in Table 29 to Table 32.

2.3.3.1 Stuart Road irrigation area

2.3.3.1.1 Effluent and nitrogen loading application rates

The Company monitors the volume of effluent pumped from the plant for discharge to land and uses this to calculate the volume of effluent irrigated to each paddock, using the area of the paddock and an assumed standard application depth of 45mm. Nitrogen loadings are then calculated using the weekly total nitrogen value per hectare (Table 10).

The data provided shows that irrigation to land was undertaken between 2 October 2023 and 8 July 2024 across 39 weeks of the year. A total of 294,664m^3 of effluent was irrigated, which accounted for 69.8% of the total effluent discharged over the review period. This represents a total of 44,530.84kg of nitrogen (Table 11), which is higher than the amount applied in the last three monitoring periods 29,717kg (2022/23), 32,924kg and 32,512kg in 2020/21 and 2021/22 monitoring periods, respectively. The total volume of effluent irrigated was higher than the volume irrigated in the last monitoring period. Seven exceedances of the consent limited of 300kg were recorded during the 2023/24 monitoring year. These were measured at 390.4, 425, 326.5, 307.8, 305.2, 312.3 and 342.9kg on paddocks P5, P6, P7, P8, P10, O13 and O15 respectively. Since the Company stopped discharging the blood through the settlement pond system (2017-2018), and started to transport blood off-site for processing, the concentration of nitrogen has significantly decreased. It is noted that this does not take account of any dairy shed effluent or fertiliser that may also be applied. It is proposed that this be addressed in the re-issued consents for those expiring in June 2026.

Table 10 Nitrogen loadings from 1 October 2023 to 30 September 2024

Nitrogen loadings from irrigation to Stuart Road Block 2022-2023 season											
Paddock	kg/Ha	Paddock	kg/Ha	Paddock	kg/Ha	Paddock	kg/Ha	Paddock	kg/Ha	Paddock	kg/Ha
B1	269.2	Y1	0	P1	119.3	O1	0	G1	134.8	G23	210.6
B2	194.6	Y2	0	P2	67.9	O2	251.2	G2	135.9	G24	191.7
B3	266.8	Y3	142.2	P3	198.2	O3	240.3	G3	149.6	G25	187
B4	230	Y4	151.9	P4	164.3	O4	221.8	G4	0	G26	176
B5	132.3	Y5	0	P5	**390.4**	O5	110.7	G5	0	G27	219.8
B6	181.8	Y6	0	P6	**425**	O6	65.9	G6	0	G28	285.1
B7	115.2	Y7	120.9	P7	**326.5**	O7	0	G7	0	G29-	214.3
B8	126.7	Y8	288.7	P8	**307.8**	O8	59.7	G8	0		
B9	231.3	Y9	280.9	P9	155	O9	235.8	G9	0	-	-
B10	244.9	Y10	78.3	P10	**305.2**	O10	142.2	G10	0	-	-
B11	123.3	Y11	140.8	-	-	O11	276.3	G11	0	-	-
B12	209.5	Y12	141.5	-	-	O12	191.7	G12	148.7	-	-
B13	59.7	Y13	138.7	-	-	O13	**312.3**	G13	156.1	-	-
B14	209.2	Y14	74.7	-	-	O14	230.4	G14	215.1	-	-
B15	248	Y15	117	-	-	O15	**342.9**	G15	129.6	-	-
B16	205	Y16	215.1	-	-	-	-	G16	151.8	-	-
B17	267.1	Y17	204.5	-	-	-	-	G17	126.7	-	-
B18	200.5	Y18	275	-	-	-	-	G18	183.6	-	-
B19	153.5	Y19	214.2	-	-	-	-	G19	126.7	-	-
-	-	Y20	282.4	-	-	-	-	G20	126.3	-	-
-	-	Y21	0	-	-	-	-	G21	0	-	-
-	-	Y22	0	-	-	-	-	G22	213.3	-	-

Note: Bold indicates exceedances of the 300kg N/ha/year limit.

Table 11 Nitrogen irrigated to the paddocks since 2016/17 period

Period	Kg nitrogen/year
2023/24	44,531
2022/23	29,717
2021/22	32,512
2020/21	32,924
2019/20	30,294
2018/19	37,269
2017/18	52,030
2016/17	66,081

2.3.3.1.2 Groundwater quality monitoring

The results for the Stuart Road groundwater monitoring are displayed in Table 12 to Table 20.

Table 12 Groundwater sampling undertaken by the Council at GND0849 (control site)

	Date	7 Dec 2023	7 Mar 2024	31 May 2024	5 Sep 2024
Parameters	Time	13:15	11:10	14:00	14:40
Level	m	6.17	7.19	7.64	2.97

	Date	7 Dec 2023	7 Mar 2024	31 May 2024	5 Sep 2024
Parameters	Time	13:15	11:10	14:00	14:40
Temperature	°C	15.3	13.3	13.2	11.4
Chloride	g/m³	-	-	13.1	14.7
Dissolved calcium	g/m³	-	-	10.4	11.3
Dissolved iron	g/m³	-	-	< 0.02	< 0.02
Dissolved magnesium	g/m³	-	-	4.5	4.7
Dissolved manganese	g/m³	-	-	0.0012	0.0038
Dissolved potassium	g/m³	-	-	6.2	8.4
Dissolved sodium	g/m³	-	-	15.6	13.5
pH	pH units	6.7	6.5	7.1	6.7
Electrical conductivity	mS/m	16.7	18.0	18.8	18.7
NH3	g/m³ N	< 0.000014	< 0.000010	< 0.00004	< 0.000010
NH4	g/m³ N	< 0.010	< 0.010	< 0.010	< 0.010
NNN	g/m³ N	4.0	4.4	4.6	4.9
Sulphate	g/m³	-	-	8.8	10.1
Total aluminium	g/m³	-	-	0.0059	0.023

Table 13 Groundwater sampling undertaken by the Council at GND1187

	Date	7 Dec 2023	7 Mar 2024	31 May 2024	4 Oct 2024
Parameters	Time	11:45	10:20	12:00	09:40
Temperature	°C	15.3	13.4	13.6	16.3
Chloride	g/m³	-	-	45	35
Dissolved calcium	g/m³	-	-	17.5	14.8
Dissolved iron	g/m³	-	-	< 0.02	< 0.02
Dissolved magnesium	g/m³	-	-	7.6	7.2
Dissolved manganese	g/m³	-	-	0.0024	0.0009
Dissolved potassium	g/m³	-	-	3.4	3.2
Dissolved sodium	g/m³	-	-	23	23
pH	pH units	6.7	6.7	6.6	6.7
Electrical conductivity	mS/m	27.5	27.9	28.8	25.5
NH3	g/m³ N	0.000020	0.000012	< 0.000011	< 0.000014
NH4	g/m³ N	0.014	0.010	< 0.010	< 0.010
NNN	g/m³ N	5.0	4.8	5.0	4.1
Sulphate	g/m³	-	-	4.9	5.5
Total aluminium	g/m³	-	-	0.0192	0.0051

Table 14 Groundwater sampling undertaken by the Council at GND1188

	Date	7 Dec 2023	7 Mar 2024	31 May 2024	5 Sep 2024
Parameters	Time	-	10:05	11:45	12:20
Temperature	°C	-	14.1	14.1	14.2
Chloride	g/m³	-	-	29	28
Dissolved calcium	g/m³	-	-	18.4	20
Dissolved iron	g/m³	-	-	< 0.02	< 0.02

Parameters	Date	7 Dec 2023	7 Mar 2024	31 May 2024	5 Sep 2024
	Time	-	10:05	11:45	12:20
Dissolved magnesium	g/m³	-	-	6.9	8.0
Dissolved manganese	g/m³	-	-	0.0025	0.0015
Dissolved potassium	g/m³	-	-	7.9	8.4
Dissolved sodium	g/m³	-	-	19.9	22
pH	pH units	-	6.8	6.4	6.6
Electrical conductivity	mS/m	-	28.9	29.1	29.6
NH_3	g/m³ N	-	< 0.000018	< 0.000010	< 0.000012
NH_4	g/m³ N	-	< 0.010	< 0.010	< 0.010
NNN	g/m³ N		11.7	10.9	7.1
Sulphate	g/m³	-	-	14.4	36
Total aluminium	g/m³	-	-	0.0037	0.0188

Table 15 Groundwater sampling undertaken by the Council at GND1196

Parameters	Date	7 Dec 2023	7 Mar 2024	31 May 2024	5 Sep 2024
	Time	10:30	09:40	10:40	13:50
Level	m	5.45	5.65	5.74	2.83
Temperature	°C	14.0	13.6	13.7	13.7
pH	pH units	6.9	6.9	6.7	6.7
Electrical conductivity	mS/m	20.1	20.2	20.3	20.0
Chloride	g/m³	19.2	19.3	20	21
COD	g O_2/m³	20.1	<6	7	<6
Dissolved calcium	g/m³	11.0	11.0	10.7	11.0
Dissolved Iron	g/m³	-	-	<0.02	<0.02
Dissolved magnesium	g/m³	4.6	4.9	4.4	4.8
Dissolved Manganese	g/m³	-	-	< 0.0005	< 0.0008
Dissolved potassium	g/m³	6.3	6.3	6.0	6.4
Dissolved sodium	g/m³	19.3	20	19.2	19.2
NH_3	g/m³ N	< 0.00002	< 0.00002	< 0.000013	< 0.000013
NH_4	g/m³ N	< 0.010	< 0.010	< 0.010	< 0.010
NNN	g/m³ N	2.2	2.2	2.3	2.2
Sulphate	g/m³	-	-	10.1	9.4
Total aluminium	g/m³	-	-	1.42	0.60

Table 16 Groundwater sampling undertaken by the Council at GND1197

Parameters	Date	7 Dec 2023	7 Mar 2024	31 May 2024	5 Sep 2024
	Time	11:00	09:55	11:00	11:45
Level	m	3.60	4.00	3.84	2.85
Temperature	°C	14.1	13.8	14.1	13.7
pH	pH units	6.5	6.6	6.9	6.4
Electrical conductivity	mS/m	29.2	29.1	29.9	28.7
Chloride	g/m³	24	27	26	25
COD	g O_2/m³	14	<6	12	<6
Dissolved calcium	g/m³	15.4	15.2	15.6	15.2

	Date	7 Dec 2023	7 Mar 2024	31 May 2024	5 Sep 2024
Parameters	Time	11:00	09:55	11:00	11:45
Dissolved iron	g/m³	-	-	< 0.02	< 0.02
Dissolved magnesium	g/m³	6.2	6.6	6.2	6.4
Dissolved manganese	g/m³	-	-	0.0009	0.0020
Dissolved potassium	g/m³	7.9	7.6	7.4	9.0
Dissolved sodium	g/m³	27	30	28	29
NH_3	g/m³ N	< 0.000010	< 0.000011	< 0.00002	< 0.000010
NH_4	g/m³ N	< 0.010	< 0.010	< 0.010	< 0.010
NNN	g/m³ N	8.9	8.3	8.8	8.7
Sulphate	g/m³	-	-	21	22
Total Aluminium	g/m³	-	-	3.2.	0.13

Table 17 Groundwater sampling undertaken by the Council at GND1198

	Date	7 Dec 2023	7 Mar 2024	31 May 2024	5 Sep 2024
Parameters	Time	09:40	09:15	09:40	10:15
Level	m	2.43	2.84	2.42	1.79
Temperature	°C	13.7	13.5	13.8	13.2
pH	pH units	6.7	6.8	6.9	6.6
Electrical conductivity	mS/m	21.2	20.8	21.1	20.8
Chloride	g/m³	20	21	21	19.1
COD	g O_2/m³	11	<6	<6	<6
Dissolved calcium	g/m³	10.5	11.3	11.1	10.7
Dissolved iron	g/m³	-	-	< 0.02	< 0.02
Dissolved magnesium	g/m³	5.1	6.0	5.5	5.4
Dissolved manganese	g/m³	-	-	0.0030	0.0020
Dissolved potassium	g/m³	4.2	3.7	3.6	4.2
Dissolved sodium	g/m³	20	21	19.3	21
NH_3	g/m³ N	< 0.000012	< 0.000018	< 0.00002	< 0.000010
NH_4	g/m³ N	< 0.010	< 0.010	< 0.010	< 0.010
NNN	g/m³ N	4.3	4.2	4.4	4.6
Sulphate	g/m³	-	-	5.9	6.1
Total aluminium	g/m³	-	-	5.0	0.49

Table 18 Groundwater sampling undertaken by the Council at GND1306

	Date	7 Dec 2023	7 Mar 2024	31 May 2024	5 Sep 2024
Parameters	Time	10:10	09:25	10:10	-
Level	m	5.01	5.43	5.40	-
Temperature	°C	14.1	13.5	12.7	-
pH	pH units	6.7	6.8	6.6	
Electrical conductivity	mS/m	28.2	28.2	30.3	-
Chloride	g/m³	-	-	26	-
COD	g O_2/m³	-	-	-	-
Dissolved calcium	g/m³	-	-	19.4	-
Dissolved iron	g/m³	-	-	< 0.02	-
Dissolved magnesium	g/m³	-	-	7.2	-

	Date	7 Dec 2023	7 Mar 2024	31 May 2024	5 Sep 2024
Parameters	**Time**	**10:10**	**09:25**	**10:10**	**-**
Dissolved manganese	g/m^3	-	-	0.0006	-
Dissolved potassium	g/m^3	-	-	7.2	-
Dissolved sodium	g/m^3	-	-	23	-
NH_3	g/m^3 N	0.00042	0.000015	<0.000010	-
NH_4	g/m^3 N	0.36	<0.010	<0.010	-
NNN	g/m^3 N	6.3	6.3	8.7	-
Sulphate	g/m^3	-	-	25	-
Total aluminium	g/m^3	-	-	0.025	-

Table 19 Groundwater sampling undertaken by the Council at GND1344

	Date	7 Dec 2023	7 Mar 2024	31 May 2024	4 Oct 2024
Parameters	**Time**	**08:45**	**08:50**	**09:00**	**09:10**
Level	m	1.83	2.05	1.65	1.65
Temperature	°C	13.7	13.4	13.9	13.4
pH	pH units	7.0	7.1	6.9	6.9
Electrical conductivity	mS/m	24.8	25.7	26.0	25.9
Chloride	g/m^3	22	23	23	28
COD	g O_2/m^3	25	19	9	40
Dissolved calcium	g/m^3	12.9	15.4	13.2	13.7
Dissolved iron	g/m^3	-	-	8.4	1.45
Dissolved magnesium	g/m^3	6.7	9.5	6.8	7.9
Dissolved manganese	g/m^3	-	-	0.93	0.78
Dissolved potassium	g/m^3	7.8	7.3	8.7	8.1
Dissolved sodium	g/m^3	22	23	24	23
NH_3	g/m^3 N	0.0025	0.0032	0.0026	0.00121
NH_4	g/m^3 N	1.03	1.04	1.39	0.78
NNN	g/m^3 N	0.072	0.55	0.016	0.24
Sulphate	g/m^3	-	-	1.4	2.5
Total aluminium	g/m^3	-	-	2.8	22

Table 20 Groundwater sampling undertaken by the Council at GND1345

	Date	7 Dec 2023	7 Mar 2024	31 May 2024	5 Sep 2024
Parameters	**Time**	**11:45**	**10:30**	**13:00**	**13:10**
Level	m	3.80	3.53	3.53	2.92
Temperature	°C	14.4	13.9	14.0	14.3
pH	pH units	6.5	6.5	6.3	6.7
Electrical conductivity	mS/m	27.9	29.9	30.6	29.1
Chloride	g/m^3	27	31	31	27
COD	g O_2/m^3	10	<6	8	<6
Dissolved calcium	g/m^3	13.2	13.9	14.0	13.1
Dissolved iron	g/m^3	-	-	< 0.02	< 0.02
Dissolved manganese	g/m^3	-	-	0.0010	0.0022
Dissolved magnesium	g/m^3	7.5	8.8	7.7	7.6

Parameters	Date / Time	7 Dec 2023 11:45	7 Mar 2024 10:30	31 May 2024 13:00	5 Sep 2024 13:10
Dissolved potassium	g/m^3	5.4	6.0	5.8	5.7
Dissolved sodium	g/m^3	26	29	30	29
NH_3	g/m^3 N	< 0.000010	< 0.000010	< 0.000010 -	< 0.000013
NH_4	g/m^3 N	< 0.010	< 0.010	< 0.010-	< 0.010
NNN	g/m^3 N	8.7	9.3	9.9	8.8
Sulphate	g/m^3	-	-	24	25
Total aluminium	g/m^3	-	-	4.2	0.80

Note: red numbers may indicate exceedances in the DWS e.g., GND1188, or anomalous results e.g., GND1344

The results indicate that there were no significant differences between the concentrations of parameters reported for the period under review. However, it was noted that chemical oxygen demand (COD) was high at GND1344 on 4 October 2024 (40g/m^3) as was total aluminium (22g/m^3).

2.3.3.1.3 Nitrogen in groundwater

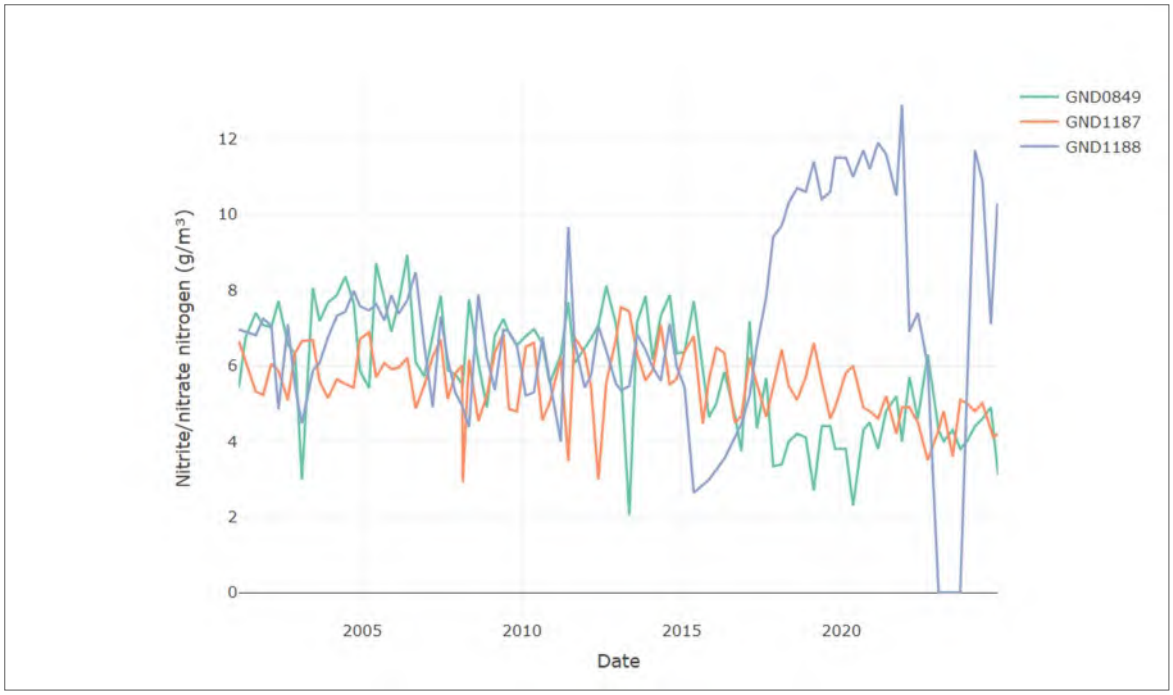
Nitrogen in groundwater is a common issue in irrigated areas and is closely monitored. Groundwater contamination often arises from the excessive application of fertiliser or farm effluent to paddocks. Contributions from animal urine, human wastewater or soil cultivation can also exacerbate this issue. Bore GND1189 was formerly used as a farm water supply. Due to elevated nitrate levels, the bore has been disconnected and was removed from the monitoring programme.

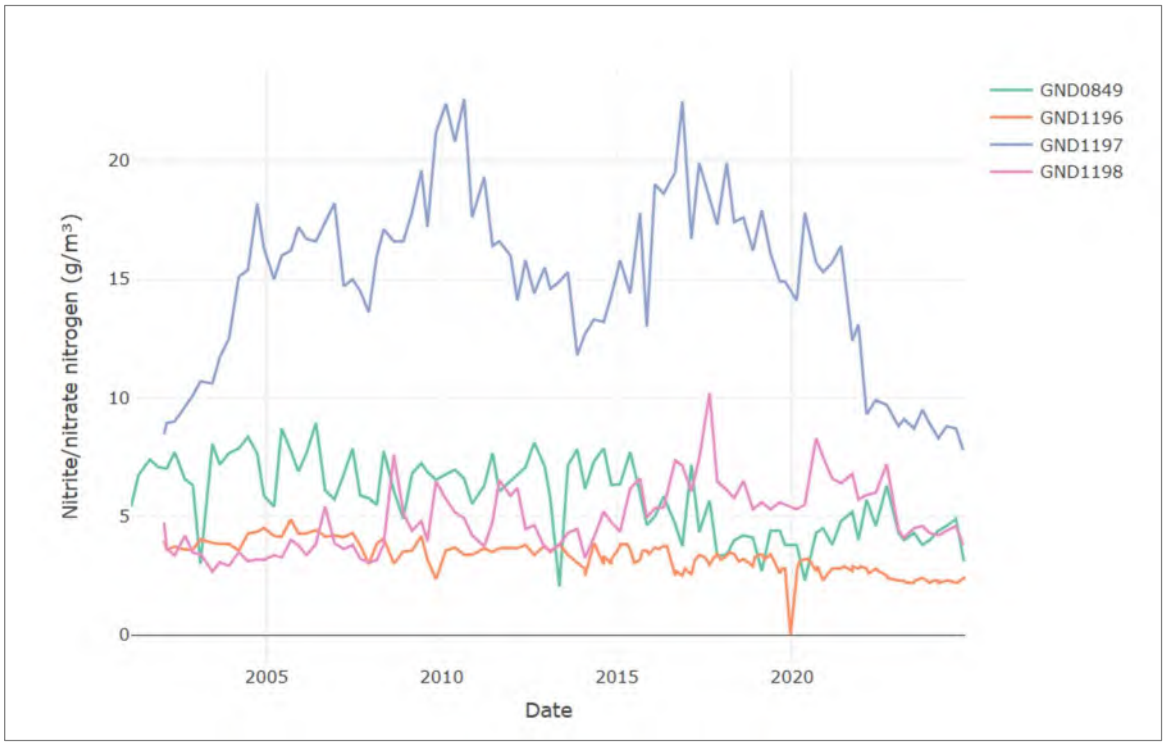
Longer term data for GND1197, GND1306 and GND1345 (Figure 13a to 13c) show that historically nitrate-nitrite concentrations have ranged between 10 to up to 22.5g/m^3, with exceedances of the DWS limit occurring for a significant portion of time. A declining trend has been recorded since 2017 for these bores. For the current monitoring year, these results have all been below the 11.3g/m^3 DWS limit.

Results for GND0849, GND1187 and GND1188 have generally not exceeded 8g/m^3 nitrate-nitrite nitrogen (Figure 13a), with the exception of GND1188 which recorded values over the DWS from 2019 to 2021 and then again very slightly in March 2024. The levels dropped thereafter.

Nitrate-nitrite values for GND1196 and GND1198 have generally been below 10g/m^3, with GND1196 recording the lowest values after GND1344, with values fluctuating below 5g/m^3 (Figure 13b).

The lowest concentrations of nitrate-nitrogen have been recorded in bore GND1344 which is located in the eastern section of the Stuart Road irrigation area shows significantly lower concentrations of nitrogen than the other bores, with a peak value of 2.44g/m^3 recorded (Figure 13c). Groundwater at this site is also impacted by the discharge of organic rich effluent, resulting in high COD (Table 19).


GND0849
GND1187
GND1188
Nitrite/nitrate nitrogen (g/m³)
0
2
4
6
8
10
12
2005
2010
2015
2020
Date


GND0849
GND1196
GND1197
GND1198
Nitrite/nitrate nitrogen (g/m³)
0
5
10
15
20
2005
2010
2015
2020
Date

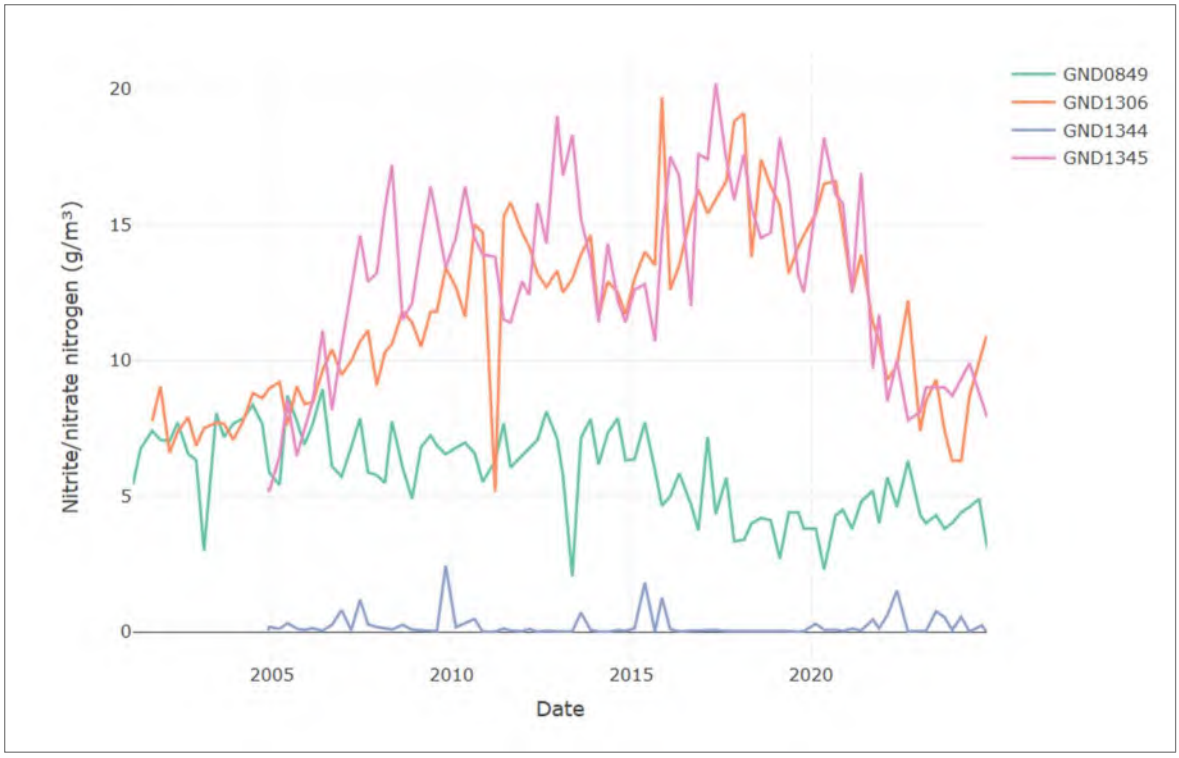


Figure 13 Nitrate and nitrite as N concentrations in groundwater 2001-2024

Note: (a) bores GND1187, GND1188, (b) bores GND1196, GND1197, GND1198, and (c) bores GND1306, GND1344, GND1345. Bore GND0849 is the control bore and is represented in the three figures as a reference

In the Council's 2021/22 Annual report it was stated that the nitrate concentrations in GND1345, GND1306, GND1197, and GND1188 all exceeded the recommended limit of 11.3 mg/L (as N) for drinking water. The nitrate concentrations found in these bores between 1 October 2023 and 30 September 2024 are summarised in Table 21. During the period under review, the recommended limit of nitrogen for drinking water was exceeded on one occasion in GND1188.

Table 21 Summary of nitrate+nitrite nitrogen concentration in selected Stuart Road irrigation bores for the 2023/24 monitoring year

	GND0849 (control)	GND1345	GND1306	GND1197	GND1188
Number of samples	4	4	3	4	3
Range (g/m^3 N)	4.0 – 4.9	8.7 – 9.9	6.3– 8.7	8.3 – 8.9	7.1 – 11.7
Median (g/m^3 N)	4.5	9.05	6.3	8.75	10.9
No samples exceeding DWS	0	0	0	0	1

2.3.3.1.4 Surface water monitoring

Surface water monitoring is undertaken at three sites WGG000657, WGG000660 and WGG000663 in the vicinity of the Stuart Road irrigation discharge site. Site WGG000657 is the furthest site upstream of irrigated land (but near paddock B15) and sites WGG000660 and WGG000663 are located within the irrigation zone (Figure 2). Results are displayed in Table 22, Table 23 and Table 24.

Table 22 Surface water quality results WGG000657

	Date	7 Dec 2023	7 Mar 2024	31 May 2024	5 Sep 2024
Parameter	Time	12:45	10:55	13:30	14:15
Temperature	°C	14.7	13.4	13.2	13.1

	Date	7 Dec 2023	7 Mar 2024	31 May 2024	5 Sep 2024
Parameter	**Time**	**12:45**	**10:55**	**13:30**	**14:15**
pH	pH	7.4	7.7	7.3	7.4
Electrical conductivity	mS/m	21.1	21.6	22.5	17.0
Turbidity	FNU	3.2	18.6	7.5	4.5
NH_3	g/m^3 N	<0.00007	0.00014	<0.00006	0.00010
NH_4	g/m^3 N	<0.010	0.012	<0.010	0.017
Nitrate and nitrite as N	g/m^3 N	3	3.3	3.3	1.91
DRP	g/m^3 P	0.004	0.009	-	-

Table 23 Surface water quality results WGG000660

	Date	7 Dec2023	7 Mar 2024	31 May 2024	5 Sep 2024
Parameter	**Time**	**09:10**	**09:00**	**09:20**	**10:35**
Temperature	°C	14.7	12.4	11.9	11.0
pH	pH	7.4	7.8	7.2	7.4
Electrical conductivity	mS/m	23.1	25.3	24.0	22.6
Turbidity	FNU	3.4	6.3	1.97	3.4
NH_3	g/m^3 N	0.00018	0.00041	0.00024	0.00024
NH_4	g/m^3 N	0.027	0.032	0.067	0.049
Nitrate and nitrite as N	g/m^3 N	1.75	1.24	2.1	3.1
DRP	g/m^3 P	0.005	0.007	-	-

Table 24 Surface water quality results WGG000663

	Date	7 Dec 2023	7 Mar 2024	31 May 2024	5 Sep 2024
Parameter	**Time**	**11:30**	**10:00**	**11:20**	**12:00**
Temperature	°C	15.3	13.5	12.1	11.6
pH	pH	7.6	7.7	7.5	7.5
Electrical conductivity	mS/m	20.3	22.7	22.4.	18.1
Turbidity	FNU	5.9	1.78	5.9	6.3
NH_3	g/m^3 N	0.00028	0.00033	0.00025	0.00018
NH_4	g/m^3 N	0.024	0.028	0.040	0.025
Nitrate and nitrite as N	g/m^3 N	2.2	1.87	2.1	2.3
DRP	g/m^3 P	0.009	0.008	-	-

Note: red values indicate exceedances of the Aesthetic values for Drinking Water guidelines

Historically, all recorded nitrate-nitrite values for the surface water sites were below $9g/m^3$ with WGG000657 generally recording the highest values (Figure 14). Nitrate and nitrite concentrations for WGG000660 increased since 2013, then generally declined since 2018. There is no obvious trend for WGG000663; levels largely remained below $4g/m^3$.

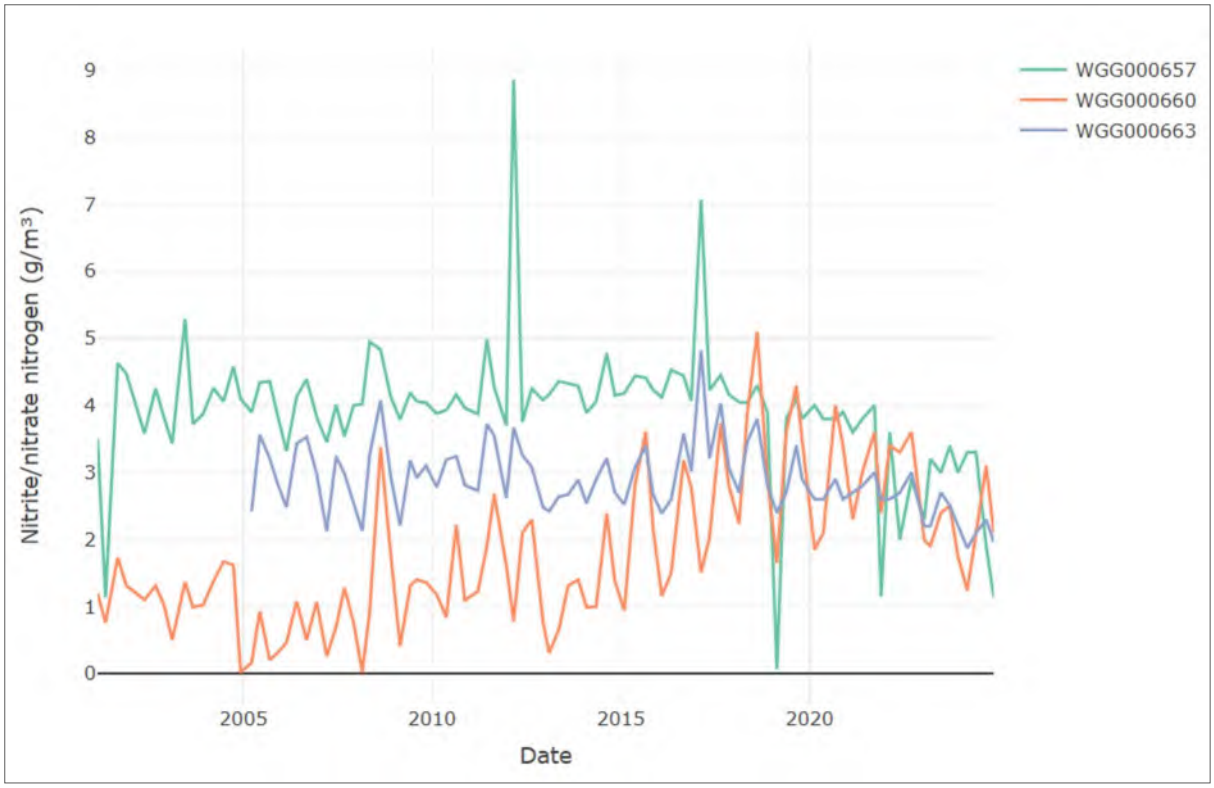


Figure 14 Nitrate and nitrite as N concentrations in surface water 2001-2024

2.3.3.2 Paulwell Farm irrigation area

2.3.3.2.1 Groundwater quality monitoring

Baseline groundwater quality sampling at Paulwell Farm was undertaken at three sites during the year under review. The quarterly monitoring results are presented in Table 25, Table 26 and Table 27. The baseline data will be used for comparison to the data that is collected following the start of irrigation at this location.

Table 25 Groundwater sampling undertaken by the Council at GND3116

	Date	5 Oct 2023	4 Jan 2024	9 Apr 2024	7 Aug 2024
Parameters	**Time**	**12:20**	**12:25**	**13:10**	**12:25**
Level	m	5.61	6.76	7.05	5.56
Temperature	°C	15.0	14.9	15.1	13.7
pH	pH units	6.5	6.4	6.5	6.6
DO	g O_2/m^3	6.01	6.10	8.36	7.88
	%	58.7	61.6	85.0	77.2
Electrical conductivity	mS/m	24.9	26.0	25.6	24.3
Chloride	g/m^3	27	27	23	23
COD	g O_2/m^3	< 6	<6	8	< 6
Dissolved calcium	g/m^3	16.3	18.9	17.6	16.4
Dissolved magnesium	g/m^3	9.1	9.0	8.8	8.1
Dissolved potassium	g/m^3	5.3	6.0	6.6	5.2
Dissolved sodium	g/m^3	17.0	16.1	21	14.8

	Date	5 Oct 2023	4 Jan 2024	9 Apr 2024	7 Aug 2024
Parameters	Time	12:20	12:25	13:10	12:25
NH_3	g/m^3	< 0.000010	< 0.000010	< 0.000010	< 0.000012
NH_4	g/m^3	< 0.010	< 0.010	< 0.010	< 0.010
NNN	g/m^3	4.0	3.9	3.7	3.9

Table 26 Groundwater sampling undertaken by the Council at GND3117

	Date	5 Oct 2023	4 Jan 2024	9 Apr 2024	7 Aug 2024
Parameters	Time	11:00	10:40	11:55	12:00
Level	m	5.10	6	6.19	5.0
Temperature	°C	14.7	14.9	14.9	14.0
pH	pH units	6.8	6.9	6.7	7.0
DO	$g\ O_2/m^3$	0.85	3.98	1.17	0.85
	%	8.6	40.1	11.7	8.3
Electrical conductivity	mS/m	24.7	26.5	24.7	24.9
Chloride	g/m^3	14.5	15.9	15.7	15.4
COD	$g\ O_2/m^3$	< 6	8	< 6	< 6
Dissolved calcium	g/m^3	15.9	18.5	16.8	17.5
Dissolved magnesium	g/m^3	7.1	7.5	7.9	7.1
Dissolved potassium	g/m^3	7.4	8.2	7.3	7.0
Dissolved sodium	g/m^3	23	22	24	22
NH_3	g/m^3	0.000025	0.00048	<0.000013	<0.00003
NH_4	g/m^3	0.016	0.24	<0.010	<0.010
NNN	g/m^3	0.75	0.24	0.97	0.71

Table 27 Groundwater sampling undertaken by the Council at GND3118

	Date	5 Oct 2023	4 Jan 2024	9 Apr 2024	7 Aug 2024
Parameters	Time	10:05	09:20	11:05	11:15
Level	m	2.41	2.82	3.01	2.38
Temperature	°C	13.8	14.8	15.3	13.6
pH	pH units	7.5	7.3	7.2	7.4
DO	$g\ O_2/m^3$	0.25	0.36	6.08	0.31
	%	2.6	3.7	60.9	3.0
Electrical conductivity	mS/m	21.0	21.4	21.3	21.4
Chloride	g/m^3	18.9	19.9	21	19.5
COD	$g\ O_2/m^3$	< 6	9	8	10
Dissolved calcium	g/m^3	8.4	9.5	8.7	9.6
Dissolved magnesium	g/m^3	6.1	6.0	6.0	6.1
Dissolved potassium	g/m^3	6.1	6.5	5.9	6.2
Dissolved sodium	g/m^3	25	23	25	23
NH_3	g/m^3	0.0049	0.0034	0.0026	0.0041

	Date	5 Oct 2023	4 Jan 2024	9 Apr 2024	7 Aug 2024
Parameters	Time	10:05	09:20	11:05	11:15
NH_4	g/m^3	0.65	0.63	0.66	0.70
NNN	g/m^3	0.007	0.004	0.032	0.002

Overall, all the parameters were relatively stable throughout the year. All analytes relevant to the DWS or the Aesthetic values for drinking water were below the recommended values.

2.3.3.2.2 Nitrogen in groundwater

An increase in the concentration of NNN can be seen, most notably in bore GND3116 (Figure 15) which recorded the highest levels of the three bores. The NNN concentration in the other two bores is relatively low for groundwater underlying an agricultural area. The NNN median at site GND3116 is comparable to the control site of the Stuart irrigation area or NNN historical levels at sites GND1196 and GND1198.

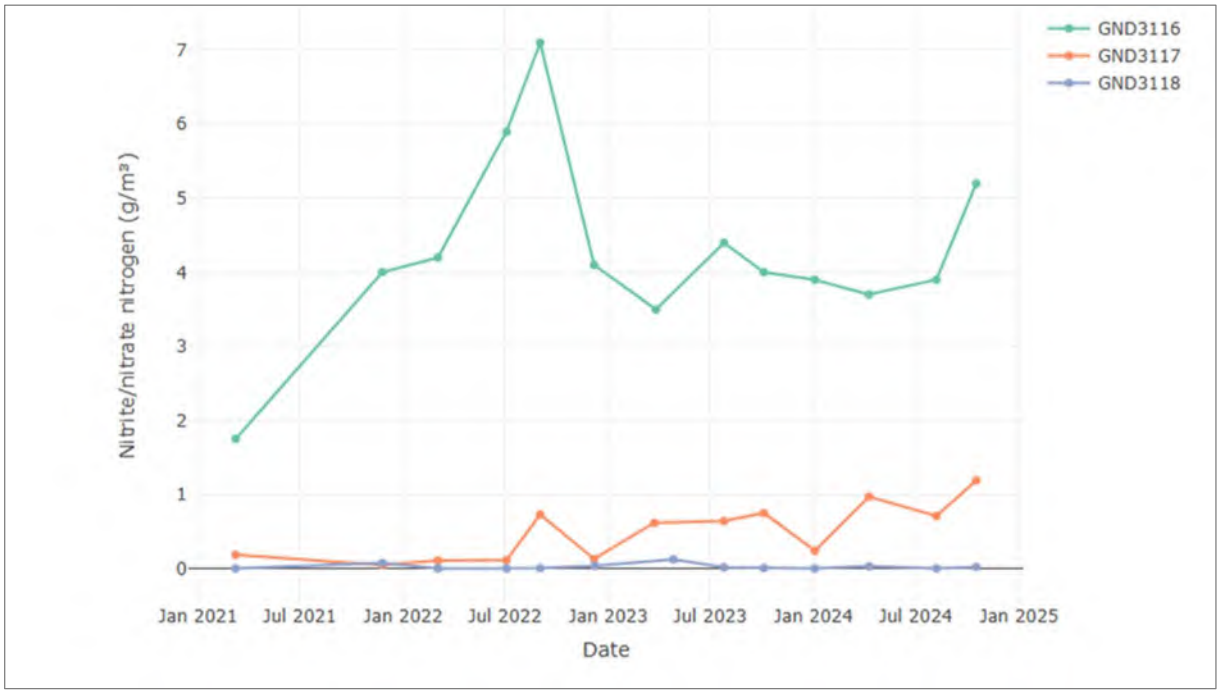


Figure 15 Nitrate and nitrite as N concentrations in groundwater 2021-2024

Since monitoring of the groundwater at Paulwell Farm, the recommended limit of nitrogen for drinking water was not exceeded. The results are presented in Table 28.

Table 28 Summary of Paulwell Farm groundwater NNN concentrations from 2021 to 2024

	GND3116	GND3117	GND3118
Number of samples	13	13	11
Range (g/m^3 N)	1.5– 7.1	0.048 – 0.97	< 0.002 – 0.125
Median (g/m^3 N)	4	0.63	0.0045
No samples exceeding DWS	0	0	0

2.3.3.2.3 Surface water quality

Baseline surface water quality sampling was undertaken at four sites in October 2023 and August 2024 and at three sites in January and April 2024 (Table 29 to Table 32). Ammoniacal nitrogen values were less than $0.043g/m^3$ and Nitrate-nitrogen values were less than $4.1g/m^3$. DRP values ranged from less than $0.004g/m^3$ to $0.024g/m^3$.

Table 29 Surface water quality results WGG000708

	Date	5 Oct 2023	4 Jan 2024	9 Apr 2023	7 Aug 2024
Parameter	Time	11:55	13:20	13:55	14:00
Temperature	°C	12.6	15.7	13.9	9.8
pH	pH	7.7	7.8	7.6	7.5
Electrical conductivity	mS/m	14.2	14.7	17.1	14.6
Turbidity	FNU	3.6	1.71	2.3	4.3
NH_3	g/m^3 N	0.00012	0.0003	0.00017	<0.00006
NH_4	g/m^3 N	0.011	0.017	0.015	<0.010
Nitrate and nitrite as N	g/m^3 N	2.1	1.42	1.33	2.1
DRP	g/m^3 P	0.011	0.024	0.020	0.010

Table 30 Surface water quality results WGG000712

	Date	5 Oct 2023	4 Jan 2024	9 Apr 2023	7 Aug 2024
Parameter	Time	10:45	11:45	12:40	13:40
Temperature	°C	13.0	14.2	12.5	11.2
pH	pH	7.6	7.6	7.5	7.3
Electrical conductivity	mS/m	18.5	19.1	18.6	19.5
Turbidity	FNU	4.6	15.3	17.8	14.3
NH_3	g/m^3 N	0.00012	0.00027	0.00029	0.00016
NH_4	g/m^3 N	0.013	0.027	0.042	0.038
Nitrate and nitrite as N	g/m^3 N	2.8	1.19	0.68	1.97
DRP	g/m^3 P	< 0.004	0.010	0.015	< 0.004

Table 31 Surface water quality results WGG000715

	Date	5 Oct 2023	4 Jan 2024	9 Apr 2024	7 Aug 2024
Parameter	Time	10:20	-	-	10:25
Temperature	°C	13.4	-	-	11.7
pH	pH	7.2-	-	-	7.1
Electrical conductivity	mS/m	19.4	-	-	19.1
Turbidity	FNU	1.01	-	-	19.0
NH_3	g/m^3 N	0.00011	-	-	<0.00003
NH_4	g/m^3 N	0.030	-	-	<0.010
Nitrate and nitrite as N	g/m^3 N	1.19	-	-	2.5
DRP	g/m^3 P	< 0.004	-	-	<0.004

Table 32 Surface water quality results WGG000716

	Date	5 Oct 2023	4 Jan 2024	9 Apr 2024	7 Aug 2024
Parameter	Time	10:30	11:25	12:20	13:20
Temperature	°C	12.1	14.1	13.0	10.5
pH	pH	7.5	7.3	7.2	7.4
Electrical conductivity	mS/m	19.0	19.7	20.1	19.6
Turbidity	FNU	18.6	10.5	28	14.6
NH_3	g/m^3	< 0.00008	0.00006	0.00008	< 0.00005
NH_4	g/m^3 N	< 0.010	0.012	0.020	< 0.010
Nitrate and nitrite as N	g/m^3 N	4.0	3.5	3.2	2.9

	Date	5 Oct 2023	4 Jan 2024	9 Apr 2024	7 Aug 2024
Parameter	Time	10:30	11:25	12:20	13:20
DRP	g/m^3 P	< 0.004	0.005	0.006	< 0.004

2.3.4 Biological surveys

The Council's standard 'kick-sampling' technique was used at three established sites to collect streambed macroinvertebrates from the Waingongoro River. Samples were collected in November 2023 (Spring survey) and in February 2024 (summer survey). The samples were processed to provide number of taxa (richness), MCI and SQMCI$_S$ scores, and EPT taxa for each site.

The MCI is a measure of the overall sensitivity of the macroinvertebrate community to the effects of organic pollution in stony streams. It is based on the presence/absence of taxa with varying degrees of sensitivity to environmental conditions. The SQMCI$_S$ takes into account taxa abundance as well as sensitivity to pollution and may reveal more subtle changes in communities. It may be the more appropriate index if non-organic impacts are occurring.

Significant differences in either the MCI or the SQMCI$_S$ between sites indicate the degree of adverse effects (if any) of the discharges being monitored.

2.3.4.1 16 November 2023 (Spring Survey)

Macroinvertebrate richness, presented in blue (Figure 16), was moderate to high at all three sites, with 20 to 24 taxa. Site 1 (the control site) had a taxa richness equal to site 2 (primary impact site) and four more than site 3 (secondary impact site).

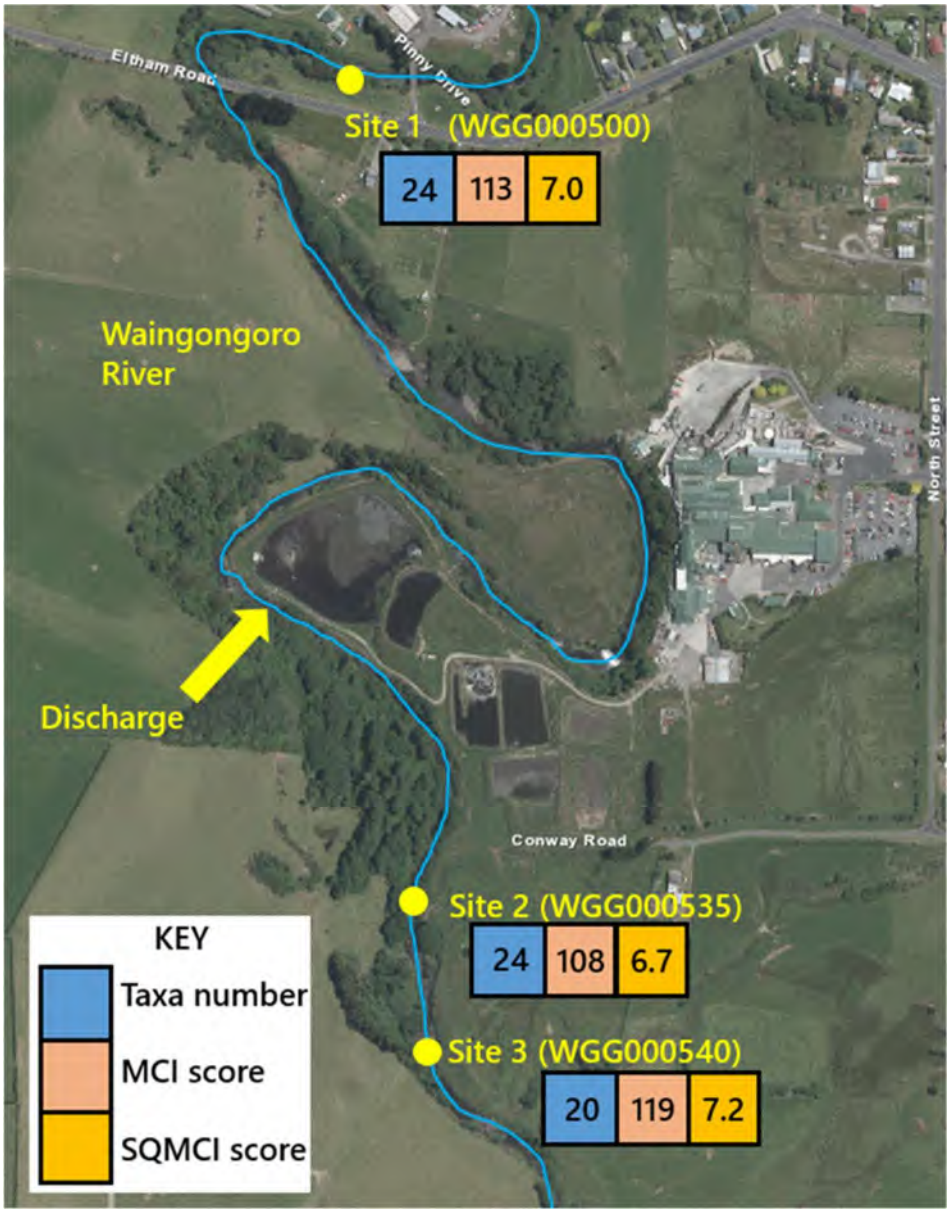


Figure 16 Biomonitoring sites in the Waingongoro River in relation to ANZCO meatworks discharges with taxa number, MCI scores and SQMCI scores for each site for the November 2023 survey

The MCI scores indicated 'good' macroinvertebrate community health at all three sites The SQMCI scores, SQMCI scores indicated that the macroinvertebrate community health was in 'excellent' condition at sites 1 and 3; and in 'very good' condition at site 2.

EPT taxa comprise the pollution sensitive mayfly, stonefly and caddisfly groups. The community comprising of these taxa ranged between 54% and 65%. There was an 11% increase in the percentage of EPT taxa within the community at site 3 compared to sites 1 and 2, with no difference in the number of EPT taxa present amongst all sites.

No heterotrophic growths were recorded indicating that discharges from ANZCO were not causing high levels of dissolved organic compounds in the Waingongoro River downstream of the discharge, which was consistent with the macroinvertebrate indices.

2.3.4.2 23 February 2024 (Summer Survey)

Macroinvertebrate richness, presented in blue (Figure 17), was. moderate at all three sites, ranging between 18 to 20 taxa. Site 1 (the 'control' site) had a taxa richness of 18 taxa, site 2 (primary 'impact' site) had 19 taxa and site 3 (secondary 'impact' site) had 20 taxa.

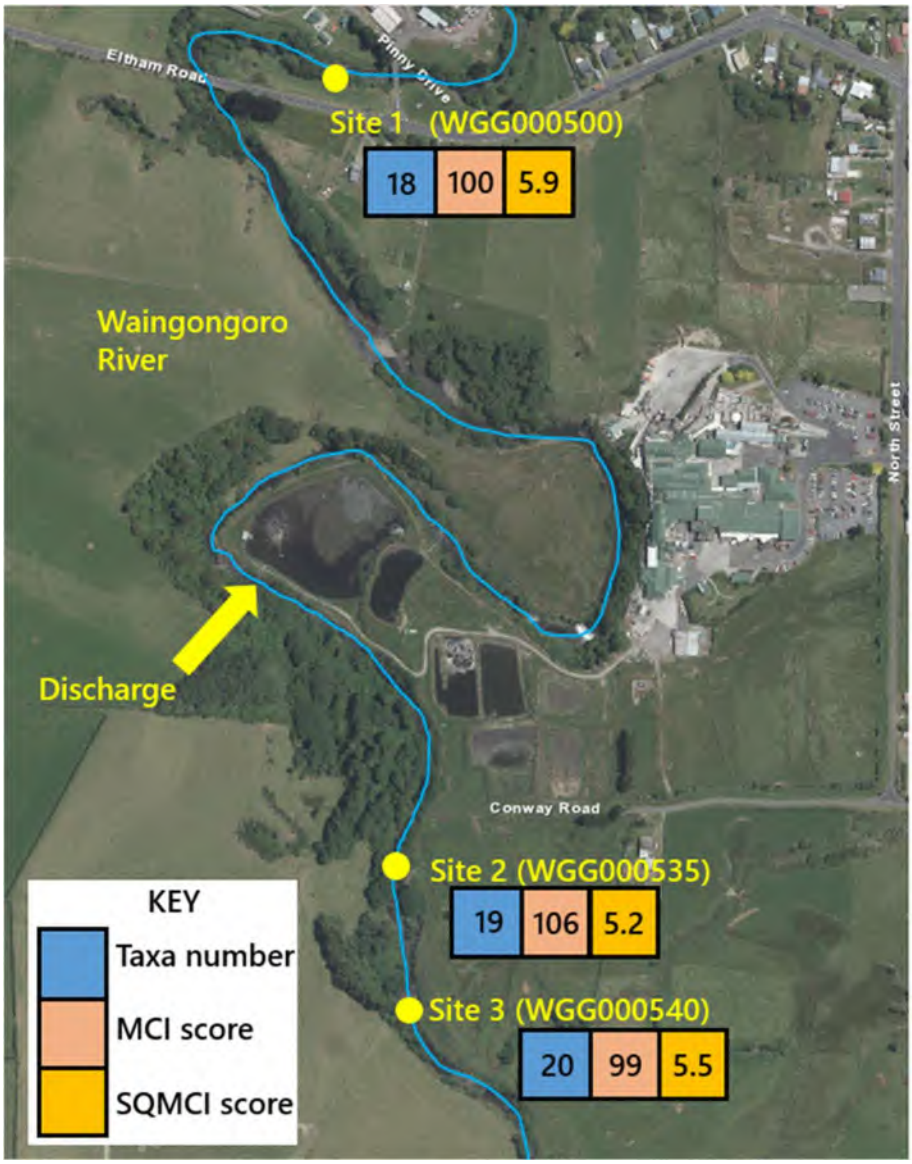


Figure 17 Biomonitoring sites in the Waingongoro River in relation to ANZCO meatworks discharges

Note: taxa number, MCI scores and SQMCI scores are presented for each site, for the February 2024 survey

The MCI scores indicated 'good' macroinvertebrate community health at sites 1 and 2, and 'fair' macroinvertebrate community health site 3.

The SQMCI, presented in yellow takes into account abundances as well as tolerance values and is therefore more sensitive than the MCI. SQMCI scores indicated that the macroinvertebrate community health was in 'good' condition at all three sites.

EPT taxa comprise the pollution sensitive mayfly, stonefly and caddisfly groups. The community comprising of ETP taxa ranged between 39% and 45%; with seven, eight and nine EPT taxa present at sites 1, 2 and 3, respectively.

Although the results of this summer survey did not show a significant difference in macroinvertebrate community health between sites, all recorded macroinvertebrate metrics were notably lower compared to those from the spring survey.

No heterotrophic growths were recorded indicating that discharges from ANZCO were not causing high levels of dissolved organic compounds in the Waingongoro River downstream of the discharge, which was consistent with the macroinvertebrate indices.

2.3.4.3 Summary

Overall, the results of the two macroinvertebrate surveys conducted during the monitoring year under review indicated that the discharge of waste from the ANZCO meatworks had not had any recent significant detrimental effects on the macroinvertebrate communities of the Waingongoro River.

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

2.3.5 Soil and herbage monitoring

Industrial Chemistry Services (ICS) undertakes soil and herbage sampling and analysis on behalf of the Company. The Effluent Management Plan specifies the soil parameters that will be monitored on a monthly basis at a depth of 75-150mm and those that will be monitored on a six monthly basis at a depth of 0-75mm. The plan also specifies the parameters that will be monitored at the time of the quarterly herbage monitoring.

A summary of the results provided indicate that at the five sites sampled:

- Total nitrogen concentrations in herbage ranged between 4.05 and 5.0% of DM, and between 0.57 and 0.93% in the soil. These ranges were similar to those of the previous monitoring year
- Nitrates in the soil were measured between 3 to 88mg/kg. This range was higher and wider than the previous monitoring year
- Sodium concentrations in herbage were between 0.11 and 0.5% of DM, and between 7 and 36 MAF QT in the soil
- pH in the soil ranged between 5.6 and 6.5

2.3.6 Air inspections

The discharge of emissions to air is permitted under Consent 4644-3 for emissions relating to meat processing and associated activities at the factory premises.

The Company undertakes weekly walkovers of the site and the Council undertakes additional air surveys during site inspections and in response to any public complaints.

During the period under review there were no incidents reported by the public and no significant odours detected by the Company or the Council during inspections.

Surveys undertaken by the Company reported the following:

- Slight occasional wafts (level 1) were reported during some of the weekly odour surveys across some months;
- No level 2 (slight but constant odour) odours or greater were detected during the monitoring year under review

Surveys undertaken by the Council during the quarterly site inspections reported that no significant odour was detected during any inspection or at any designated monitoring site beyond the plant boundary.

2.4 Investigations, interventions and incidents

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 the Company. 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 company is indeed the source of the incident (or that the allegation cannot be proven).

In the 2023/24 period, the Council was not required to undertake significant additional investigations and interventions, or record incidents, in association with the Company's conditions in resource consents or provisions in Regional Plans.

3. Discussion

3.1 Discussion of site performance

Inspections

Regular inspections of the site were undertaken by a Council Officer to assess compliance with consent conditions. During the inspections the site was found to be tidy and being well managed. An odour was noted in the vicinity of some of the treatment ponds, however this was localised and was not considered to objectionable and was not detected beyond the site boundary.

Surface water abstraction

The consented abstraction volume of 1,972m^3/day was mostly complied with throughout the period under review (Figure 4). The occasional exceedances did not extend beyond the 5% upper limit of 2,070.6m^3/day. A total volume of 348,406m^3 was abstracted. This equated to a 1% increase in abstraction from the previous monitoring year. The abstraction rate of 22.1L/s was exceeded for a small portion of time (Figure 5) however, the rate did not exceed the 5% margin of error. No enforcement action was pursued as the exceedances were within measurement error limits.

Discharge to water

The results of the Interlab monitoring (Table 9) demonstrated that the treated wastewater and its effects upon the receiving environment were within consented limits. The results of the stormwater sampling confirmed that the site was compliant with the limits prescribed in the stormwater consent. A visual inspection of the receiving environment did not detect adverse effects at the downstream sampling locations. Although the samples are collected simultaneously, there are some minor differences (generally > 5%) seen between results reported by the Council and the Company's on-site laboratory. The differences between soluble analytes may arise from the heterogeneity of the fluids sampled. The small discrepancies between pH (which is a time sensitive parameter) may be a consequence of samples being analysed outside of recommended laboratory holding times. The differences between results are not environmentally significant. The highest downstream ammonium (NH_4) concentrations were recorded between May and July 2024 with the peak concentration recorded in June (Figure 12). This may have coincided with increased runoff from the surrounding rural catchment during winter rainfall and the fact that a greater portion of treated wastewater was discharged to the river as opposed to land.

DRP concentrations recorded in sites monitored downstream of the Company's discharge were significantly higher than those monitored upstream.

No measurable impacts on the macroinvertebrate communities were observed downstream of the site during both biomonitoring surveys.

Discharge to air

Odour surveys were conducted weekly by the Company and quarterly during site inspections by Council's officers. No odour greater than a scale of 1 (slight occasional wafts) was detected during the Company's weekly odour surveys. Mild odours in the vicinity of the wastewater ponds were noted during the Council's site inspections, however these were not considered to be problematic and were not detected beyond the site boundary. No complaints were received from the public. The site was considered compliant with consent conditions.

Discharge to land

Records demonstrate that the total volume of effluent irrigated during 2023/24 was higher than the volume irrigated during the previous monitoring period. The total amount of nitrogen applied to land was higher than that applied during the previous three monitoring years (Section 2.3.3.1.1). Consent 5569-1 which relates to the Stuart Road irrigation block states that the effluent application rate shall not exceed 300kg N/ha/year. Compliance was achieved for all but seven of the 78 paddocks to which treated wastewater was irrigated. The exceedances of the application rates for four of the seven paddocks were greater than 5% of the consented limit, which represents the margin of error. The greatest exceedance was recorded on P6 (425kg N/ha/year). In their annual performance report, the Company noted that the 14-day stand down period recorded in the Effluent Management Plan was not adhered to for three of the paddocks which recorded nitrogen loading exceedances. To improve the uniformity of nitrogen loading across the discharge area, the Company implemented automated weekly reports which detail the Nitrogen loading status across each paddock. Since this was implemented in May 2024, no paddocks above the consented limit received further applications of nitrogen. The Council has recommended that the Company supplies irrigation data to the Council quarterly as opposed to annually. The Company has been contacted to investigate and explain the exceedances. Depending upon the outcome of this, further enforcement may ensue.

Historical trends, particularly for Nitrate-nitrogen indicate a measurable impact upon on groundwater and shallow surface water quality as a result of irrigation of effluent to land. More recent data indicate that the degree of impact has reduced over time (Section.2.3.3.1.3). This reduction has been attributed to an improvement in effluent management practices including the decision to transport blood offsite for processing. Sampling of designated groundwater sites during the 2023/24 monitoring period did not detect significant environmental impacts in relation to the irrigation of treated wastewater to the Stuart Road block. The recommended limit of nitrate-nitrogen for drinking water was, however, exceeded on one occasion in GND1188. This exceedance was minor (11.7g/m^3) and may reflect an emerging impact of wastewater application to land. Overall, all the other parameters measured in the monitoring bores were relatively stable throughout the year. The lowest concentrations of nitrate-nitrogen have been recorded in bore GND1344 which is located in the eastern section of the Stuart Road irrigation area (Figure 13). Chemical Oxygen Demand (COD) was high at GND1344 on 4 October 2024 (40g/m^3) as was total aluminium (22g/m^3). COD is a measure of the capacity of the groundwater to consume oxygen during the decomposition of organic matter. The historically low NNN concentrations and high COD indicate that denitrification is occurring in GND1344. That is, microbial processes in the groundwater are consuming oxygen and converting nitrate to nitrogen gas, which is released into the atmosphere. Field observations record that the sample collected on 4 October 2024 was turbid. As total aluminium was measured, it was likely that the sediment content of the sample was responsible for the anomalous result. Subsequent sampling showed that the concentration had reduced to 1.68g/m^3. Except for the occasional minor exceedance, analytes relevant to the DWS or the Aesthetic Values for drinking water were below the recommended values. The Company's self-monitoring showed that the Sodium Adsorption Ratio (SAR) results were within consented limits. This was corroborated by the results of the Interlab sampling.

Impacts to the quality of surface water sources arising from the irrigation of effluent to land may be related to runoff or contamination of the underlying aquifer as groundwater maintains baseflow to the streams. Surface water results indicate that there were no significant changes in surface water quality at the Stuart Road block during the year under review.

No irrigation of treated wastewater has occurred to the Paulwell Farm site to date. This is likely to change in the foreseeable future. Results of baseline monitoring at the Paulwell Farm site demonstrate that all the measured groundwater parameters were relatively stable throughout the year. GND3116 (Figure 15) recorded the highest levels of nitrate-nitrogen, however this was below the recommended drinking water standard limit. The median at this site is comparable to the control site upgradient of the Stuart irrigation

area. The nitrate-nitrogen concentration in GND3117 and GND3118 was relatively low for groundwater underlying an agricultural area. All analytes relevant to the DWS or the Aesthetic values for drinking water were below the recommended values (Section 2.3.3.2.12) Surface water results were within similar ranges to the previous monitoring year. The baseline results likely reflect the effects of general onsite farming practices.

Provision of data

Most of the required data for the 2023/24 monitoring year were provided by the end of October 2024. Due to internal changes in reporting, the Council was required to contact the Company to provide additional information. This was supplied promptly.

3.2 Environmental effects of exercise of consents

Surface water abstraction

During the monitoring year, 310,943m^3 of water was abstracted from the Waingongoro River under Consent 5437-4, and 163,863m^3 was sourced from the Eltham Municipal Water Supply. There were occasional exceedances of the abstraction volume and the abstraction rate, however these were within the 5% margin of error allowed for equipment function. There were no recorded or observable impacts to the river in relation to this activity.

Discharge to water

The results of the spring and summer macroinvertebrate surveys conducted during the monitoring year under review indicated that the discharge of treated wastewater from the site did not have significant detrimental effects on the macroinvertebrate communities in the Waingongoro River. No observable impacts were noted during inspections and all prescribed surface water quality limits were met.

DRP concentrations recorded in sites monitored downstream of the Company's discharge were significantly higher than those monitored upstream. To date, this does not appear to have had any detrimental effects on macroinvertebrate communities.

Discharge to air

Slight wafts of odour (Level 1) were reported on occasion during weekly inspections undertaken by the Company. No objectionable or offensive odours were detected beyond the site boundary during Council inspections. No odour complaints were received by the Council from members of the public during the monitoring period under review.

Discharge to land

Historic data (from 2001) for the Stuart Road site demonstrated significantly elevated nitrate-nitrogen concentrations which exceeded the DWS in a portion of the monitoring bores (Figure 13). The impacts appear to have been mostly clustered in the centre of the irrigation area. Changes in operational practices have resulted in reducing nitrate concentrations over time. During the monitoring year under review, one of the 34 groundwater samples collected returned a result that exceeded the drinking water standard. The exceedance was minor.

3.3 Evaluation of performance

A tabular summary of the consent holder's compliance record for the year under review is set out in Table 33 to Table 39. A summary of the consent holder's environmental performance ratings from 2019 to date is set out in Table 40 for comparison.

Table 33 Summary of performance for Consent 1968-4

Purpose: To discharge stormwater from various locations at a meat processing plant site into the Waingongoro River		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
1. Adopt best practicable option	Site inspection – checking that standard operating procedures to achieve compliance with conditions are followed	Yes
2. Limit on catchment area	Site inspection & desk assessment	Yes
3. Concentration limits upon potential contaminants in discharge	Stormwater sampling	Yes
4. Controls on effect of discharge in receiving water	Inspection, river sampling and bio-monitoring	Yes
5. Maintenance of and adherence to contingency plan	Plan received, approved 11 September 2008. Updated Plan received 12 February 2015	Yes
6. Maintenance of and adherence to stormwater management plan	Receipt and certification of Plan. Plan received, approved 11 September 2008. Updated Plan received 12 February 2015	Yes
7. Consultation over significant proposed changes	Liaison during visits. No significant changes undertaken during year	N/A
8. Optional review provision re environmental effects	Within 3 months of notification under condition 7	N/A
Overall assessment of 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 2039-4.1

Purpose: To discharge treated wastewater into the Waingongoro River		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
1. Limits of discharge rates and volumes	Review of electronic data provided to Council	Yes
2. Concentration limits upon potential contaminants in discharge	Chemical sampling and biomonitoring	Yes
3. Notification of significant proposed changes	Inspections and receipt of notification. No significant changes undertaken during year	Yes
4. Installation of meter and datalogger	Inspection and receipt of data	Yes
5. Provision of records within two hours of being recorded	Records received daily with the Council's permission	Yes
6. Activities to be exercised in accordance with a certified management plan that must address specified matters	Inspections and liaison and receipt of Company reports	Yes
7. Review and update of management plan	Plan received by Council and approved in 1997. Most recent update Sept 2019 approved by Council	Yes
8. Option for review of wastewater plan	No review sought by either Council or Company. Not requested	N/A
9. Provision of reviewed plans to specified submitters on Consent application	No plan updates received or requested	N/A

Purpose: To discharge treated wastewater into the Waingongoro River		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
10. Designate officer with necessary experience to manage wastewater system	Liaison with Company	Yes
11. Adopt the best practical option	Review of management plan and inspections	Yes
12. Annual financial contributions to Council for riparian management	Inspections, desk assessment	N/A
13. DRP report before 31 December 2013	Desk assessment	N/A
14. Optional review provision re reducing adverse effects of DRP on environment	Next opportunity for review in June 2026	N/A
15. Review of conditions to mitigate adverse effects; re provision of "real time" data	Next review 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

Table 35 Summary of performance for Consent 4644-3

Purpose: To discharge emissions into the air arising from meat processing and associate activities		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
1. Discharge to take place from authorised area – map attached to the consent	Inspection by Council	Yes
2. Discharge to take place as described in application	Inspection by Council	Yes
3. Consultation over significant proposed changes	On-going liaison. No significant changes undertaken during year	N/A
4. Adopt best practicable option to prevent or minimise adverse effects	Liaison with Company and inspection by Council	Yes
5. Minimise emissions and effects by most appropriate equipment and operational controls	Inspection by Council	Yes
6. No offensive or objectionable odour beyond boundary	Odour surveys by both Company and Council, and keeping of complaints record	Yes
7. Provision of and adherence to air quality management plan	Plan received by Council and approved in 1997. Most recent update received 11 February 2015	Yes
8. Optional review provision re environmental effects	Option not available. Next review date 1 June 2029	N/A
Overall assessment of 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 5437-3.1

Purpose: To take and use water from the Waingongoro River for use in a meat processing plant		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
1. Limit on maximum abstraction volume and rate	Continuous flow metering by consent holder	Yes. Minor exceedances below the 5% margin of error
2. Installation of flow meter and provision of records	Inspection, review of data	Yes

Purpose: To take and use water from the Waingongoro River for use in a meat processing plant		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
3. Certification of flow meter	Receipt of certification. (Provided 17 November 2019, valid for five years)	Yes
4. Reporting of monitoring equipment faults	Inspection, receipt of reports	N/A. No faults reported.
5. Access to metering system	Inspection	Yes
6. Formatting of records to be transmitted within two hours of being recorded	Inspection, and review of data received. Data reported daily with the Council's permission	Yes
7. Adopt best practicable option for conservation of water	Site inspection – checking that standard operating procedures to achieve compliance with conditions are followed	Yes
8. Annual report on water use and recycling by 30 October each year	Review of report provided	Yes
9. Intake screened and designed to protect fish	Inspection	Yes
10. Intake modifications not to affect juvenile fish	Inspection	N/A
11. Donation to Council for riparian protection	Confirmation with Council finance dept. that donation received	Yes
12. Optional review provision re environmental effects	Options no longer available. Consent expires June 2029	N/A
Overall assessment of environmental performance in respect of this consent Overall assessment of administrative performance in respect of this consent		**High** **High**

N/A = not applicable

Table 37 Summary of performance for Consent 5569-1 (Lower Stuart Road)

Purpose: To discharge up to 3500 cubic/metres/day of treated wastewater from meat processing and associated activities by irrigation onto and into land, and to discharge emissions into the air in the vicinity of various unnamed tributaries of the Waingongoro River		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
1. System to be operational by 15 February 2001	Irrigation commenced January 2001	N/A
2. Provision of spray irrigation management plan	Plan received by Council and approved in 2001. Most recent update received 6 September 2019	Yes
3. Plan to be followed	Liaison, inspection and review of monitoring reports provided	No. Stand down period was less than 14 days in some paddocks which registered exceedances of the nitrogen loading limit.
4. Optional review of management plan	Not invoked	N/A
5. Designated staff member	Part of Company Technical Manager's job description	Yes
6. Prohibition of untreated blood	Inspection	Yes
7. No offensive or objectionable odour beyond boundary	Inspection and complaint register	Yes
8. No spray drift beyond boundary	Inspection, and complaint register	Yes
9. Biosolids/sludge from aerobic ponds only	Inspection. No bio-solids/sludge discharged on Stuart Road property	N/A

Purpose: To discharge up to 3500 cubic/metres/day of treated wastewater from meat processing and associated activities by irrigation onto and into land, and to discharge emissions into the air in the vicinity of various unnamed tributaries of the Waingongoro River		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
10. Limit on sodium adsorption ratio	Sampling by Council officers	Yes
11. Prohibition of ponding and run-off	Management plan, inspection	Yes. Acknowledged in Management plan. Not assessed in field.
12. Spray buffer zones	Management plan, inspection	Yes. Acknowledged in Management Plan. Not assessed in field.
13. Limit on nitrogen application rate to 300kg/ha/year	Monitoring by Company	No. Exceedances recorded in seven paddocks
14. Provisions for contamination of groundwater or water supply	Monitoring by Council	N/A. One minor exceedance of Nitrate-N during monitoring year.
15. Maintenance of monitoring bores	Inspection and sampling	Yes
16. Baseline and operational monitoring	Soil, herbage and water quality sampling by the Company	Yes
17. Optional review provision for operational requirements	Not sought by Company	N/A
18. Optional review provision to assess design of treatment/disposal system	Option no longer available	N/A
19. Optional review provision re environmental effects	Options no longer available. Consent expires June 2026	N/A
Overall assessment of 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 38 Summary of performance for Consent 5736-2 (Paulwell Farm)

Purpose: To discharge treated wastewater from meat processing and associated activities by irrigation onto and into land, and to discharge the associated emissions into the air at or about (NZTM) 1708468E-5634921N		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
1. Discharge only from pond 6 or 7	Site inspections	N/A
2. No offensive or objectionable odour beyond boundary	Site inspections, self-monitoring by Company	N/A
3. No spray drift beyond boundary	Site inspections	N/A
4. Limit on sodium adsorption ratio	Chemical analysis of wastewater	N/A
5. Prohibition of ponding and run-off	Site inspections	N/A
6. Spray buffer zones	Irrigation Management Plan, site inspections	N/A
7. Limit on Nitrogen application rate	Assessment of Company's self-monitoring data	N/A
8. Provisions for contamination of groundwater or water supply	Notification & remediation actions	N/A
9. Provision of wastewater irrigation management plan	Desk assessment	N/A
10. Review of plan following a request from the Council	Desk assessment	N/A

Purpose: To discharge treated wastewater from meat processing and associated activities by irrigation onto and into land, and to discharge the associated emissions into the air at or about (NZTM) 1708468E-5634921N		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
11. Plan to be provided to third parties for review	Desk assessment	N/A
12. Designated staff member	Management Plan & confirmation by Company	N/A
13. Adopt best practicable option to prevent or minimise adverse effects	Site inspections, chemical analysis	N/A
14. Maintenance of monitoring bores	Bores installed during 2020/21 year	N/A
15. Monitoring of surface waters to be undertaken downstream	Chemical and microbiological monitoring by Council	N/A
16. Baseline and operational monitoring of herbage, soil and water	Water monitoring by Council. No records of soil or herbage monitoring on file to date	N/A
17. Annual report on compliance with wastewater Irrigation Management Plan and consent, annually by 1 July	Annual report not received. However, no evidence to confirm irrigation has commenced	N/A
18. Optional review provision re environmental effects	Options no longer available. Consent expires June 2026	N/A
Overall assessment of environmental performance in respect of this consent Overall assessment of administrative performance in respect of this consent		**N/A**

N/A = not applicable. Irrigation has not occurred at this site to date.

Table 39 Summary of performance for Consent 5739-2

Purpose: To erect, place and maintain a pipeline under the bed of the Waingongoro River		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
1. Requirement if changes to structure required	Receipt of notification	N/A
2. Maintain and review Contingency Plan for pipeline failure	Contingency Plan in place dated July 2017	Yes
3. Requirement for maintenance of structure	Inspection of structure	Yes
4. Optional review provision re environmental effects	Next review data June 2029	N/A
Overall assessment of environmental performance in respect of this consent Overall assessment of administrative performance in respect of this consent		**High** **High**

N/A = not applicable

Table 40 Evaluation of environmental performance over time

Year	Consent numbers	High	Good	Improvement req	Poor
2019-2020	1968-4, 2039-4.1, 4644-3, 5437-3.1, 5569-1, 5736-2*, 5739-2, 6455-1	6	1	-	-
2020-2021	1968-4, 2039-4.1, 4644-3, 5437-3.1, 5569-1, 5736-2*, 5739-2, 6455-1	6	1x	-	-
2021-2022	1968-4, 2039-4.1, 4644-3, 5437-3.1, 5569-1, 5736-2*, 5739-2, 6455-1	6	1	-	-
2022-2023	1968-4, 2039-4.1, 4644-3, 5437-3.1, 5569-1, 5736-2*, 5739-2, 6455-1	5	2	-	-
2023-2024	1968-4, 2039-4.1, 4644-3, 5437-3.1, 5569-1, 5736-2*, 5739-2,	5	-	1	x

Key: *Consent not exercised

Overall, the Company demonstrated a good level of environmental performance and a high level of administrative performance. with respect to the resource consents defined in Appendix II. Improvement was required in relation to the environmental performance for Consent 5569-1. Wastewater was irrigated to a small portion of the paddocks prior to the end of the 14-day stand down period outlined in the Effluent Management Plan. In addition, seven paddocks were recorded to have exceeded the annual nitrogen loading limit.

3.4 Recommendations from the 2022/23 Annual Report

In the 2022/23 Annual Report, it was recommended:

1. THAT monitoring of water abstraction and discharges in relation to the meat processing plant of ANZCO Foods Eltham Ltd in the 2023/24 year continue at the same level as in 2022/23.
2. 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.
3. THAT a surface water sampling site upstream of the Stuart Road irrigation area be added, as a reference.
4. THAT adding monitoring of GND1678, outside of Stuart Road irrigation area be considered. This data will be used by the Company in the Environment Baseline Assessment for the consent renewal application due in June 2026.

Recommendations 1, 2 and 4 were implemented during the period under review.

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.

It is proposed that for 2023/24, the programme remains unchanged with the exception of the sampling of two newly established river sites on the Stuart Road irrigation block to provide greater scope for assessing impacts of irrigating wastewater to land.

It should be noted that the proposed programme represents a reasonable and risk-based level of monitoring for the site(s) 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 monitoring of water abstraction and discharges in relation to the meat processing plant of ANZCO Foods Eltham Ltd in the 2024/25 year continue at the same level as in 2023/24
2. 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
3. THAT the Company closely monitors nitrogen loading rates to avoid further exceedances of the nitrogen application limit
4. THAT the Company provides nitrogen loading records to the Council quarterly
5. THAT the reconsenting process considers the potential nitrogen contribution of any dairy shed effluent or fertiliser that may be applied to paddocks in addition to wastewater.

Glossary of common terms and abbreviations

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

Biomonitoring	Assessing the health of the environment using aquatic organisms.
BOD	Biochemical oxygen demand. A measure of the presence of degradable organic matter, taking into account the biological conversion of ammonia to nitrate.
BODF	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 µS/cm.
DCAD	Dietary cation-anion difference. Calculated by adding together the milliequivalents of dietary cations (sodium + potassium) and subtracting the sum of the milliequivalents of dietary anions (chloride + sulphur).
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.
F	Fluoride.
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.
FNU	Formazin nephelometric units, a measure of the turbidity of water.
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^3	Cubic 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.
mS/m	Millisiemens per metre.
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.
µS/cm	Microsiemens per centimetre.
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).
NNN	Nitrate and nitrate combined, 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).
PM_{10}, $PM_{2.5}$, $PM_{1.0}$	Relatively fine airborne particles (less than 10 or 2.5 or 1.0 micrometre diameter, respectively).
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.
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.
SS	Suspended solids.
SQMCI	Semi quantitative macroinvertebrate community index.
Temp	Temperature, measured in °C (degrees Celsius).
Turb	Turbidity, expressed in NTU.
UI	Unauthorised Incident.

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

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Appendix I

Resource consents held by ANZCO Foods Eltham Ltd

(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.

Discharge Permit

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

Name of Consent Holder:	Riverlands Eltham Limited P O Box 124 ELTHAM 4353
Decision Date:	9 July 2012
Commencement Date:	9 July 2012

Conditions of Consent

Consent Granted:	To discharge stormwater from various locations at a meat processing plant site into the Waingongoro River at or about (NZTM) 1710920E-5634567N
Expiry Date:	1 June 2029
Review Date(s):	June 2017, June 2023, and/or within 3 months of receiving notification under special condition 7
Site Location:	London Street, Eltham
Legal Description:	Lot 1 DP 11593 [Discharge source & site]
Catchment:	Waingongoro

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 [the Council] all the administration, monitoring and supervision costs of this consent, fixed in accordance to section 36 of the Resource Management Act.

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 1.8 hectares

3. Constituents of the discharge shall meet the standards shown in the following table.

Constituent	Standard
pH	Within the range 6.0 to 10
suspended solids	Concentration not greater than 100 gm^{-3}
oil and grease	Concentration not greater than 15 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.

4. After allowing for reasonable mixing, within a mixing zone extending 20 metres downstream of the discharge point, the discharge shall not, either by itself or in combination with other discharges, give rise to any or all of the following effects in the receiving water:

    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 emission of objectionable odour;
    d) the rendering of fresh water unsuitable for consumption by farm animals;
    e) any significant adverse effects on aquatic life.

5. The consent holder shall 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.

6. The consent holder shall 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) the loading and unloading of materials;
b) maintenance of conveyance systems;
c) general housekeeping; and
d) management of the interceptor system.

A Stormwater Management Plan template is available in the Environment section of the Taranaki Regional Council's web site www.trc.govt.nz.

7. The consent holder shall notify the Chief Executive, Taranaki Regional Council, prior to making any changes to the processes or operations undertaken at the site, or the chemicals used or stored on site, that could alter the nature of the discharge. Any such change shall then only occur following receipt of any necessary approval under the Resource Management Act 1991. Notification shall include the consent number, a brief description of the activity consented and an assessment of the environmental effects of any changes, and be emailed to consents@trc.govt.nz.

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:

a) during the month of June 2017 and/or June 2023 and/or
b) within 3 months of receiving a notification under special condition 7 above;

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 9 July 2012

For and on behalf of
Taranaki Regional Council

_____

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:	Riverlands Eltham Limited PO Box 124 Eltham 4353
Decision Date (Review):	13 October 2017
Commencement Date (Review):	13 October 2017 (Granted Date: 9 July 2012)

Conditions of Consent

Consent Granted:	To discharge treated wastewater into the Waingongoro River
Expiry Date:	1 June 2029
Review Date(s):	June 2023, June 2026
Site Location:	London Street, Eltham
Grid Reference (NZTM)	1710612E-5634427N
Catchment:	Waingongoro

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 discharge shall not exceed 3500 cubic metres per day and the rate of discharge shall not exceed 81 litres per second.

2. After allowing for reasonable mixing, within a mixing zone extending 100 metres downstream of the discharge point, the discharge shall not give rise to any of the following effects in the receiving water:

   (a) a reduction in the dissolved oxygen concentration below 6 gm^{-3};
   (b) the concentration of total (un-ionised and ionised) ammonia nitrogen as gm^{-3} nitrogen exceeding the values given in Table 1 below for the corresponding pH;
   (c) the concentration of filtered carbonaceous Biochemical Oxygen Demand (20 ^{o}C, 5-day test) exceeding 2 gm^{-3};
   (d) the production of any conspicuous oil or grease films, scums or foams, or floatable or suspended materials;
   (e) any conspicuous change in the colour or visual clarity;
   (f) any emission of objectionable odour;
   (g) the rendering of fresh water unsuitable for consumption by farm animals;
   (h) any significant adverse effects on aquatic life, habitats, or ecology; and
   (i) a decrease in water clarity of greater than 33% as determined using the standard black disc measurement.

3. The consent holder shall advise the Taranaki Regional Council prior to making any change in the processes undertaken at the site which could significantly alter the nature of the discharge. The advice shall be given by emailing consents@trc.govt.nz.

4. Before exercising this consent the consent holder shall install, and thereafter maintain a meter and a datalogger at the site of discharge. The meter and datalogger shall be tamper-proof and shall measure and record the rate and volume of the discharge to an accuracy of ± 5%, at intervals not exceeding 15 minutes. Records of the date, the time and the rate and volume the discharge, shall be made available to the Chief Executive, Taranaki Regional Council on request.

5. The records of water discharged shall:

   a) be in a format that, in the opinion of the Chief Executive, Taranaki Regional Council, is suitable for auditing;
   b) specifically record the water discharged as 'zero' when no water is discharged; and
   c) be transmitted to the Taranaki Regional Council's computer system within two hours of being recorded.

6. Subject to the other conditions this consent, this consent shall be exercised in accordance with a 'Wastewater Disposal Management Plan' (the 'Management Plan') that has been approved by the Chief Executive, Taranaki Regional Council, acting in a certification capacity. The Management Plan shall detail the management of the discharge in combination with the land disposal authorised by consents 5569-1 and 5736-2 (Joblin Farm and Paulwell Farm), and the methods and procedures undertaken by the consent holder to ensure that the conditions of this consent are met and can be shown to be met. It shall address but not necessarily be limited to the following matters:

   (a) monitoring the water quality and rate of the discharge;
   (b) monitoring the water quality and flow in the receiving water;
   (c) management of the wastewater treatment system;
   (d) minimisation of phosphorous and nitrogen in the wastewater discharge and how this is being achieved;
   (e) treatment and disposal of screenings and oxidation pond sludges;
   (f) criteria for the use of spray irrigation or discharge to surface water;
   (g) reporting on the exercise of the consent; and
   (h) methods and procedures utilised to minimise the discharge to the Waingongoro River, and the effects of that discharge, and to maximise the discharge to land.

7. Within three months of the granting of this consent, the consent holder shall update and review the management plan required by condition 6 and resubmit the plan for certification by the Chief Executive, Taranaki Regional Council.

8. Within one months notice given by the Taranaki Regional Council, the consent holder shall review the management plan required by condition 6 and resubmit the plan for certification by the Chief Executive, Taranaki Regional Council.

9. A copy of any reviewed Plan, as per conditions 7 and 8, shall be provided to the Department of Conservation and Fish and Game New Zealand (Taranaki Region), for the Taranaki Regional Council to take into account any comments received (within a two week timeframe from when the Plan was provided).

10. The consent holder shall designate an officer with the necessary qualifications and/or experience to manage the wastewater system. The officer shall be regularly trained on the content and implementation of the wastewater disposal management plan, and shall be advised immediately of any revision or additions to the management plan.

11. The consent holder shall at all times adopt the best practicable option, as defined in section 2 of the Resource Management Act, to prevent or minimise any adverse effects on the environment from the exercise of this consent.

12. The consent holder shall mitigate the effects of the discharge by making annual payments of $9000 (GST exclusive) to the Taranaki Regional Council as a financial contribution for the purpose of providing riparian planting and management in the Waingongoro River catchment excluding that area being irrigated under consent 5569. The amount to be paid shall be adjusted annually according to the consumer price index, or similar index, to account for the effects of inflation, and be made no later than 1 September each year.

13. Before 31 December 2013 the consent holder shall engage a suitably qualified independent person to prepare a report investigating Dissolved Reactive Phosphorus (DRP) in the discharge and options for reducing it. The report shall include, but not necessary be limited to:

    (a) Details the DRP levels in the discharge and its potential environmental effect on the Waingongoro River;
    (b) Benchmarking of DRP levels with other discharges of a similar nature;
    (c) Options for further reducing DRP levels; and
    (d) The feasibility of implementing DRP reduction options.

14. The Council may, pursuant to section 128 of the Resource Management Act 1991, review any or all of the conditions of this consent by giving notice of review within 60 days of receiving a report required by condition 13 for the purpose of requiring specific conditions to reduce the levels of Dissolved Reactive Phosphorus (DRP) in the discharge.

15. In accordance with section 128 and section 129 of the Resource Management Act 1991, the Taranaki Regional Council may serve notice of its intention to review, amend, delete or add to the conditions of this resource consent by giving notice of review during the month of June 2017 and/or June 2023 and/or June 2026 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; and/or

    (b) to require any data collected in accordance with the conditions of this consent to be transmitted directly to the Council's computer system, in a format suitable for providing a 'real time' record over the internet.

Signed at Stratford on 13 October 2017

For and on behalf of
Taranaki Regional Council

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A D McLay
Director - Resource Management

Table 1: Maximum total ammonia concentration in the Waingongoro River for a given pH

pH of receiving water	Total Ammonia (gm^{-3})	pH of receiving water	Total Ammonia (gm^{-3})	pH of receiving water	Total Ammonia (gm^{-3})
		7.1	2.96	8.1	1.09
		7.2	2.81	8.2	0.935
		7.3	2.65	8.3	0.795
		7.4	2.47	8.4	0.673
6.5	3.48	7.5	2.28	8.5	0.568
6.6	3.42	7.6	2.07	8.6	0.480
6.7	3.36	7.7	1.87	8.7	0.406
6.8	3.28	7.8	1.66	8.8	0.345
6.9	3.19	7.9	1.46	8.9	0.295
7.0	3.08	8.0	1.27	9.0	0.254

Discharge Permit

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

Name of Consent Holder:	ANZCO Foods Limited PO Box 124 Eltham 4353
Decision Date:	5 May 2016
Commencement Date:	5 May 2016

Conditions of Consent

Consent Granted:	To discharge emissions into the air arising from meat processing and associated activities at the factory premises
Expiry Date:	1 June 2035
Review Date(s):	June 2023, June 2029
Site Location:	75 London Street, Eltham
Grid Reference (NZTM)	1710980E-5634465N
Catchment:	Waingongoro

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. This consent authorises emissions only from the area shown on the attached map.

2. The exercise of this consent shall be undertaken generally in accordance with the documentation submitted in support of the original application for this consent and any subsequent applications to change conditions. In the case of any contradiction between the documentation submitted in support of previous applications and the conditions of this consent, the conditions of this consent shall prevail.

3. Prior to undertaking any alterations to the plant, processes or operations 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.

4. 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.

5. The consent holder shall minimise the emissions and impacts of contaminants discharged into air from the site by:

    a) the selection of the most appropriate process equipment;
    b) process control equipment and emission control equipment;
    c) the methods of control;
    d) supervision and operation; and
    e) the proper and effective operation, supervision, maintenance and control of all equipment and processes at all times.

6. The discharges authorised by this consent shall not give rise to any odour at or beyond the boundary of the site that is offensive or objectionable.

7. The site shall be operated in accordance with an 'Odour Management Plan' prepared by the consent holder and approved by the Chief Executive, Taranaki Regional Council, acting in a certification capacity. The plan shall detail how the site will be managed to achieve compliance with the conditions of this consent and shall address, as a minimum:

    a. possible sources of objectionable air discharge;
    b. air emissions control; and
    c. air monitoring.

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 2023 and/or June 2029, 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 5 May 2016

For and on behalf of
Taranaki Regional Council

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A D McLay
Director - Resource Management

Area in which emissions are authorised by this consent.

Water Permit

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

Name of Consent Holder:	Riverlands Eltham Limited PO Box 124 Eltham 4353
Decision Date (Review):	13 October 2017
Commencement Date (Review):	13 October 2017 (Granted Date: 9 July 2012)

Conditions of Consent

Consent Granted:	To take and use water from the Waingongoro River for use in a meat processing plant
Expiry Date:	1 June 2029
Review Date(s):	June 2023
Site Location:	London Street, Eltham
Grid Reference (NZTM)	1710920E-5634567N
Catchment:	Waingongoro

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 volume of water taken shall not exceed 1972 cubic metres per day (22.8 litres per second).

2. Before exercising this consent the consent holder shall install, and thereafter maintain a water meter and a datalogger at the site of taking. The water meter and datalogger shall be tamper-proof and shall measure and record the rate and volume of water taken to an accuracy of ± 5%. Records of the date, the time and the rate and volume of water taken at intervals not exceeding 15 minutes, shall be made available to the Chief Executive, Taranaki Regional Council at all reasonable times.

   Note: Water meters and dataloggers must be installed, and regularly maintained, in accordance with manufacturer's specifications in order to ensure that they meet the required accuracy. Even with proper maintenance water meters and dataloggers have a limited lifespan.

3. The consent holder shall provide the Chief Executive, Taranaki Regional Council with a document from a suitably qualified person certifying that water measuring and recording equipment required by the conditions of this consent ('the equipment'):

   (a) has been installed and/or maintained in accordance with the manufacturer's specifications; and/or
   (b) has been tested and shown to be operating to an accuracy of ± 5%.

   The documentation shall be provided:

   (i) within 30 days of the installation of a water meter or datalogger;
   (ii) at other times when reasonable notice is given and the Chief Executive, Taranaki Regional Council has reasonable evidence that the equipment may not be functioning as required by this consent; and
   (iii) no less frequently than once every five years.

4. If any measuring or recording equipment breaks down, or for any reason is not operational, the consent holder shall advise the Chief Executive, Taranaki Regional Council immediately. Any repairs or maintenance to this equipment must be undertaken by a suitably qualified person.

5. The water meter and datalogger shall be accessible to Taranaki Regional Council officers at all reasonable times for inspection and/or data retrieval.

6. The records of water taken shall:

   a) be in a format that, in the opinion of the Chief Executive, Taranaki Regional Council, is suitable for auditing;
   b) specifically record the water taken as 'zero' when no water is taken; and
   c) be transmitted to the Taranaki Regional Council's computer system within two hours of being recorded.

7. At all times the consent holder shall adopt the best practicable option to prevent or minimise any actual or likely adverse effect on the environment associated with the taking of water, including, but not limited to, the efficient and conservative use of water.

8. The consent holder shall annually investigate and report on compliance with condition 6 including water conservation measures, plant water recycling and reuse. The report to be received by the Chief Executive, Taranaki Regional Council, by 31 May each year.

9. The consent holder shall ensure that the intake is screened and designed to avoid fish entering the intake or being trapped against the screen.

10. The consent holder shall ensure that no modification is made to the intake that in any way could increase the likelihood of juvenile fish entering the intake or being trapped against the screen.

11. The consent holder shall mitigate the effects of the discharge by making annual payments of $5000 (GST exclusive) to the Taranaki Regional Council as a financial contribution for the purpose of providing riparian planting and management in the Waingongoro River catchment excluding that area being irrigated under consent 5569. The amount to be paid shall be adjusted annually according to the consumer price index, or similar index, to account for the effects of inflation, and be made no later than 1 September each year.

12. 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 2023 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; and/or

    (b) to require any data collected in accordance with the conditions of this consent to be transmitted directly to the Council's computer system, in a format suitable for providing a 'real time' record over the internet.

Signed at Stratford on 13 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:	Riverlands Eltham Limited P O Box 124 ELTHAM
Change To Conditions Date:	15 December 2000 [Granted: 23 December 1999]

Conditions of Consent

Consent Granted:	To discharge up to 3500 cubic metres/day of treated wastewater from meat processing and associated activities by irrigation onto and into land, and to discharge emissions into the air, in the vicinity of various unnamed tributaries of the Waingongoro River and the Waingongoro River [area bounded by following GRs]: Q20:186-932 Q20:189-962 Q20:198-962 Q20:195-966 Q20:200-969 Q20:210-962 Q20:209-954 Q20:203-954 Q20:202-940 Q20:191-931
Expiry Date:	1 June 2026
Review Date(s):	June 2002, June 2004, June 2006, June 2008, June 2013, June 2018
Site Location:	Lower Stuart Road, Eltham
Legal Description:	Lot 1 DP 11593 & Lot 2 DP 12254 Ngaere SD [plant site] Pt Sec 51 Blk XIII Ngaere SD Lot 1 DP 3895 & Pt Sec 51 Blk XIII Ngaere SD Pt Sec 38 Blk IX Ngaere SD Sec 47 Blk IX Ngaere SD Lot 1 DP 7965 & Pt Sec 38 Blk IX Ngaere SD Lot 1 DP 3463 & Lot 2 DP 16398 & Pt Sec DP 3535 Blk IX Ngaere SD Lot 1 DP 16398 Blk IX Ngaere SD Lot 2 DP 17749 Blk IX Ngaere SD Pt Sec 39 Blk IX Ngaere SD Lot 1 DP 5241 Blk IX Ngaere SD Pt Sec 40 Blk IX Ngaere SD
Catchment:	Waingongoro
Tributary:	Various unnamed

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

Irrigation system

1. The irrigation system shall be installed and operational by 15 February 2001.

Management Plan

2. Prior to the exercise of this consent, the consent holder shall provide a spray irrigation management plan, to the approval of the General Manager, Taranaki Regional Council, outlining the management of the system, which shall demonstrate ability to comply with consent conditions and shall address the following matters:

(a) designated application areas;
(b) selection of appropriate irrigation methods for different types of terrain;
(c) application rate and duration;
(d) application frequency;
(e) farm management and operator training;
(f) soil and herbage management;
(g) prevention of runoff and ponding;
(h) minimisation and control of odour effects offsite;
(i) operational control and maintenance of the spray irrigation system;
(j) monitoring of the effluent [physicochemical];
(k) monitoring of soils and herbage [physicochemical];
(l) monitoring of groundwater beneath and beyond the irrigated area [physicochemical];
(m) remediation measures;
(n) mitigation measures including screening of any storage facilities and riparian planting;
(o) reporting monitoring data;
(p) monitoring of the Waingongoro River and relevant tributaries;
(q) procedures for responding to complaints; and
(r) notification to the council of non-compliance with the conditions of this consent.

The objective of the plan shall be to minimise discharges to the Waingongoro River under consent 2039 and maximise discharges to land.

3. The consent shall be exercised in accordance with the procedures set out in the spray irrigation management plan, and the consent holder shall subsequently adhere to and comply with the procedures, requirements, obligations and other matters specified in the management plan, except by the specific agreement of the General Manager, Taranaki Regional Council. In the case of any contradiction between the management plan and the conditions of this resource consent, the conditions of this resource consent shall prevail.

4. The spray irrigation management plan described in special condition 2 of this consent shall be subject to review upon two months notice by either the consent holder or the Taranaki Regional Council.

5. The consent holder shall designate an officer with the necessary qualifications and/or experience to manage the spray irrigation system. The officer shall be regularly trained on the content and implementation of the spray irrigation management plan, and shall be advised immediately of any revision or additions to the spray irrigation management plan.

Odour and spray effects

6. No raw or untreated animal blood shall be discharged.

7. There shall be no offensive or objectionable odour at or beyond the boundary of the property or properties on which spray irrigation is occurring.

8. There shall be no spray drift as a result of the irrigation of treated wastewater at or beyond the boundary of the property or properties on which spray irrigation is occurring.

Land effects

9. The discharge of biosolids or sludge from the wastewater treatment system as a result of the exercise of this consent shall only take place from aerated or aerobic ponds or the oxidation pond.

10. The sodium absorption ration [SAR] of the wastewater shall not exceed 10.

11. There shall be no ponding of wastewater, and/or any direct discharge to a watercourse due to the exercise of this consent.

12. The edge of the spray zone shall be at least:

    a) 20 metres from the banks of any watercourse;
    b) 50 metres from any bore, well or spring actively used for water supply purposes;
    c) 20 metres from any public road;
    d) 20 metres from any property boundary that is not part of the irrigation area, unless the written approval of the landowner has been obtained to allow the discharge at a lesser distance;
    e) 150 metres from any dwellinghouse [except that listed in condition 12(f)] unless the written approval of the occupier has been obtained to allow discharge at a closer distance; and
    f) 300 metres from the boundary of the property described as Lot 1 DP 17749 Blk IX Ngaere SD, unless the written approval of the occupier has been obtained to allow the discharge at a closer distance.

13. The effluent application rate shall not exceed 300 kg nitrogen/ha/year. This condition shall be reviewed in accordance with condition 18 to assess the possible reduction of the loading rate.

14. That should monitoring of the discharge under conditions 13, 15 and 16 indicate contamination of local groundwater or a water supply from the roof of a dwellinghouse as a result of the exercise of this consent the consent holder shall:

    a) undertake appropriate remedial action as soon as practicable as described in the spray irrigation management plan prepared under condition 2, or other such action reasonably required by the General Manager, Taranaki Regional Council;
    b) shall review the spray irrigation management plan and incorporate such reasonable modifications as are considered necessary by the General Manager, Taranaki Regional Council; and
    c) where water supplies are significantly affected, immediately provide alternative supplies as reasonably required by the General Manager, Taranaki Regional Council.

Monitoring

15. The consent holder shall site, install and maintain to the satisfaction of the General Manager, Taranaki Regional Council, monitoring bores for the purpose of determining groundwater quality in the vicinity of the discharge.

16. The consent holder shall undertake such baseline and operational monitoring of the activities licensed by this consent as deemed reasonably necessary by the General Manager, Taranaki Regional Council.

Review

17. The consent holder may apply to the Taranaki Regional Council for a change or cancellation of the conditions of this consent, in accordance with section 127(1)(a) of the Resource Management Act 1991, to take account of operational requirements, the results of monitoring, or irrigation scheme expansion.

18. The Taranaki Regional Council may review any or all of the conditions of this consent by giving notice of review during June 2002 and June 2004, for the purpose of assessing the need to increase the land area of the scheme, reduce nitrogen loading to land and/or increase treatment at the wastewater treatment system to reduce the nitrogen concentration of the effluent.

19. The Taranaki Regional Council may review any or all of the conditions of this consent by giving notice of review during June 2002, June 2004, June 2006, June 2008, June 2013 and/or June 2018, for the purpose of ensuring that the conditions are adequate to deal with any significant adverse effects on the environment arising from the exercise of this consent, which either were 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 15 December 2000

For and on behalf of
Taranaki Regional Council

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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:	Riverlands Eltham Limited P O Box 124 ELTHAM 4353
Decision Date:	9 July 2012
Commencement Date:	9 July 2012

Conditions of Consent

Consent Granted:	To discharge treated wastewater from meat processing and associated activities by irrigation onto and into land, and to discharge the associated emissions into the air at or about (NZTM) 1708468E-5634921N
Expiry Date:	1 June 2026
Review Date(s):	June 2017, June 2023
Site Location:	Paulwell Farm, Eltham Road, Eltham
Legal Description:	Lot 2 DP 13131 Blk IX Ngaere SD [Discharge site]
Catchment:	Waingongoro

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 [the Council] all the administration, monitoring and supervision costs of this consent, fixed in accordance to section 36 of the Resource Management Act.

Special conditions

1. The discharge of wastewater as a result of the exercise of this consent shall only take place from either pond 6 or 7.

2. The discharge authorised by this consent shall not give rise to an odour at or beyond the boundary of the property boundary that is offensive or objectionable.

3. There shall be no spray drift, as a result of the irrigation of treated wastewater, at or beyond the property boundary.

4. The sodium adsorption ratio (SAR) of the wastewater shall not exceed 15.

5. There shall be no ponding of wastewater for more than three hours, and/or any overland flow of wastewater to a watercourse due to the exercise of this consent.

6. The edge of the spray zone shall be at least:

   (a) 20 metres from the water's edge in any watercourse, and outside of the riparian buffer zone as specified in the riparian management plan supplied by the applicant;
   (b) 50 metres from any bore, well or spring actively used for water supply purposes;
   (c) 20 metres from any public road;
   (d) 20 metres from any property boundary that is not part of the irrigation area, unless the written approval of the landowner has been obtained to allow the discharge at a lesser distance;
   (e) 150 metres from any dwelling house unless the written approval of the occupier has been obtained to allow discharge at a closer distance;
   (f) 45 metres from any milking shed.

7. The Total Nitrogen applied to any hectare of land shall not exceed:

   (a) 600 kilograms in any 12-month period for 'cut and carry areas'; or
   (b) 300 kilograms in any 12-month period for any other land (including grazed pasture).

   For the purposes of this consent 'cut and carry areas' is land that is not grazed and any vegetation is routinely cut and removed.

8. Should monitoring of the discharge under conditions 15 and 16 indicate, in the opinion of the Chief Executive, Taranaki Regional Council, contamination of local groundwater or a water supply from the roof of a dwelling house as a result of the exercise of this consent the consent holder shall:

(a) undertake appropriate remedial action as soon as practicable as described in the wastewater irrigation management plan prepared under condition 9, or other such action reasonably required by the Chief Executive, Taranaki Regional Council;
(b) shall review the wastewater irrigation management plan and incorporate such reasonable modifications as are considered necessary by the Chief Executive, Taranaki Regional Council; and
(c) where water supplies are significantly affected, immediately provide alternative supplies as reasonably required by the Chief Executive, Taranaki Regional Council.

9. Subject to the other conditions this consent, this consent shall be exercised in accordance with a 'Wastewater Irrigation Management Plan' (the 'Management Plan') that has been approved by the Chief Executive, Taranaki Regional Council, acting in a certification capacity. The Management Plan shall detail methods and procedures undertaken by the consent holder to ensure that the conditions of this consent are met and can be shown to be met, and shall address but not necessarily be limited to the following matters:

(a) designated application areas and buffer zones for streams and the property boundary;
(b) selection of appropriate irrigation methods for different types of terrain;
(c) application rate and duration;
(d) application frequency and nitrogen loading rate;
(e) farm management and operator training;
(f) soil and herbage management;
(g) prevention of runoff and ponding;
(h) minimisation and control of offsite odour and spray drift effects;
(i) operational control and maintenance of the spray irrigation system;
(j) monitoring of the effluent (physicochemical);
(k) monitoring of soils and herbage (physicochemical);
(l) monitoring of groundwater beneath and beyond the irrigated area (physicochemical);
(m) monitoring of local water supplies and remediation;
(n) mitigation measures including riparian planting to be undertaken according to the riparian management plan supplied by the applicant;
(o) reporting monitoring data;
(p) monitoring of the tributaries draining the property;
(q) procedures for responding to complaints; and
(r) notification to the council of non-compliance with the conditions of this consent;
(s) procedures for recording maintenance and repairs; and
(t) procedures for draining and flushing the irrigation mainlines and laterals to prevent anaerobic conditions.

An objective of the plan shall be to minimise discharges to the Waingongoro River under consent 2039 and maximise discharges to land.

10. The consent holder shall review the Management Plan, required by condition 9, and submit it for certification within 3 months of receiving such a request from the Chief Executive, Taranaki Regional Council.

11. A copy of the reviewed Management Plan shall be provided to the Department of Conservation and Fish and Game New Zealand (Taranaki Region), for the Taranaki Regional Council to take into account any comments received (within a two week timeframe from when the Plan was provided).

12. The consent holder shall designate an officer with the necessary qualifications and/or experience to manage the wastewater irrigation system. The officer shall be regularly trained on the content and implementation of the wastewater irrigation management plan, and shall be advised immediately of any revision or additions to the wastewater irrigation management plan.

13. 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.

14. Prior to the exercise of this consent, the consent holder shall after consultation with the Chief Executive, Taranaki Regional Council, install a minimum of three groundwater monitoring bores. The bores shall be at locations and to depths, that enable monitoring to determine any change in groundwater quality resulting from the exercise of this consent. The bores shall be installed in accordance with NZS 4411:2001 and all associated costs shall be met by the consent holder.

15. The consent holder shall undertake surface water monitoring that is certified by the Chief Executive, Taranaki Regional Council as being adequate to determine any change in surface water quality resulting from the exercise of this consent

16. The consent holder shall undertake such baseline and operational monitoring of the activities licensed by this consent that may be fixed in accordance with section 36 of the Resource Management Act 1991. Baseline monitoring shall include, but not be limited to, sampling herbage, soil, surface water and groundwater. Operational monitoring shall include, but not be limited to spray drift characterisation.

17. The consent holder shall, after the consent is exercised, annually by 1 July, provide to the Chief Executive, Taranaki Regional Council a written report on the implementation of the Wastewater Irrigation Management Plan required in condition 9, and compliance with this consent.

18. The Taranaki Regional Council may review any or all of the conditions of this consent by giving notice of review during the month of June 2017 and/or June 2023, for the purpose of ensuring that the conditions are adequate to deal with any significant adverse effects on the environment arising from the exercise of this consent, which either were 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 9 July 2012

For and on behalf of
Taranaki Regional Council

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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:	Riverlands Eltham Limited PO Box 124 Eltham 4353
Decision Date:	2 May 2017
Commencement Date:	2 May 2017

Conditions of Consent

Consent Granted:	To use a pipeline under the bed of the Waingongoro River
Expiry Date:	1 June 2035
Review Date(s):	June 2023, June 2029
Site Location:	75 London Street, Eltham
Grid Reference (NZTM)	1710634E-5634514N
Catchment:	Waingongoro

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. This consent authorises the ongoing use of the pipeline structure existing at the time the application for this consent was lodged, and as described in the application. Any change to the nature or scale of the structure may therefore need to be authorised by a formal process in accordance with the Resource Management Act, 1991.

2. The consent holder shall maintain and regularly review a 'Contingency Plan' that details measures and procedures that will be undertaken in the event of pipeline failure or any escape of contaminants from the pipeline. The plan shall be approved by the Chief Executive, Taranaki Regional Council, acting in a certification capacity as being adequate to avoid, remedy or mitigate the environmental effects of such an event.

3. The consent holder shall maintain the structure in a safe and sound condition such that it continues to function effectively.

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 June 2023 and/or June 2029, 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 2 May 2017

For and on behalf of
Taranaki Regional Council

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A D McLay
Director - Resource Management

Appendix II

Categories used to evaluate environmental and administrative performance

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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.