



Waiuku Wastewater Treatment Plant 2025-2026 Annual Report

Final September 2026

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CONSENT CHANGE AND MONITORING HISTORY

Change type	Description	Effective date	Reference / condition	Reporting / monitoring implications
Consent Issuance	Coastal permit 24130 (operative under s124 of the RMA) issued by Auckland Council for the discharge of treated wastewater into the Waiuku River. Includes limits on effluent quality (Condition 14), volume (Condition 6), and tidal timing (Condition 7).	3 July 2009 ¹	Consent 24130 – Conditions 6–15	Established 92nd percentile and median limits for cBOD ₅ , TSS, NH ₄ -N, TIN, TP, Enterococci, and Faecal coliforms. Requires regular monitoring and annual compliance reporting.
Odour Consent	Air discharge permit 24790 granted for odour emissions associated with the WWTP operation.	3 July 2009 ¹	Consent 24790	Requires odour management practices. No direct monitoring/reporting under annual report unless complaints are received.
Management Plans	Two management plans were prepared in 2014: General Management Plan, and Air Quality Management Plan (AQMP).	First written in 2014 Last review in September 2019 Expiry 2027		Management Plan sets out the operational, monitoring, reporting, and contingency procedures required to ensure the Waiuku WWTP operates in compliance with its resource consent (DIS60334129). AQMP provides guidance of odour management measures and is prepared as a condition of resource consent.
Monitoring Plan	Waiuku WWTP Management Plan (Final, 2014) prepared to meet Condition 10. Outlines operational procedures, effluent sampling, contingency protocols, QA/QC, and responsibilities.	November 2014	Condition 10	Establishes sampling frequencies, alarm and notification procedures, system checks, and roles. Forms the basis for compliance with effluent monitoring and maintenance conditions.

Change type	Description	Effective date	Reference / condition	Reporting / monitoring implications
SCADA Upgrade	Upgrade of remote monitoring systems linking Waiuku WWTP to Watercare's Newmarket hub via Pukekohe SCADA interface.	Circa 2015–2017 (ongoing)	Management Plan, Section 2.5	Supports live monitoring of flow volumes, alarms, and effluent quality triggers. Enhances incident detection and reporting responsiveness.
UV Disinfection	UV disinfection system operational for final effluent polishing before discharge to meet microbial consent limits.	Prior to 2014	Condition 15; Management Plan Section 2.3.6	Enables compliance with enterococci and faecal coliform limits (Condition 14). Forms part of routine and bypass discharge assessment.

EXECUTIVE SUMMARY

This report summarises Watercare's compliance performance for the Waiuku Wastewater Treatment Plant (WWTP) for the period 1 July 2025 to 30 June 2026, in accordance with the conditions of coastal permit DIS60334129¹. The assessment covers effluent discharge volumes, water quality results, incident reporting, shellfish monitoring, and progress on future upgrade plans.

Key findings during the reporting period include:

- **Effluent volumes:** While routine treated effluent discharges remained within consented limits, with an average daily flow of 2,762 m³, two emergency bypass events during July 2025 released a combined total of approximately 20,952 m³ of partially treated wastewater. Each bypass event constitutes a non-compliance with Conditions 6, 7 and 14 due to discharge volume, tidal timing and water quality exceedances. These events were triggered by high pond levels and were necessary to avoid overtopping.
- **Effluent quality:** Routine effluent quality monitoring showed general compliance with consented limits. The only parameter exceeding its 92nd percentile threshold was ammoniacal nitrogen in the summer period; however, it was compliant in the winter months. Six-year trend analyses did not reveal significant increasing or decreasing trends in effluent quality over time.
- **Shellfish monitoring:** Shellfish tissue monitoring was undertaken in accordance with Conditions 15–17. Results confirmed elevated *E. coli* and concentrations in oysters collected near the outfall (OYS B) (albeit within the guidelines), while upstream and reference sites remained well below guideline thresholds. The faecal coliforms guidelines were exceeded at OYS B. These results align with historical patterns and reflect the influence of proximity to the discharge point.
- **Emergency bypasses:** Two non-compliant emergency bypass discharges were reported under Condition 25. Receiving water monitoring confirmed short-term impacts, with rapid recovery of dissolved oxygen and BOD, though elevated bacterial counts were observed where UV treatment was bypassed.
- **Plant upgrades:** Watercare is progressing a regional strategy that includes redirecting treated effluent from Waiuku to the new Clarks Beach outfall. This change will require future upgrades to the Waiuku WWTP to ensure compliance with the more stringent discharge limits of the Clarks Beach consent. Final designs are yet to be confirmed, but enhanced nutrient removal and disinfection processes are expected to be included.
- **Complaints:** No public complaints were received regarding the WWTP operations during the reporting year.

¹ DIS60334129 is the replacement consent currently under review by Auckland Council. The original coastal permit (24130) remains active under s124 of the Resource Management Act until a decision is finalised.

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ABBREVIATIONS

For ease of reading, this report uses abbreviations for some technical terms. Table 1-1 lists these abbreviations.

Table 1-1: Abbreviations

Abbreviation	Description
cBOD ₅	5-day carbonaceous biochemical oxygen demand
BNR	Biological nutrient removal
DO	Dissolved oxygen
E. coli	<i>Escherichia coli</i>
NH _x -N	Ammonia and ammonium, reported in milligrams nitrogen
NO ₃ -N	Nitrate as measured in units of nitrogen
TN	Total nitrogen
DRP	Dissolved reactive phosphorus
TSS	Total suspended solids
Watercare	Watercare Services Limited
WWTP	Wastewater treatment plant

1 INTRODUCTION

The Waiuku Wastewater Treatment Plant (WWTP) discharges treated effluent into the Waiuku River, part of the Manukau Harbour, under consent DIS60334129.

Discharges and operations at the Waiuku WWTP are currently authorised under two active resource consents issued by Auckland Council (Table 1-1). These include a coastal permit for the discharge of treated wastewater and a permit for air discharge (odour).

The plant is operated in accordance with the Waiuku WWTP Management Plan (last revision 2019) and Operations and Maintenance Manuals, which provide procedural guidance for effluent quality monitoring, system operation, contingency planning, and environmental reporting.

Table 1-1. Waiuku WWTP active consents

Consent Number	Description	Expiry Date
DIS60334129	Discharge of treated wastewater to the Waiuku River	15 June 2027
DIS60334129	Discharge of contaminants (odour) to air	15 June 2027

1.1 Scope

This annual report documents Watercare's compliance with consent 24130 from 1 July 2025 to 30 June 2026, including monitoring results, flow data, incidents, and operational highlights. Specifically, Condition 27 requires the annual report to contain the following:

- a. A summary of the monthly results of all the effluent discharge samples results set out in condition 14 for the period up to 30 June each year (the first being due on the 30 June following the commencement of the consent);
- b. An analysis and interpretation of all reporting data required by this consent for the past year;
- c. The level of compliance with each monitoring consent condition, with recommendations and a timetable for rectifying any non-compliance;
- d. General plant performance, including:
 - i. Any trends in changes in the discharge quality standards over time;
 - ii. The performance and effectiveness of the UV unit;
 - iii. The levels of indicator pathogenic microorganisms;
 - iv. The effectiveness of total phosphorus removal and nutrient levels through the various seasons; and
 - v. Any trends indicated over recent years.
- e. Any trends and status of Inflow and Infiltration (I&I) effects on total flow volumes and comment on flows during any peak storm events;
- f. A review of any changes in influent load to the plant and any corresponding changes in the ammoniacal nitrogen levels;
- g. A Receiving Environment Report compiling the results of the environmental monitoring;
- h. Any key system maintenance and/or upgrade work completed within the prior year and proposed in the forthcoming year, and changes (if any) to the Management Plan;
- i. A review on the performance and improvements of the WWTP achieved in the past year;

- j. An updated register of any trade wastes connected to the plant;
- k. Details of any complaints received in accordance with the conditions of this consent.

2 OPERATIONAL DETIALS

2.1 Current operations

The WWTP is located on designated land off Williams Road, Waiuku. The treatment process receives wastewater from the Waiuku township and the nearby steel mill via two influent pipelines. The plant uses a pond-based treatment system with polishing and disinfection prior to discharge.

The key components of the treatment train include:

- **Inlet screening:** Automatic and manual bypass screens remove gross solids from influent.
- **Aerated facultative pond (6.35 ha):** primary treatment through aerobic and facultative microbial activity.
- **Aerated retention pond (1.3 ha):** secondary maturation and further breakdown of organics.
- **Slag bed filters (10 beds):** tertiary polishing through bacterial uptake, filtration, denitrification and contaminant adsorption.
- **UV disinfection** – final pathogen inactivation prior to discharge.
- **Tidal storage pond** – holds disinfected effluent until release is permitted by tidal conditions.

Effluent is discharged via an outfall pipe to the Waiuku River during outgoing tides, as permitted under Condition 7 of consent 24130. Discharges are restricted to a maximum of three hours per tidal cycle, beginning one hour after ebb tide commences, and must occur at night where practicable.

2.2 Changes in reporting year

No substantial changes were made to the WWTP within the 2025-2026 reporting period.

2.3 Future changes

Watercare is implementing a long-term servicing strategy for the South-West region, including Waiuku, Clarks Beach, and Glenbrook Beach. Under this plan, the Waiuku WWTP will be retained and upgraded, with treated effluent redirected via a new pipeline to the Clarks Beach outfall, currently under construction.

To support this transition, a booster plant is planned for construction in 2026–2027. This upgrade will enhance the performance of the existing Waiuku WWTP and help maintain compliance ahead of the final discharge connection to Clarks Beach.

While final design details are still in development, the upgraded Waiuku treatment system is expected to include enhanced nutrient removal and disinfection processes, likely mirroring elements of the Clarks Beach upgrade.

Key future actions include completion of detailed designs, construction of the transfer pipeline, staged implementation of the booster and full upgrades, and any necessary consent variations. The existing Waiuku outfall infrastructure will be reassessed once the new discharge route is operational. Further updates will be provided in subsequent reporting years as the programme progresses.

3 METHODOLOGY

3.1 Monitoring

Continuous flow monitoring was undertaken at the WWTP outfall in accordance with Condition 13. Daily flow volumes, discharge durations, and tidal timing were extracted from the plant's telemetry (PI) system. Data were checked against operational logs, and total annual discharge was calculated as the sum of valid daily volumes. Instances of equipment failure or missing data are identified in relevant Section 3.

Effluent samples were collected from the designated final discharge sampling point at the frequency and for the parameters required by Condition 14. Sampling frequencies during the reporting year were as follows:

- Fortnightly: cBOD₅, TSS, Enterococci, Faecal coliforms
- Monthly: TIN, TP, DRP
- Weekly (field): pH, Dissolved Oxygen, Temperature

Trace metals are required annually, and were taken within February 2025 and scheduled for October 2026, which are not within the July 2025 to June 2026 reporting period.

Analyses were carried out by Watercare's laboratory (where relevant). Results were collated, and compliance was assessed against the consent's median and 92nd percentile limits using 12-month rolling datasets.

Annual oyster sampling was completed in January 2026 at the five specified sites in accordance with Conditions 15 and 17. Field collection, handling, and analysis followed Ministry of Health/MPI protocols for shellfish hygiene monitoring. Bioresarches provided the raw results and quality assurance summary (Appendix E).

3.2 Data handling and analysis

Time-series data for nutrients and microbial indicators (for the period 2020-2025) were evaluated for seasonality and outliers using non-parametric approaches (Mann-Kendall trend tests and Kruskal-Wallis comparisons between summer and winter discharge periods). Outliers were identified against Tukey's interquartile range rule and cross-checked with operational records before inclusion. Graphical summaries (boxplots, polar plots, scatter plots) were generated in R (v4.3) with ggplot2. These analyses informed potential systematic trends- noting that they are indicative only.

3.3 Compliance criteria

The assessment of the WWTP performance considers:

- Results of compliance monitoring
- Recorded incidents and complaints.

Watercare assesses compliance with the consent using the same compliance rating system utilised by Auckland Council (Table 3-1).

Table 3-1: Compliance assessment criteria

Rating	Detail
Category 1	Watercare has complied with the consent condition. Where a resource consent condition refers to a provision in a Management Plan, then the plan has been referred to in assessing consent compliance.
Category 2	Watercare has not complied with the consent condition. Watercare has assessed the non-compliance as technical or having no more than minor adverse effect.
Category 3	Watercare has not complied with the consent condition. Watercare has assessed the non-compliance having the potential to result in more than minor adverse effects on the environment. Alternatively, since the last audit, there is evidence of repeat Category 2 non-compliance.
Category 4	Watercare has not complied with the consent condition. Watercare has assessed the non-compliance as having the potential to cause significant adverse effects on the environment. Alternatively, since the last audit, there is evidence of repeat Category 3 non-compliance.

4 RESULTS

4.1 Effluent volumes

During the 2025–2026 reporting period, the WWTP discharged a total of 1,007,950 m³ of treated effluent via the authorised outfall, with an average daily flow of 2,762 m³/day and a maximum daily discharge of 4,045 m³/day (Figure 4-1). All routine discharges remained within the consented limit of 5,500 m³/day (Condition 6), irrespective of occasions where rainfall exceeded 40 mm/week, allowing additional discharge volumes. All routine discharges were timed in accordance with the tides, in accordance with Condition 7.

Compared to the previous year (2024–2025), the average routine daily discharge decreased slightly by 38% (–1,042 m³/day), with both years showing similar seasonal variation - higher discharges in winter/spring and lower flows in summer.

In addition to the routine discharges, two emergency bypass events occurred during the reporting period, discharging partially treated (screened only) wastewater directly to the environment, bypassing UV disinfection:

- 10–13 July 2025: ~16,200 m³ over 75 h
- 21–22 July 2025: ~4,752 m³ over 22 h

These events were triggered by high pond levels and were necessary to avoid overtopping. Each bypass event constitutes a non-compliance with Conditions 6, 7 and 14 due to discharge volume, tidal timing and water quality exceedances. Bypass events were notified to Auckland Council and detailed further in the incident report (Appendix E). The future upgrades discussed in Section 2.3 will address these issues.

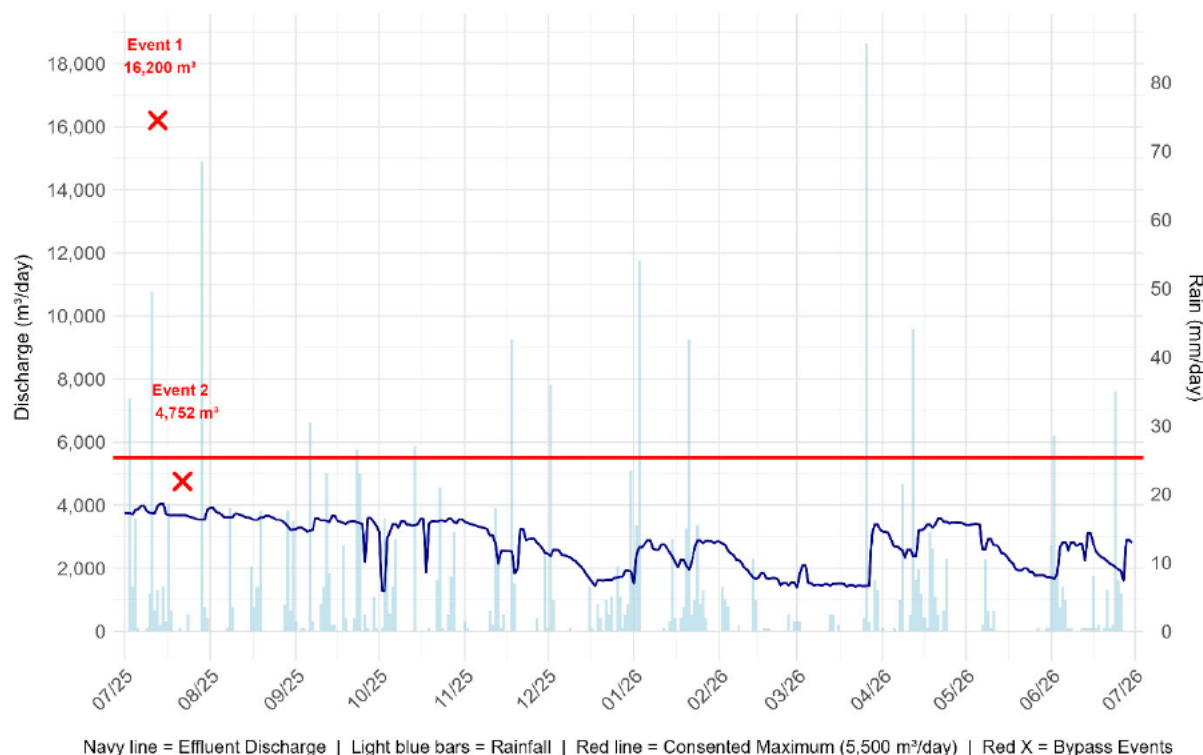


Figure 4-1. Daily rainfall and routine effluent discharge volumes at Waiuku WWTP, with annotated non-compliance events.

4.1.1 Long-term trends

Rainfall and discharge data for the previous six years (2020–2026) showed a strong positive relationship between three-day cumulative rainfall and daily discharge volumes, with the statistical analysis indicating a significant association ($p = 0.0004$) (Figure 4-2). The trend analysis includes effluent volumes discharged through emergency bypasses in 2023 and 2025. The highest discharge volumes typically occur during rainfall events, consistent with wet-weather inflow and infiltration (I&I) contributing to influent levels.

When there was no rainfall during the preceding three days, the median daily discharge volume was 2,145 m³/day (Figure 4-3). Days with up to 5 mm of rainfall had a median discharge volume approximately 292 m³/day higher than dry days. Median discharge volumes under higher rainfall categories were broadly similar, ranging from 2,345 to 2,519 m³/day; however, the spread of discharge volumes increased under moderate to very heavy rainfall conditions. This indicates that rainfall contributes to increased discharge volumes but does not fully explain the observed day-to-day variability.

Overall, daily discharge volumes increased with increasing three-day cumulative rainfall, with the greatest discharge volumes occurring during larger rainfall events (Figure 4-2). Considerable variability was also evident at relatively low rainfall totals, indicating that factors other than recent rainfall contribute to discharge volumes, and representing prolonged recovery following wet periods, including on days which would be considered dry.

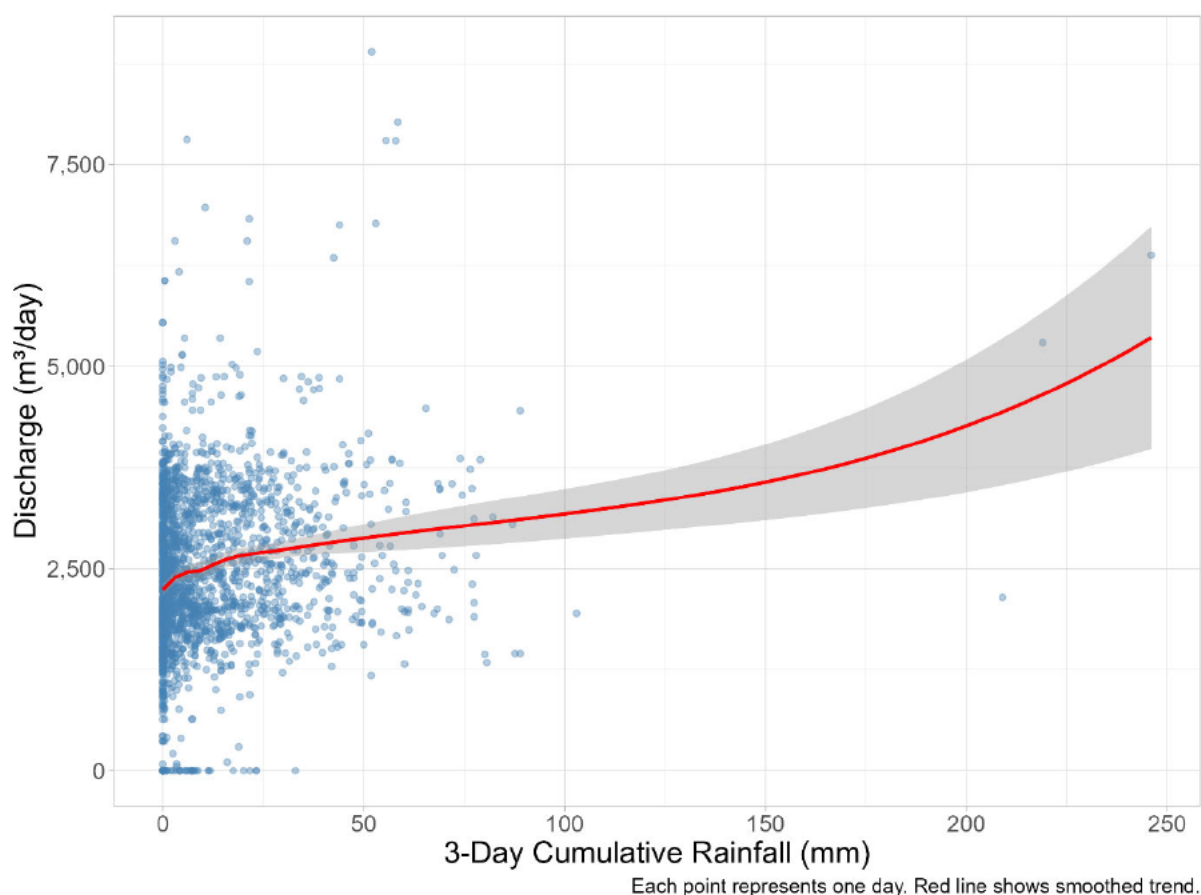


Figure 4-2. Relationship between 3-day cumulative rainfall and daily discharge volumes, fitted with a LOESS trend (2020-2026).

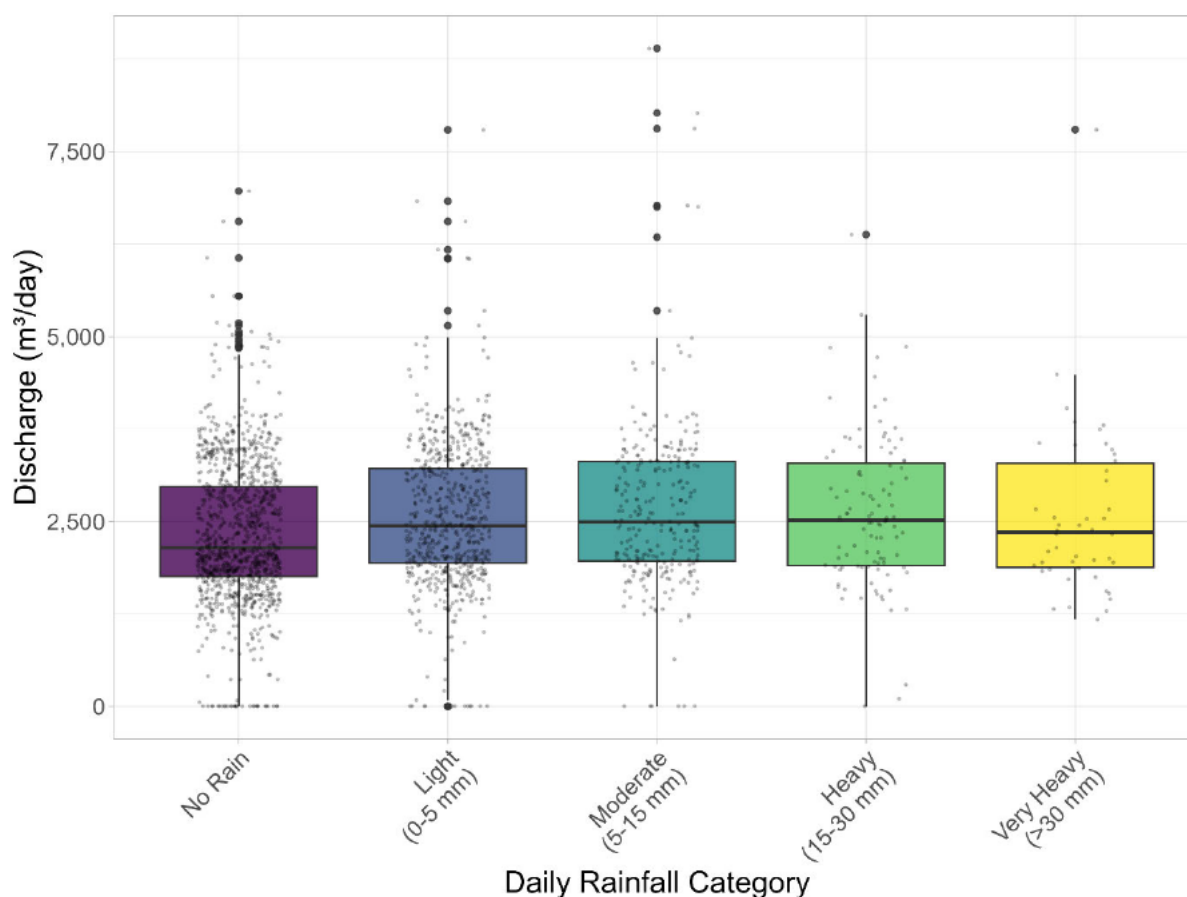


Figure 4-3. Distribution of daily discharge volumes under different rainfall conditions.

4.2 Effluent quality

This section presents an assessment of routine treated effluent quality monitored at the final discharge sampling point, post-UV disinfection, in accordance with Condition 14 of DIS60334129. The results reflect discharges that have passed through the full treatment process and authorised outfall.

Bypass events are excluded from this assessment because they did not follow the full treatment train and were not discharged via the consented outfall structure. As such, bypass discharges are not representative of standard WWTP performance and are addressed separately under Condition 25 in Section 4.3.2 and Appendix E.

Table 4-1 and Figure 4-4 present the routine effluent quality sample results for the reporting period. The key findings are:

- All parameters except ammoniacal nitrogen met the required rolling limits for the 12-month period.
- Ammoniacal nitrogen was non-compliant with seasonal 92nd percentile limits in summer, but compliant in the winter months.
- Nutrients (TIN, NH₄-N) showed higher concentrations in winter and spring, followed by a marked decline in late summer (Jan–Mar). This pattern closely follows the seasonal rise in temperature and reflects the reliance on microbial activity for nitrogen removal in the oxidation ponds. Since bacterial metabolism is strongly temperature-dependent, colder months reduce nitrification rates.

- Enterococci and faecal coliforms met both median and 92nd percentile limits, confirming the UV disinfection processes consistently performed effectively.
- Pathogenic microorganisms were consistently low, with the medians for both *enterococci* and faecal coliforms at the detection limit.
- Additional monitored parameters such as Dissolved Oxygen (DO), pH, Temperature, and DRP are not subject to numerical limits but were consistently within operational expectations and expected seasonal behaviour.
- cBOD₅ remained low overall, with minor periodic increases, potentially linked to pond temperature and loading.
- Seasonal fluctuations reflect both biological performance sensitivity and the effects of inflow and infiltration, particularly during high-rainfall months.

The exceedance of the ammoniacal nitrogen 92nd percentile in summer was classified as a Category 2 (minor) non-compliance and Auckland Council was notified. A review of plant performance data indicated ammoniacal nitrogen was elevated during this time: there is limited process control within the oxidation ponds to adjust to these peaks. The available nitrogen species data (NH₄, NO₂, NO₃) indicated that the increase in ammoniacal nitrogen was most likely associated with reduced ammonia oxidation efficiency, with no evidence of sustained nitrite accumulation, or changes in influent loading or process performance. The pattern was also consistent with seasonal influences on biological treatment processes.

In addition to routine nutrient, solids, and microbiological monitoring, a suite of trace metal analyses is required annually. The most recent samples were taken in February 2025 and are next scheduled for October 2026 and will therefore be included within the 2026-2027 annual report. In previous years, all trace metal results were very low and well within typical guideline values.

Shellfish tissue monitoring was also conducted during the reporting period under Conditions 15–17. The oyster tissues collected showed levels of *E. coli* below the guidelines (Table 3). The highest tissues levels were recorded at sites OYS B 250m downstream of the outfall and at site OYS C further downstream, however the concentrations of bacteria were under the guideline values. Similarly, the levels of faecal coliforms were below the guidelines, except for site OYS B 250m downstream of the outfall. The downstream sites, OYS D and OYS E, and the upstream site OYS A showed low levels of *E. coli* and faecal coliforms. These findings are consistent with historical patterns and reflect the influence of proximity to the discharge point. Long-term analysis also highlights other catchment pollution inputs such as farmland activities. Full results and interpretation are provided in Appendix F.

Table 4-1. Waiuku WWTP effluent quality summary (1 July 2025 – 30 June 2026).

Parameter	N	Min	Mean	Max	Median	Consented median	Median compliant	92 nd percentile	Consented 92 nd percentile	92 nd percentile compliant
BOD ₅ (mg/L)	26	1.6	4.8	17	3.7	–	–	8.5	≤ 20 mg/L	✓
Dissolved oxygen (DO) (mg/L)	54	3.02	4.3	6	4.13	–	–	5.176	-	–
DRP	26	2.09	3.5	5	3.59	–	–	4.46	–	–
<i>Enterococci</i> (cfu/100 mL)	26	1.6	4.9	78	1.6	≤ 50	✓	3.3	≤ 150	✓
Faecal coliforms (cfu/100 mL)	26	1.6	11.2	220	1.7	–	–	8.2	≤ 430	✓
Ammoniacal nitrogen (NH ₄ -N) (mg/L)	26	0.18	8.0	17	8.6	–	–	12.0 (Nov-Apr) 16.1 (May-Oct)	≤ 5 (Nov-Apr) ≤ 20 (May-Oct)	✗
pH	26	7.1	7.4	7.7	7.4	–	–	7.5	–	–
Temperature (°C)	54	9.8	18.0	22.5	18.9	–	–	21.7	–	–
Total inorganic nitrogen (TIN) (mg/L)	26	2.1	12.1	20	14	–	–	20	≤ 20	✓
Total phosphorus (TP) (mg/L)	26	2.31	4.1	5.6	4.515	–	–	5.21	≤ 8	✓
TSS (mg/L)	26	6	20.6	74	15.5	≤ 30 mg/L	✓	33.8	≤ 45 mg/L	✓

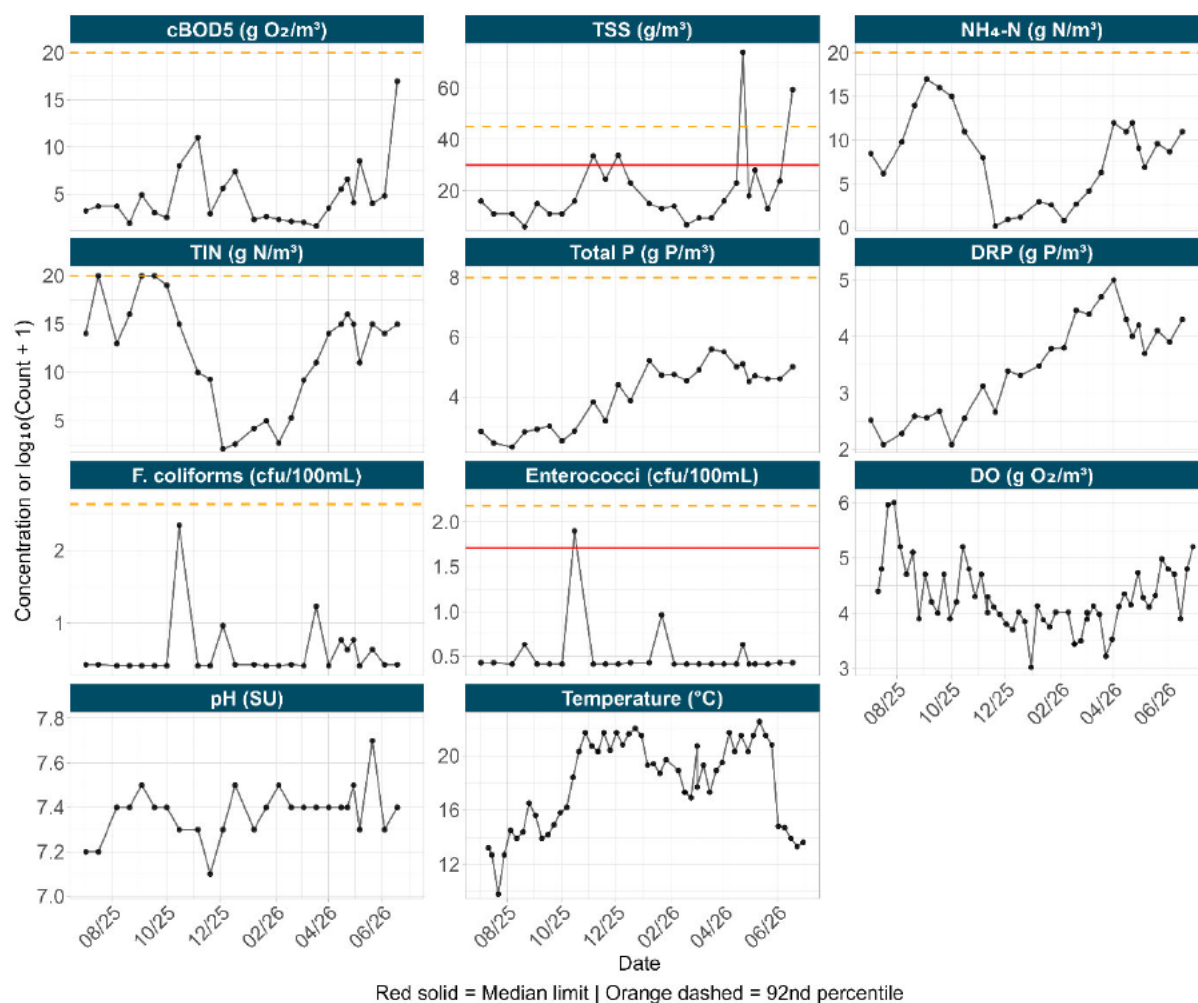


Figure 4-4. Effluent quality results within the 2025-2026 reporting period. Log₁₀ scale applies to microbial parameters.

4.2.1 Influent loads

A review of influent volume increases compared to the effluent ammoniacal nitrogen concentrations has found there is no statistically significant relationship between the two parameters for the 2021-2026 period ($p = 0.051$), and for the reporting year ($p = 0.081$). Influent data for 2020-2021 could not be included within the analysis.

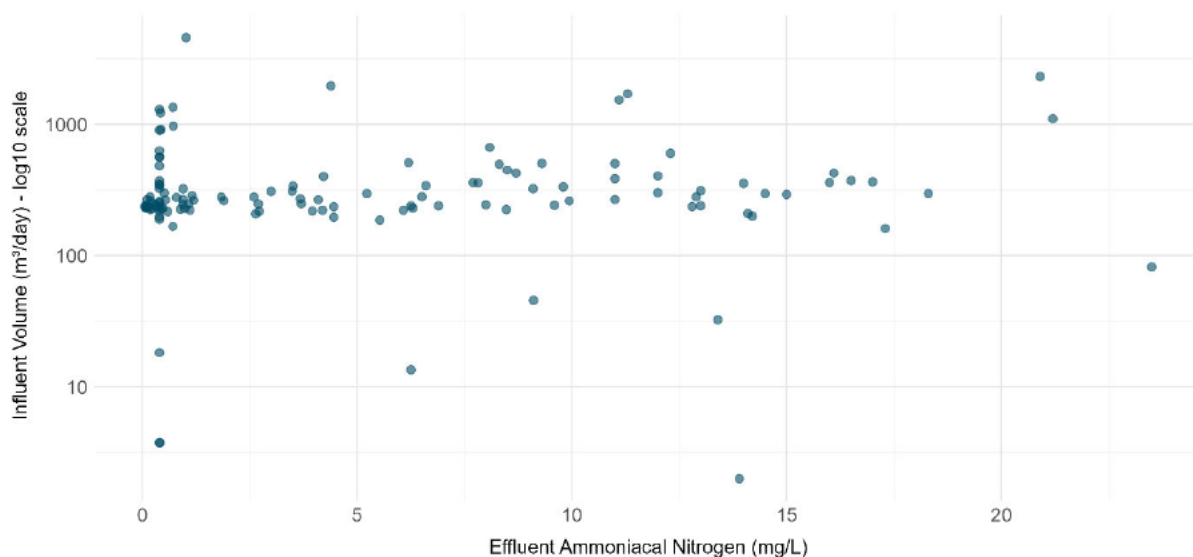


Figure 4-5. Influent volumes and the corresponding discharge effluent ammoniacal nitrogen concentrations (2021-2026). No significant correlation is present between the two parameters.

4.2.2 Seasonal variation

Statistically significant seasonal patterns were observed in all parameters except TSS and dissolved oxygen.

As shown in Figure 4-5, seasonal peaks in nitrogen forms and cBOD₅ occurred in winter and spring, whereas lower concentrations were observed during summer and autumn. These patterns reflect the combined effects of temperature-dependent biological performance and wet weather inflow and infiltration (I&I). Notably, the seasonal profiles of NH₄-N and TIN reinforce the 2025-2026 observations, with show that nitrifier activity recovers gradually post-winter.

Total and dissolved reactive phosphorus peak in autumn, although the median remains well below the consented limit.

Enterococci and faecal coliforms had respective p values of 0.019 and 0.047, although despite this statistical significance, the range of same results is typically narrow, near the detection limit, and substantially lower than the consent limit.

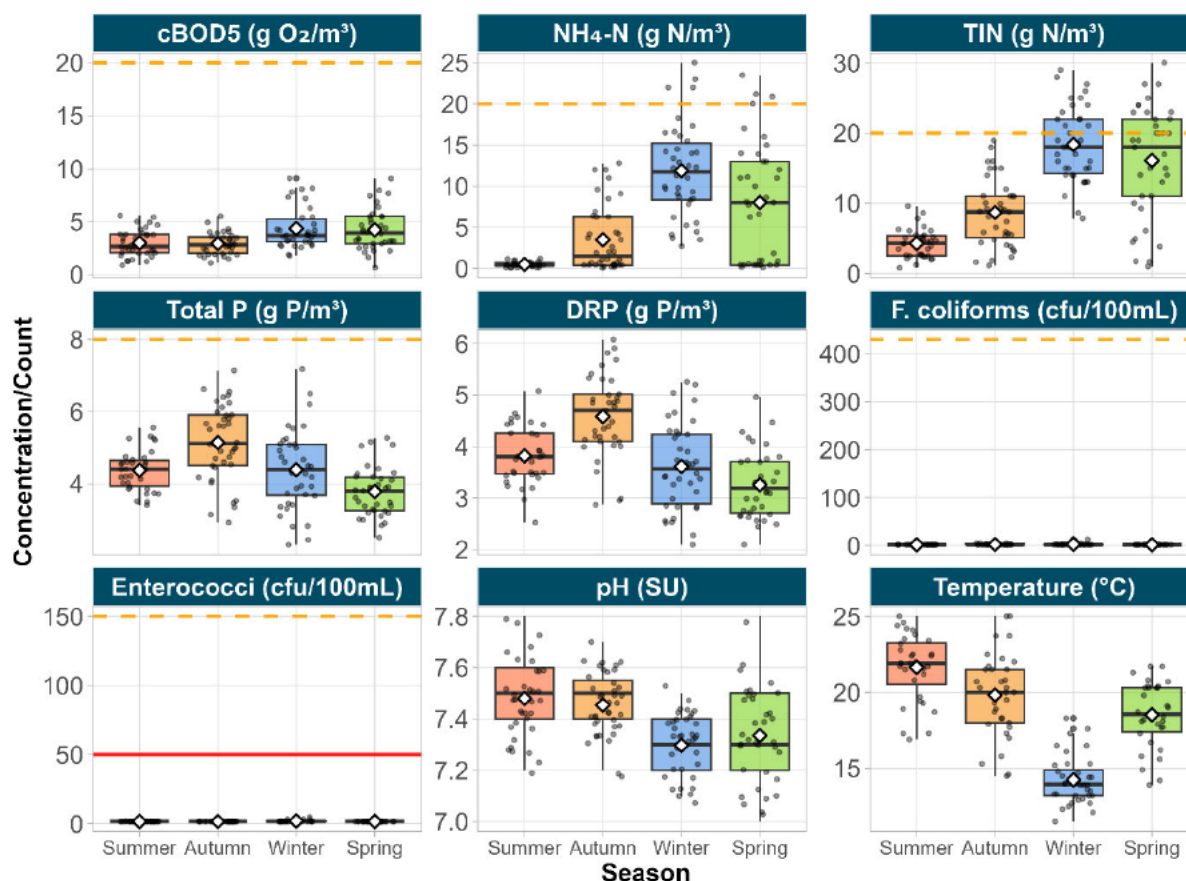


Figure 4-6. Effluent quality parameters with significant seasonal differences ($p < 0.05$) (2020 - 2026). Outliers have been removed from the visualisation.

4.2.3 Long-term trends

No significant long-term trends in effluent quality were found for the 2020-2026 period, indicating the stability of these indicators over the six-year period. In the 2024-2025 annual report, faecal coliforms, enterococci and ammonia each had moderate to strong decreasing trends. However, it is likely that the several high results in the 2025-2026 period for these parameters has influenced the trend slope.

4.3 Complaints and incidents

4.3.1 Complaints

No complaints relating to Waiuku WWTP were received during the 2025–2026 reporting period.

4.3.2 Incidents

Three non-compliance incidents occurred during the 2025-2026 reporting year. These comprised two emergency bypass discharges and a UV failure which resulted in untreated discharge, constituting an unauthorised bypass.

Emergency bypass discharges (2 events)

Prolonged rainfall and high inflows during winter 2025 triggered emergency bypass discharges to prevent pond overtopping. In total, approximately 39,000 m³ of partially treated (screened only) wastewater was discharged without UV disinfection. Each event constitutes a non-compliance with:

- **Condition 6 (Discharge Volume Limit)** — daily volumes exceeded the 5,500 m³/day limit.
- **Condition 7 (Tidal Discharge Timing)** — bypasses occurred outside the authorised discharge window.
- **Condition 14 (Effluent Quality Limits)** — faecal coliforms and enterococci exceeded consent thresholds; additional exceedances of TIN, TSS and cBOD₅ were recorded during the 10-13 July 2025 event.

Event details:

- **10–13 July 2025 (Event 3):** ~16,200 m³ over 75 hours. Breaches of Conditions 6, 7 and 14.
- **21–22 July 2025 (Event 4):** ~4,752 m³ over 22 hours. Breaches of Conditions 6, 7 and 14.

Although bypasses are triggered to protect the integrity of the WWTP during extreme inflows, they release effluent that has not passed through the full treatment train or consented outfall. Planning measures and long-term infrastructure upgrades (see Section 4) are underway to reduce the need for emergency bypasses.

UV failure

A discharge of 3,577 m³ occurred over 32 hours on 20 to 21 April 2026 (1,345 m³) and for 1 hour on 22 April (145 m³). This was caused by an electrical fault affecting the transformer supplying the UV system. While the incident was managed in accordance with the Waiuku WWTP Management Plan and the system was restored using a temporary configuration, it highlighted the need for greater resilience. Watercare is addressing this through critical spare procurement, installation of an interim backup UV system, and a future permanent UV upgrade.

5 CONCLUSION

Overall, the Waiuku WWTP operated broadly in accordance with consent conditions during the 2025–2026 reporting period, with most treated discharges meeting consented water quality and volume limits. Non-compliances included ammoniacal nitrogen exceeding the summer 92nd percentile and two wet-weather bypass events. All incidents were notified to Auckland Council in accordance with Conditions 24–27, and follow-up monitoring indicated localised, short-term effects only.

To address these issues, Watercare is continuing its South-West wastewater servicing strategy, which includes retaining and upgrading the Waiuku WWTP. Under this plan, treated wastewater will be redirected to the new Clarks Beach outfall, where tighter nutrient and microbial limits will apply. This transition will require enhanced treatment capacity at Waiuku and is expected to reduce bypass frequency and improve long-term consent compliance.

Appendix A. Assessment of compliance

Condition Number	Consent condition Waiuku Discharge to General Coastal Marine area & to air (#DIS60334129)	Compliance Rating	Comments
1	These consents shall be carried out in accordance with the documents and drawings and all supporting additional information submitted with the application, detailed below, and all referenced by the council as resource consent number DIS60334129.	1	
2	Under section 125 of the RMA, these consents lapse five years after the date they are granted unless: a. The consents are given effect to; or b. The council extends the period after which the consents lapse.	1	
3	The consent holder shall pay the council an initial consent compliance monitoring charge of \$990.00 (inclusive of GST), plus any further monitoring charge or charges to recover the actual and reasonable costs incurred to ensure compliance with the conditions attached to these consents.	1	
4	DIS60334129 for the discharge to air and discharge to the coastal environment shall expire on June 15 2027, unless it has lapsed, been surrendered or been cancelled at an earlier date pursuant to the RMA.	1	
5	The servants or agents of the Council shall be permitted to have access to the relevant parts of the property at all reasonable times for the purpose of carrying out inspections, surveys, investigations, tests, measurements or take samples while adhering to the Consent Holder's health and safety policies.	1	
6	The Consent Holder shall ensure that the treated wastewater discharge volume does not exceed 5,500 m ³ /day plus 33 m ³ /day for every 1 mm/day of rainfall inclusive, once rainfall exceeds 40mm/week.	2	Routine treated discharges remained well within the 5,500 m ³ /day daily limit (and adjusted wet-weather thresholds). Two emergency bypasses in July 2025 exceeded the consented volumes.
7	The Consent Holder shall discharge treated wastewater from the plant for up to 6 hours per day, commencing one hour after ebb tide, for a duration not exceeding 3 hours per outgoing tide, as far as practicable during the night rather than daytime outgoing tide and at a maximum discharge rate of 255 L/s over the maximum 6 hour daily discharge period. The daily discharge period may be extended 2 minutes per 1 mm of rainfall inclusive, once rainfall exceeds 40mm/week.	2	The emergency bypasses and UV failure resulted in discharges outside of the tidal window. Normal operation of the plant was in accordance with this condition.
8	The design and installation of any new system components shall be carried out under the supervision of a chartered professional engineer or other appropriately qualified person experienced in the design and installation of wastewater treatment systems. The supervising engineer/person shall inspect all the new works (as they are completed), and shall certify in writing to the Manager that all additional components of the wastewater treatment system have been designed, inspected and installed in accordance with standard engineering practice.	1	

Condition Number	Consent condition Waiuku Discharge to General Coastal Marine area & to air (#DIS60334129)	Compliance Rating	Comments
9	The Consent Holder shall maintain a register of the authorised trade waste connections to the Waiuku WWTP and shall provide a copy of the updated register with the Annual Report.	1	Under the Auckland Council Trade Waste Bylaw 2013, we do not require deemed 'low risk' customers such as cafes, takeaways and hairdressers. to hold Trade Waste Agreements. Current authorised trade waste connections to the Waiuku WWTP include: • Watercare WTP, 83 Victoria Ave • Watercare WTP, 2 Cornwall Rd • Griffiths & Co, 10 Cornwall Rd • Health New Zealand, 72 Kitchener Rd • Auckland Council Whiteside Pools, 20 Kitchener Rd • Land & Sea Civil Ltd, 136 Kitchener Rd • The Scrub Hub Ltd, 37 Waimarire Rd
10	The Consent Holder shall ensure that 24 hours a day, seven days a week electronic monitoring systems are installed and maintained to operate in the event of any plant failure	1	Compliant.
11	The Consent Holder shall update the existing Management Plan for the WWTP (dated September 2018) to include updated references to the requirements of this consent, specifically in terms of updating: a. Section 3.1 - Monitoring; b. Appendix A - Copies of Resource Consent; and c. Appendix D - Environmental Monitoring. The Management Plan shall be prepared by a suitably qualified engineer and shall be submitted to the Manager for certification within three months of the commencement of this consent.	1	The updated management plan for the Waiuku WWTP and the new AQMP sent to AC in September 2019.
12	The Consent Holder shall comply with the requirements of the Management Plan once it has been finalised. All subsequent significant updates to the plan throughout the term of this consent shall be submitted to the Manager for certification.	1	
13	The Consent Holder shall ensure flow meters are maintained in place to measure the total daily inflow to the WWTP and the total daily discharge volume from the system into the Waiuku Estuary continuously. The discharge volume meter must be maintained to ensure an accuracy of plus or minus 5 percent.	1	Compliant.

Condition Number	Consent condition Waiuku Discharge to General Coastal Marine area & to air (#DIS60334129)	Compliance Rating	Comments
14	The Consent Holder shall monitor and analyse the parameters set out in the table below. All samples shall be analysed to the required detection limits at the sampling frequency set out below. Treated wastewater samples shall be collected following UV treatment and prior to discharge. The quality of the effluent discharged shall be equal to or better than the limit specified for that parameter (as applicable). Please see pages 6-7/16 of the consent document for further details.	3	Routine treated effluent sampling was conducted as required, and results met all consent limits except for ammoniacal nitrogen, which exceeded the 92nd percentile threshold for summer and is non-compliance (see Section 4.2). Trace metals were not sampled in the reporting period. Note: This condition applies to routine, post-UV discharges only. Additional exceedances occurred during bypass discharges (see Condition 25 and Appendix E).
15	The Consent Holder shall collect Pacific oyster from 5 monitoring sites within Waiuku Inlet annually during the month of February. The sampling sites shall be located in the following areas: a. A site upstream of the discharge point, with a minimum separation distance of 250m; b. A site approximately half the distance from the discharge point and the Needles site; c. A site adjacent to the Needles; d. A site adjacent to Okohaka Point; and e. A site adjacent to Gordon's Landing	1	The shellfish quality monitoring was completed in January 2026 (see Appendix F).
16	On each monitoring occasion, the person(s) undertaking the sampling shall record the following conditions at the time of sampling; a. The weather conditions on the day of sampling and the week prior; b. The effluent discharge quality, the discharge volume, discharge rate and discharge timing on the day of sampling, c. The tide characteristics specifically low and high tide heights. d. The time of sampling in relation to the commencement of discharge release at each sampling site, to ensure standardisation of results.	1	The oyster sampling was carried out in January 2026 in accordance with the condition.
17	Samples of the Pacific oyster (<i>Crassostrea gigas</i>) shall be collected in accordance with the latest version of the Ministry of Health protocols for sampling bacteriological quality of shellfish with procedures confirmed following consultation with the Ministry of Primary Industry. Samples shall consist of five replicates made up of at least 12 shellfish at each sampling site. The shellfish samples shall be tested for E.coli bacteria.	1	

Condition Number	Consent condition Waiuku Discharge to General Coastal Marine area & to air (#DIS60334129)	Compliance Rating	Comments
18	The Consent Holder shall establish a series of monitoring sites upstream and downstream of the Waiuku Wastewater Treatment plant discharge. Water samples shall be collected at the following locations: a. At least 250m upstream of the discharge point; b. Within 10m downstream of the discharge point; c. Half way between the discharge point and the Needles; d. Adjacent to the Needles; e. Adjacent to Okohaka Point; and f. Adjacent to Gordon's Landing	1	Completed
19	Monitoring shall be conducted on three occasions during the phytoplankton growing season December through March, in two growing seasons over the duration of the consent: a. Growing Season 1: between December 2020 to March 2021 or December 2021 to March 2022); and b. Growing Season 2: between December 2023 to March 2024	1	Completed
20	On each monitoring occasion, the person(s) undertaking the sampling shall record the following conditions at the time of sampling; a. The weather conditions on the day of sampling and the week prior; b. The effluent discharge quality, the discharge volume, discharge rate and discharge timing on the day of sampling, c. The tide characteristics specifically low and high tide heights. d. The time of sampling in relation to the commencement of discharge release at each sampling site, to ensure standardisation of results.	1	Completed
21	Water samples collected in accordance with Conditions 18 shall be collected from near surface on the latter half of the ebb tide, with the timing of sampling representing the period during which the effluent would flow down the Waiuku Estuary. The following field measurements shall also be undertaken at each site: a. Ambient water temperature; b. Salinity; and c. Secchi depth.	1	Completed

Condition Number	Consent condition Waiuku Discharge to General Coastal Marine area & to air (#DIS60334129)	Compliance Rating	Comments
22	Water samples shall be analysed in the laboratory for the following parameters: a. Carbonaceous Biochemical Oxygen Demand (cBOD5); b. Suspended Solids; c. Turbidity; d. Chlorophyll-a; e. Total Phosphorus; f. Dissolved Reactive Phosphorus; g. Ammoniacal Nitrogen; h. Total Oxidised Nitrogen; i. Dissolved Inorganic Nitrogen; j. Enterococci; and k. Faecal Coliforms.	1	Completed
23	The Consent Holder shall ensure that all relevant samples required by the conditions of this consent are collected and analysed in accordance with the 22 nd edition of "Standard Methods for the Examination of Water and Wastewater" (Standard Methods) published by the American Public Health Association (APHA), the Water Environment Federation (WEF), and the American Water Works Association (AWWA) or any subsequent edition or equivalent as may be approved in writing by the Manager.	1	Completed
24	In the event of two consecutive results for any single parameter of samples collected in accordance with condition 14 not complying with the limits specified (without taking into account the exceedances otherwise allowed by the 92%tile provisions in the Table), the Consent Holder shall as soon as practicable of receipt of the second result notify the Manager of the exceedance in writing, outline mitigation measures taken and advise any further measures proposed to ensure compliance. If so instructed by the Manager, the Consent Holder shall increase the frequency of monitoring for that parameter to weekly for a specified period	1	Ongoing
25	In the event of any unauthorised discharge that has bypassed the required treatment train from the treatment system into the Waiuku Inlet, the Consent Holder shall notify the Manager and Auckland Regional Public Health Service as soon as practicable.	1	All bypass events were notified to Auckland Council and Auckland Regional Public Health Service as required under Condition 25. Further details are provided in Appendix E and quarterly reporting
26	The Consent Holder shall ensure that the results of the monitoring undertaken in accordance with condition 14 are reported to the Manager quarterly within 20 working days of the period ending 31 December, 31 March, 30 June and 30 September each year.	1	Compliant

Condition Number	Consent condition Waiuku Discharge to General Coastal Marine area & to air (#DIS60334129)	Compliance Rating	Comments
27	The Consent Holder shall prepare an Annual Report and provide it to the Manager by 30 September each year. The Annual Report shall cover: a. A summary of the monthly results of all of the effluent discharge samples results set out in condition 14 for the period up to 30 June each year (the first being due on the 30 June following the commencement of the consent); b. An analysis and interpretation of all reporting data required by this consent for the past year; c. The level of compliance with each monitoring consent condition, with recommendations and a timetable for rectifying any non-compliance; d. General plant performance, including: (i) Any trends in changes in the discharge quality standards over time; (ii) The performance and effectiveness of the UV unit; (iii) The levels of indicator pathogenic microorganisms; - The effectiveness of total phosphorus removal and nutrient levels through the various seasons; and (v) Any trends Indicated over recent years. e. Any trends and status of Inflow and Infiltration (I&I) effects on total flow volumes and comment on flows during any peak storm events; f. A review of any changes in Influent load to the plant and any corresponding changes in the ammoniacal nitrogen levels; g. A Receiving Environment Report compiling the results of the environmental monitoring; h. Any key system maintenance and/or upgrade work completed within the prior year and proposed in the forthcoming year, and changes (if any) to the Management Plan; i. A review on the performance and improvements of the WWTP achieved in the past year; j. An updated Register of any trade wastes connected to the plant; k. Details of any complaints received in accordance with the conditions of this consent.	1	This report
28	Signage shall be erected, in prominent locations of public interest and likely access, within 6 months of the exercise of this consent. The signage shall warn of public health concerns regarding shellfish gathering from effects from the exercise of this consent. It shall also specify that there should be no contact recreation or shellfish gathering or fishing within a conservatively estimated mixing zone around the discharge point. The signage wording and location shall be to the satisfaction of the Manager, in consultation with the Medical Officer of Health. A review of the wording, placement of and need for, the signage may be instigated from time to time, by the Manager, in consultation with the Consent Holder.	1	

Condition Number	Consent condition Waiuku Discharge to General Coastal Marine area & to air (#DIS60334129)	Compliance Rating	Comments
29	The Consent Holder shall ensure that all processes on site are operated, maintained, supervised, monitored and controlled to ensure that emissions authorised by this consent are maintained at the minimum practicable level.	1	
30	The Consent Holder shall ensure that beyond the boundary of the site, there is no dust and/or odour caused by discharges from the site, which in the opinion of an enforcement officer is noxious, offensive or objectionable.	1	
31	The Consent Holder shall ensure that no discharges from any activity on the site give rise to visible emissions (other than heat haze, water vapour and clean steam) to an extent which, in the opinion of an enforcement officer is noxious, dangerous, offensive or objectionable.	1	
32	The Consent Holder shall ensure that beyond the boundary of the site, there shall be no hazardous air contaminant, caused by discharges from the site, which causes, or is likely to cause, an adverse effect to human health, the environment or property.	1	
33	The Consent Holder shall ensure that no part of any process that discharges to air is operated without the associated emissions control equipment being fully operational and functioning correctly.	1	
34	The Consent Holder shall ensure that all staff and contractors undertaking works on site are aware of, and adhere to, all conditions of this consent	1	
35	The Consent Holder shall ensure that wind direction and the proximity to neighbouring properties are considered prior to undertaking any potentially odorous activities at the site.	1	
36	All sludge removal from the oxidation ponds and subsequent de-watering and disposal shall be carried out in a manner that minimises odour.	1	
37	All sludge removed from the ponds shall be disposed of to an appropriately authorised facility.	1	
38	The Manager shall be advised in writing no less than 10 working days prior to the commencement of desludging activities. The written notice shall include: a. the timing and method of desludging; b. precautionary measures proposed to ensure compliance with the conditions of this consent during desludging; and c. the contact details of the person responsible for the desludging activities.	1	

Condition Number	Consent condition Waiuku Discharge to General Coastal Marine area & to air (#DIS60334129)	Compliance Rating	Comments
39	The Consent Holder shall ensure that a walkover inspection of the WWTP site is undertaken at least once a week to identify any odours that may be originating from the site. The results shall be recorded and any odour potentially detectable off-site investigated immediately. Any remedial action shall be undertaken as soon as practicable. The procedures for the walkover, recording of the results and any remedial actions taken shall be as specified in the Air Quality Management Plan (AQMP) required by the conditions of this consent.	1	
40	An Air Quality Management Plan (-AQMP") shall be submitted to the Manager for review within three months of the date of commencement of this consent. The AQMP is to accurately record all monitoring, management and operational procedures, methodologies and contingency plans required to comply with the conditions of this consent. The AQMP may form part of an overall management plan for the site. It shall include, but not be limited to, the following details: a. the process equipment, maintenance, monitoring and recording procedures; b. procedures for responding to process contingencies; c. procedures for monitoring dissolved oxygen within the ponds and the actions to be taken to minimise the potential for odour; d. if regular odour complaints are received then details regarding the process for a review of operation practices in order to minimise odour effects further, e. walkover inspections; f. complaints investigation, monitoring and reporting; and g. the identification of key staff and contractors responsibilities and contact details.	1	The updated management plan for the Waiuku WWTP and the new AQMP sent to AC in September 2019
41	The AQMP shall be reviewed by the Consent Holder at least once every year. Any proposed changes shall be submitted to the Manager for review prior to implementation.	1	
42	The Consent Holder shall ensure that a Council enforcement officer is notified as soon as practicable in the event of any significant discharge to air which has potential to result in a breach of these conditions or to cause adverse effects on the environment. The following information shall be provided: a. details of the nature of the discharge; b. an explanation of the cause of the incident; and c. details of remediation action taken.	1	
43	All records, monitoring and test results required by the conditions of this consent shall be made available on request, during operating hours, to a Council enforcement officer and shall be kept by the Consent Holder for a minimum period of two years from the date of each entry for the duration of the consent.	1	

Condition Number	Consent condition Waiuku Discharge to General Coastal Marine area & to air (#DIS60334129)	Compliance Rating	Comments
44	The conditions of these consents may be reviewed by the Manager pursuant to section 128 of the Act, by giving notice pursuant to section 129, in the month of October each year in order: a. to deal with any significant adverse effects on the environment arising from the exercise of the consent which was not foreseen at the time the application was considered and which is appropriate to deal with at the time of the review; and/or b. to consider the adequacy of conditions which prevent nuisance and adverse effects beyond the boundary of the site, particularly if regular or frequent complaints have been received and validated by a Council enforcement officer; and/or c. to consider developments in control technology and management practices that would enable practical reductions in the discharge of contaminants into air; and/or d. to alter the monitoring requirements, Including requiring further monitoring, or e. increasing or reducing the frequency of monitoring; and f. to take account of any Act of Parliament, regulation, national policy statement, regional policy statement or relevant regional plan that relates to limiting, recording or mitigating emissions by this consent.	1	
45	The Consent Holder shall within 3 months of the commencement of this consent facilitate the establishment and maintenance of a Community Liaison Group ('CLG'). The Consent Holder shall invite representatives of the following parties to participate in the CLG: a. The Council (being the Consent Compliance Officer or the Manager); b. Representatives of local iwi and other community groups; and c. Other representatives of the local community who have expressed an interest in or concerns with the discharges of contaminants to the Consent Holder since the last CLG annual meeting. The purpose of the CLG shall be to provide a forum to: d. Facilitate communication and dialogue between the Consent Holder, the Council and the community on Issues concerning plant operation, performance and upgrade works. e. Facilitate communication and dialogue between the Consent Holder and the local community on effects on the community arising from plant operations and on future intentions.	1	Last meeting was 8 October 2025.
46	The Consent Holder shall use its best endeavours to ensure that formal meetings of the CLG are held at least once annually and where practicable within three months of the completion of the Annual Report (required by June each year) unless it is cancelled or deferred subject to agreement being obtained from all parties who attended the prior year's CLG meeting or have requested to be invited to all future CLG meetings. The Consent Holder shall provide an appropriate venue for the CLG meetings, inform all parties listed above of each CLG meeting a minimum of ten working days prior to the scheduled meeting date, and provide the minutes of the CLG meeting to all parties listed above within ten working days following the CLG Meeting.	1	

Condition Number	Consent condition Waiuku Discharge to General Coastal Marine area & to air (#DIS60334129)	Compliance Rating	Comments
47	The Consent Holder shall assist the CLG to fulfil its purpose by providing information to CLG parties on: a. Any concerns and complaints of the local community, aspects of non-compliance and remedial actions or proposals; b. Plant performance, including an overview of the most recent quarterly and annual compliance monitoring and receiving environment assessment reports; c. Any investigations and works at the plant and about any future proposals for the plant; and d. Updates on Issues that have been resolved.	1	
48	All complaints received by the Consent Holder about the discharges shall be logged immediately. The information shall Include: a. The date, time, location and nature of the complaint; b. Name, phone number and address of the complainant unless the complainant wishes to remain anonymous; c. Action taken by WSL to remedy the problem; d. Any equipment failure and remedial action taken; e. The weather conditions at the time of the complaint including estimates of wind direction, wind strength, temperature and cloud cover; and f. The date and name of the person making the entry. Details of any complaints received that affect the Consent Holder's ability to comply with the conditions of consent shall be provided to the Auckland Council within 24 hours of receipt of the complaint(s) or on the next working day. All other complaints shall be provided in the Annual Report required by the conditions of this consent.	1	

Appendix B. Effluent volumes and rainfall

Date	Discharge Volume (m³)	Rainfall (mm)	Date (continued)	Discharge Volume (m³)	Rainfall (mm)
1/07/2025	3751	0	1/01/2026	1528	8.5
2/07/2025	3748	0	2/01/2026	2450	15.5
3/07/2025	3744	34	3/01/2026	2664	54
4/07/2025	3715	6.5	4/01/2026	2664	0
5/07/2025	3853	16.5	5/01/2026	2787	0
6/07/2025	3877	0.5	6/01/2026	2893	0
7/07/2025	3977	0	7/01/2026	2893	0
8/07/2025	3977	0	8/01/2026	2613	0
9/07/2025	3819	0.5	9/01/2026	2587	0
10/07/2025	3760	5.5	10/01/2026	2587	0
11/07/2025	3747	49.5	11/01/2026	2760	0
12/07/2025	3744	3	12/01/2026	2760	0.5
13/07/2025	3972	6	13/01/2026	2629	0
14/07/2025	4045	1	14/01/2026	2500	1.5
15/07/2025	4045	6.5	15/01/2026	2373	13.5
16/07/2025	3722	1.5	16/01/2026	2200	2.0
17/07/2025	3694	18.5	17/01/2026	2038	0
18/07/2025	3683	3	18/01/2026	2270	2
19/07/2025	3689	0	19/01/2026	2270	3.5
20/07/2025	3689	0	20/01/2026	2078	15
21/07/2025	3684	0.5	21/01/2026	1955	42.5
22/07/2025	3687	0	22/01/2026	2227	2.5
23/07/2025	3687	0	23/01/2026	2641	4.5
24/07/2025	3648	2.5	24/01/2026	2880	15.5
25/07/2025	3625	0	25/01/2026	2880	4
26/07/2025	3600	0	26/01/2026	2806	6
27/07/2025	3562	0	27/01/2026	2868	2
28/07/2025	3553	0	28/01/2026	2868	0
29/07/2025	3553	68.5	29/01/2026	2858	0
30/07/2025	3548	3.5	30/01/2026	2806	0
31/07/2025	3863	2	31/01/2026	2848	0
1/08/2025	3914	0	1/02/2026	2848	0
2/08/2025	3914	0	2/02/2026	2792	6.41
3/08/2025	3795	0	3/02/2026	2745	4.59
4/08/2025	3753	0	4/02/2026	2567	3.66
5/08/2025	3717	0	5/02/2026	2470	0
6/08/2025	3622	0	6/02/2026	2420	0

Date	Discharge Volume (m³)	Rainfall (mm)	Date (continued)	Discharge Volume (m³)	Rainfall (mm)
7/08/2025	3622	0.5	7/02/2026	2268	0
8/08/2025	3621	18	8/02/2026	2264	0.92
9/08/2025	3619	3.5	9/02/2026	2179	0
10/08/2025	3728	0	10/02/2026	2016	0
11/08/2025	3728	0	11/02/2026	1948	0
12/08/2025	3687	0	12/02/2026	1827	0
13/08/2025	3658	0	13/02/2026	1716	10.54
14/08/2025	3616	0	14/02/2026	1660	4.59
15/08/2025	3616	0	15/02/2026	1701	0
16/08/2025	3568	9.5	16/02/2026	1838	0
17/08/2025	3533	3.5	17/02/2026	1838	0.45
18/08/2025	3530	6.5	18/02/2026	1677	0.46
19/08/2025	3615	17.5	19/02/2026	1663	0.46
20/08/2025	3615	0	20/02/2026	1684	0
21/08/2025	3665	0	21/02/2026	1684	0
22/08/2025	3665	0	22/02/2026	1649	0
23/08/2025	3636	0	23/02/2026	1467	0
24/08/2025	3594	0	24/02/2026	1538	0
25/08/2025	3536	0	25/02/2026	1538	0
26/08/2025	3536	0	26/02/2026	1464	2.5
27/08/2025	3495	0	27/02/2026	1554	0
28/08/2025	3418	3.9	28/02/2026	1554	1.5
29/08/2025	3319	17.6	1/03/2026	1393	1.5
30/08/2025	3218	3	2/03/2026	1821	1.5
31/08/2025	3227	16	3/03/2026	2097	0
1/09/2025	3242	1.5	4/03/2026	2097	0
2/09/2025	3284	0	5/03/2026	1533	0
3/09/2025	3284	0.5	6/03/2026	1533	0
4/09/2025	3234	0.5	7/03/2026	1466	0
5/09/2025	3162	0	8/03/2026	1479	0
6/09/2025	3186	30.5	9/03/2026	1479	0
7/09/2025	3219	1.5	10/03/2026	1458	0
8/09/2025	3582	0	11/03/2026	1491	0
9/09/2025	3582	0	12/03/2026	1491	0
10/09/2025	3516	4	13/03/2026	1451	2.5
11/09/2025	3516	6.5	14/03/2026	1507	2.5
12/09/2025	3503	23	15/03/2026	1507	0

Date	Discharge Volume (m³)	Rainfall (mm)	Date (continued)	Discharge Volume (m³)	Rainfall (mm)
13/09/2025	3463	8.5	16/03/2026	1513	1
14/09/2025	3662	1	17/03/2026	1513	0
15/09/2025	3662	1	18/03/2026	1500	0
16/09/2025	3499	0	19/03/2026	1419	0
17/09/2025	3469	0	20/03/2026	1475	0
18/09/2025	3434	12.5	21/03/2026	1475	0
19/09/2025	3404	2	22/03/2026	1415	0
20/09/2025	3464	0	23/03/2026	1457	0
21/09/2025	3489	0	24/03/2026	1457	0
22/09/2025	3489	2	25/03/2026	1432	2
23/09/2025	3450	26.5	26/03/2026	1450	85.6
24/09/2025	3423	23	27/03/2026	1450	1.4
25/09/2025	3400	0	28/03/2026	3046	0
26/09/2025	2199	2.5	29/03/2026	3381	7.5
27/09/2025	3594	0.5	30/03/2026	3381	6
28/09/2025	3594	0	31/03/2026	3227	0
29/09/2025	3467	5	1/04/2026	3163	0.5
30/09/2025	3345	0.5	2/04/2026	3163	0
1/10/2025	3156	0	3/04/2026	3114	0
2/10/2025	1299	0.52	4/04/2026	2904	0
3/10/2025	1299	16.48	5/04/2026	2694	0.5
4/10/2025	2954	12.88	6/04/2026	2694	0
5/10/2025	3157	2.58	7/04/2026	2629	4.5
6/10/2025	3393	6.62	8/04/2026	2552	21.5
7/10/2025	3393	13.5	9/04/2026	2336	0
8/10/2025	3285	0	10/04/2026	2586	0
9/10/2025	3488	0	11/04/2026	2586	2.5
10/10/2025	3488	0	12/04/2026	2380	44
11/10/2025	3378	0	13/04/2026	2376	7.5
12/10/2025	3378	0	14/04/2026	3205	9
13/10/2025	3340	0	15/04/2026	3205	5.5
14/10/2025	3361	27	16/04/2026	3264	2.0
15/10/2025	3395	0	17/04/2026	3381	0.5
16/10/2025	3566	0	18/04/2026	3381	14.5
17/10/2025	3566	0	19/04/2026	3291	12.0
18/10/2025	1875	0	20/04/2026	3383	5
19/10/2025	3411	0.5	21/04/2026	3578	2.5

Date	Discharge Volume (m³)	Rainfall (mm)	Date (continued)	Discharge Volume (m³)	Rainfall (mm)
20/10/2025	3490	0	22/04/2026	3578	0
21/10/2025	3490	0	23/04/2026	3468	3
22/10/2025	3476	7.5	24/04/2026	3468	10.5
23/10/2025	3508	21	25/04/2026	3414	0
24/10/2025	3508	0.5	26/04/2026	3444	0
25/10/2025	3481	0	27/04/2026	3444	0
26/10/2025	3570	2.5	28/04/2026	3435	0
27/10/2025	3570	8	29/04/2026	3435	0
28/10/2025	3463	14.5	30/04/2026	3419	0
29/10/2025	3418	0	1/05/2026	3365	0
30/10/2025	3554	0	2/05/2026	3361	0
31/10/2025	3554	0	3/05/2026	3379	0
1/11/2025	3462	1.5	4/05/2026	3401	0
2/11/2025	3430	0.5	5/05/2026	3401	0
3/11/2025	3400	0	6/05/2026	3381	0
4/11/2025	3370	0	7/05/2026	2602	1
5/11/2025	3343	0	8/05/2026	2602	10.5
6/11/2025	3318	0	9/05/2026	2929	3
7/11/2025	3297	0	10/05/2026	2929	0.5
8/11/2025	3272	0	11/05/2026	2731	3
9/11/2025	3244	0	12/05/2026	2731	0
10/11/2025	3042	3	13/05/2026	2645	0
11/11/2025	3042	1	14/05/2026	2466	0
12/11/2025	2802	18	15/05/2026	2455	0
13/11/2025	2162	10	16/05/2026	2347	0
14/11/2025	2542	0.5	17/05/2026	2228	0
15/11/2025	2542	2.5	18/05/2026	2152	0
16/11/2025	2540	0	19/05/2026	1966	0
17/11/2025	2540	0	20/05/2026	1926	0
18/11/2025	2536	42.5	21/05/2026	1926	0
19/11/2025	1835	7	22/05/2026	2000	0
20/11/2025	1967	0	23/05/2026	2000	0
21/11/2025	3237	0	24/05/2026	1885	0
22/11/2025	3237	0	25/05/2026	1885	0
23/11/2025	2900	0	26/05/2026	1762	0
24/11/2025	2925	0	27/05/2026	1781	0.5
25/11/2025	2935	0	28/05/2026	1781	0

Date	Discharge Volume (m³)	Rainfall (mm)	Date (continued)	Discharge Volume (m³)	Rainfall (mm)
26/11/2025	2935	0	29/05/2026	1780	0
27/11/2025	2828	2	30/05/2026	1721	0.5
28/11/2025	2733	0	31/05/2026	1721	0.5
29/11/2025	2614	0	1/06/2026	1701	12.5
30/11/2025	2474	11	2/06/2026	1664	28.5
1/12/2025	2453	0.5	3/06/2026	1830	8.5
2/12/2025	2384	36	4/06/2026	2667	3.5
3/12/2025	2580	4.5	5/06/2026	2831	6.5
4/12/2025	2580	0	6/06/2026	2831	4.5
5/12/2025	2559	0	7/06/2026	2558	0.5
6/12/2025	2424	0	8/06/2026	2829	0.5
7/12/2025	2411	0	9/06/2026	2829	0
8/12/2025	2374	0	10/06/2026	2704	0
9/12/2025	2347	0.5	11/06/2026	2766	0
10/12/2025	2271	0	12/06/2026	2766	0.5
11/12/2025	2230	0	13/06/2026	2255	0.5
12/12/2025	2136	0	14/06/2026	3108	0.5
13/12/2025	2050	0	15/06/2026	3108	0.5
14/12/2025	1927	0	16/06/2026	2775	8
15/12/2025	1791	0	17/06/2026	2536	0.5
16/12/2025	1671	6.5	18/06/2026	2429	1
17/12/2025	1552	0.5	19/06/2026	2353	0
18/12/2025	1448	0	20/06/2026	2309	0.5
19/12/2025	1624	4	21/06/2026	2229	6
20/12/2025	1624	2	22/06/2026	2143	0.5
21/12/2025	1612	0	23/06/2026	2110	1
22/12/2025	1632	4.5	24/06/2026	2027	35
23/12/2025	1632	2.5	25/06/2026	1965	7.5
24/12/2025	1629	5	26/06/2026	1911	5.5
25/12/2025	1690	0	27/06/2026	1612	0
26/12/2025	1707	9.5	28/06/2026	2901	0
27/12/2025	1730	5	29/06/2026	2901	0
28/12/2025	1730	0.5	30/06/2026	2807	0
29/12/2025	1914	2.5			
30/12/2025	1914	4			
31/12/2025	1890	23.5			

Appendix C. Effluent quality

Date	DO (mg/L)	Temp (°C)	pH (SU)	cBOD5 (mg/L)	TSS (mg/L)	NHX- N (mg/L)	Enterococci (cfu/100mL)	F. coliforms (cfu/100mL)	TIN (mg/L)	TP (mg/L)	DRP (mg/L)
2/07/25			7.2	3.2	16	8.5	1.7	1.7	14	2.83	2.52
10/07/25	4.4	13.2									
14/07/25	4.8	12.7									
16/07/25			7.2	3.7	11	6.2	1.7	1.7	20	2.44	2.09
21/07/25	5.96	9.8									
28/07/25	6	12.7									
4/08/25	5.2	14.5									
6/08/25			7.4	3.7	11	9.8	1.6	1.6	13	2.31	2.28
11/08/25	4.7	13.9									
18/08/25	5.1	14.4									
20/08/25			7.4	1.9	6	14	3.3	1.6	16	2.81	2.59
25/08/25	3.9	16.5									
1/09/25	4.7	15.6									
3/09/25			7.5	4.9	15	17	1.6	1.6	20	2.9	2.56
8/09/25	4.2	13.9									
15/09/25	4	14.2									
17/09/25			7.4	3	11	16	1.6	1.6	20	3.01	2.68
22/09/25	4.7	14.9									
29/09/25	3.9	15.8									
1/10/25			7.4	2.5	11	15	1.6	1.6	19	2.51	2.09
6/10/25	4.2	16.2									
13/10/25	5.2	18.4									
15/10/25			7.3	8	16	11	78	220	15	2.84	2.55
20/10/25	4.8	20.3									
27/10/25	4.3	21.7									
3/11/25	4.7	20.7									
5/11/25			7.3	11	33.6	8	1.6	1.6	10	3.82	3.12
10/11/25	4.01	20.3									
10/11/25	4.3	20.3									
17/11/25	4.11	21.7									
19/11/25			7.1	2.9	24.6	0.18	1.6	1.6	9.3	3.19	2.66
24/11/25	3.98	20.4									
1/12/25	3.8	21.7									
3/12/25			7.3	5.6	33.8	0.95	1.6	8.2	2.1	4.39	3.39
8/12/25	3.7	20.8									
15/12/25	4.02	21.6									
17/12/25			7.5	7.4	23	1.2	1.7	1.7	2.6	3.86	3.31

Date	DO (mg/L)	Temp (°C)	pH (SU)	cBOD5 (mg/L)	TSS (mg/L)	NHX- N (mg/L)	Enterococci (cfu/100mL)	F. coliforms (cfu/100mL)	TIN (mg/L)	TP (mg/L)	DRP (mg/L)
22/12/25	3.85	22									
29/12/25	3.02	21.5									
5/01/26	4.13	19.3									
7/01/26			7.3	2.3	15	3	1.7	1.7	4.2	5.21	3.48
12/01/26	3.88	19.4									
19/01/26	3.75	18.7									
21/01/26			7.4	2.6	13	2.6	8.2	1.6	5	4.72	3.79
26/01/26	4.02	19.7									
4/02/26			7.5	2.3	14	0.8	1.6	1.6	2.7	4.75	3.8
9/02/26	4.02	18.9									
16/02/26	3.44	17.3									
16/02/26	3.44	17.3									
18/02/26			7.4	2.1	6.8	2.7	1.6	1.7	5.3	4.53	4.46
23/02/26	3.5	16.9									
2/03/26	4.01	20.7									
2/03/26	3.89	17.7									
4/03/26			7.4	2	9.4	4.2	1.6	1.6	9.2	4.9	4.39
9/03/26	4.13	19.3									
16/03/26	3.98	17.3									
18/03/26			7.4	1.6	9.4	6.3	1.6	16	11	5.6	4.7
23/03/26	3.22	18.9									
30/03/26	3.53	19.5									
1/04/26			7.4	3.5	16	12	1.6	1.6	14	5.5	5
7/04/26	4.12	21.7									
13/04/26	4.35	20.3									
15/04/26			7.4	5.5	23	11	1.6	4.9	15	5	4.3
20/04/26	4.15	21.5									
22/04/26			7.4	6.6	74	12	3.3	3.3	16	5.1	4
28/04/26	4.73	20.3									
29/04/26			7.5	4.1	18	9.1	1.6	4.9	15	4.5	4.2
4/05/26	4.28	21.5									
6/05/26			7.3	8.5	28	6.9	1.6	1.6	11	4.7	3.7
11/05/26	4.11	22.5									
18/05/26	4.32	21.5									
20/05/26			7.7	4	13	9.6	1.6	3.3	15	4.6	4.1
25/05/26	4.98	20.8									
1/06/26	4.8	14.8									

Date	DO (mg/L)	Temp (°C)	pH (SU)	cBOD5 (mg/L)	TSS (mg/L)	NHX- N (mg/L)	Enterococci (cfu/100mL)	F. coliforms (cfu/100mL)	TIN (mg/L)	TP (mg/L)	DRP (mg/L)
3/06/26			7.3	4.8	23.8	8.7	1.7	1.7	14	4.6	3.9
8/06/26	4.7	14.7									
15/06/26	3.9	13.9									
17/06/26			7.4	17	59.4	11	1.7	1.7	15	5	4.3
22/06/26	4.8	13.3									
29/06/26	5.2	13.6									

Appendix D. Data sources

Table 5-1: Download location of environmental monitoring data used in this report

Category	Parameter	Source platform	Tag/ID
Effluent volume	Daily effluent discharge	Pi	DTWTP_55_FQ_001_EFFVOLDAY\$
Environmental – External	Rainfall	Auckland Council Environmental Data platform	Waiuku @ Cosmopolitan Club
Effluent quality	cBOD ₅	Pi	DTWTP_48_13_S4UVE_BOD
Effluent quality	TSS	Pi	DTWTP_48_13_S4UVE_TSS
Effluent quality	NH ₄ -N	Pi	DTWTP_48_13_S4UVE_TNH3N
Effluent quality	TIN	Pi	DTWTP_48_13_S4UVE_Tot-In-N
Effluent quality	DRP	Pi	DTWTP_48_13_S4UVE_P
Effluent quality	TP	Pi	DTWTP_48_13_S4UVE_TP
Effluent quality	Enterococci	Pi	DTWTP_48_13_S4UVE_EB
Effluent quality	Faecal coliforms	Pi	DTWTP_48_13_S4UVE_FC
Effluent quality	pH	Pi	DTWTP_48_13_S4UVE_pH_PROC
Effluent quality	DO	Infrastructure Data	DTWTP Field data form
Effluent quality	Temperature	Infrastructure Data	DTWTP Field data form
Influent volume	Daily influent	Pi	DTWTP_82_FQ_001_INFVOLDAY\$

Appendix E. Bypass event incident report

Appendix F. Oyster monitoring report