Wellington Water

Moa Point Wastewater Treatment Plant

Annual Resource Consents Report 2023/2024

Our water, our future.

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Control Sheet

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0	Draft		First version of report for review
1	Final	31/07/2024	Approved, Head of Wastewater Contracts

Executive Summary

This report has been prepared on behalf of the Wellington City Council (WCC) for compliance with the following resource consents:

WGN080003 [31505]

This discharge permit allows WCC to continuously discharge up to 260,000 cubic meters per day of secondary treated and disinfected wastewater from the Moa Point Wastewater Treatment Plant into the coastal marine area via an existing submarine outfall. The coastal marine area is designated between map references NZMS 260: R27; 2660742.5982398 and NZMS 260: R27; 2660710.5982311.

WGN080003 [35047]

This coastal permit allows WCC to occasionally discharge up to 4500 litres per second of mixed disinfected secondary treated and milli-screened wastewater to the coastal marine area via an existing submarine outfall during and/or immediately after heavy rainfall, when the quantity of wastewater arriving at the Moa Point Wastewater Treatment Plant exceeds 3000 litres per second. The coastal marine area is designated between map references NZMS 260: R27; 2660742.5982398 and NZMS 260: R27; 2660710.5982311.

WGN080003 [26182]

This coastal permit allows WCC to occupy the foreshore and seabed of the coastal marine area with an existing submarine outfall pipeline. The coastal marine area is designated between map references NZMS 260: R27; 2660742.5982398 and NZMS 260: R27; 2660710.5982311.

WGN080003 [26183]

This discharge permit allows WCC to continuously discharge contaminants (including odour) to air from the Moa Point Wastewater Treatment Plan ventilation system. The Moa Point WWTP is located at map reference NZMS 260: R27; 2661614.5984078.

The report will cover the period from 1 July 2023 to 30 June 2024.

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Resource Consent

WGN080003 [31505]

Effluent discharge from the Moa Point WWTP is governed by the resource consent under the Greater Wellington Regional Council consent file number WGN8003 [31505]. In general, the consent allows the continuous discharge of up to 260,000 cubic metres per day of secondary treated and disinfected wastewater from Moa Point Wastewater Treatment Plant into coastal marine area via an existing submarine outfall.

The following outlines the conditions of this resource consent required for this report.

WGN980003 [35047]

In addition to the above resource consent, the discharge from the Moa Point WWTP is governed by another resource consent under the Greater Wellington Regional Council consent file number WGN8003 [35047]. In general, the consent allows the discharge up to 4500 litres per second of mixed disinfected secondary treated and milli-screened wastewater to the coastal marine area via an existing submarine outfall during and/or immediately after heavy rainfall, when the quantity of wastewater arriving at the Moa Point Wastewater Treatment Plant exceeds 3000 litres per second.

The following will also outline the conditions of this resource consent required for this report.

WGN980003 [26182]

The outfall pipeline from the Moa Point WWTP is governed by the resource consent under the Greater Wellington Regional Council consent file number WGN8003 [26182]. In general, the WCC is allowed to occupy the foreshore and seabed of the coastal marine area with an existing submarine outfall pipeline.

The following will also outline the conditions of this resource consent required for this report.

WGN980003 [26183]

Emissions from the Moa Point WWTP are governed by the resource consent under the Greater Wellington Regional Council consent file number WGN8003 [26183]. In general, the WCC is allowed to continuously discharge contaminants (including odour) to air from Moa Point Wastewater Treatment Plan ventilation system.

The following will also outline the conditions of this resource consent required for this report.

WGN080003 [31505]

Condition (5)

The permit holder shall continue to engage with the Moa Point Community Liaison Group (CLG) established and maintained under the Wellington City Council destination. A summary of each meeting that includes, but is not limited to, issues discussed, actions agreed upon and any follow-up on agreed actions from previous meetings shall be forwarded to the Manager, Environmental Regulation, Wellington Regional Council within 10 working days of each CLG meeting.

A CLG meeting was held on 29th February 2024. The minutes of the meeting were circulated to the group and shared to the Wellington Water website for public perusal.

Condition (6)

The permit holder shall continuously monitor and record the flow rate and volume of treated wastewater entering the submarine outfall pipeline, to the satisfaction of the Manager, Environmental Regulation, Wellington Regional Council. A summary of the records listing the daily discharge volumes and average and maximum flow rates shall be forwarded to the Manager, Environmental Regulation, Wellington Regional Council at quarterly intervals, in accordance with condition 19 of this permit.

The effluent flow records for 2023/24 are shown in Figure 1: Moa Point WWTP Effluent Discharge Volume.

In January 2024, the full treatment capacity of the treatment plant was reduced to approximately 2,200 L/s from 3000 L/s that the consent requires. The reduction in full treatment capacity was due to the second planned refurbishment of one of the three clarifiers after the first refurbishment occurring in 2022/23. The full treatment capacity in Moa Point was returned to 3000 L/s on 25th July 2024 after the project was completed.

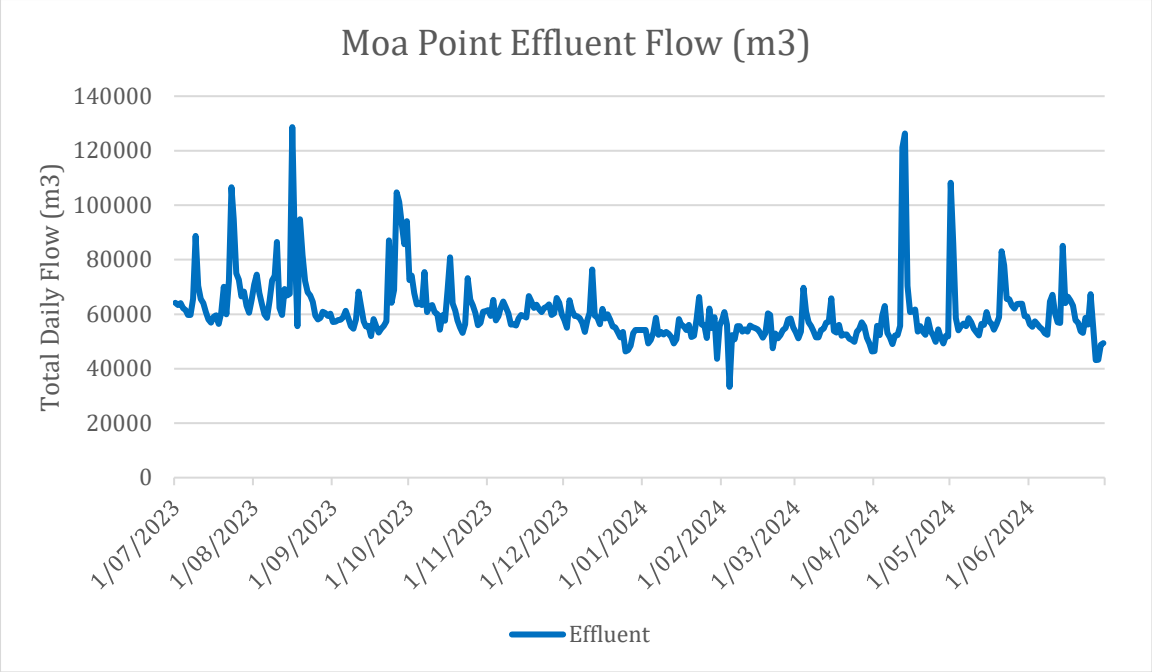


Figure 1: Moa Point WWTP Influent and Effluent Discharge Volume

The average daily, 95th percentile flow rates for effluent are displayed below:

	Average	**95th percentile**
Effluent (m3)	57,611	79,642

Condition (10)

The wastewater discharged from the Moa Point Wastewater Treatment Plant to the coastal waters shall comply with the following effluent quality criteria:

(a) $cBOD_5$

The geometric mean of 90 consecutive daily sampling results shall not exceed 20g/m³ and no more than 10% of 90 consecutive sample results shall exceed 45g/m³.

(b) Suspended solids

The geometric mean of 90 consecutive daily sampling results shall not exceed 30g/m³ and no more than 10% of 90 consecutive sample results shall exceed 68g/m³.

(c) Faecal Coliforms

The geometric mean of 90 consecutive daily sampling results shall not exceed 200 colony forming units per 100mL and no more than 10% of 90 consecutive sample results shall exceed 950 colony forming units per 100mL.

Compliance with the effluent quality criteria shall be determined from the results of wastewater monitoring undertaken in accordance with conditions (9)(a) and (9) (b) of this permit, with running geometric mean and ninetieth percentile calculated following each sampling event using the preceding 90 consecutive sample results.

Section (a)

Below is a summary of the geometric mean and ninetieth percentile for the Carbonaceous Biological Oxygen Demand. The plant was non-compliant in the reporting period.

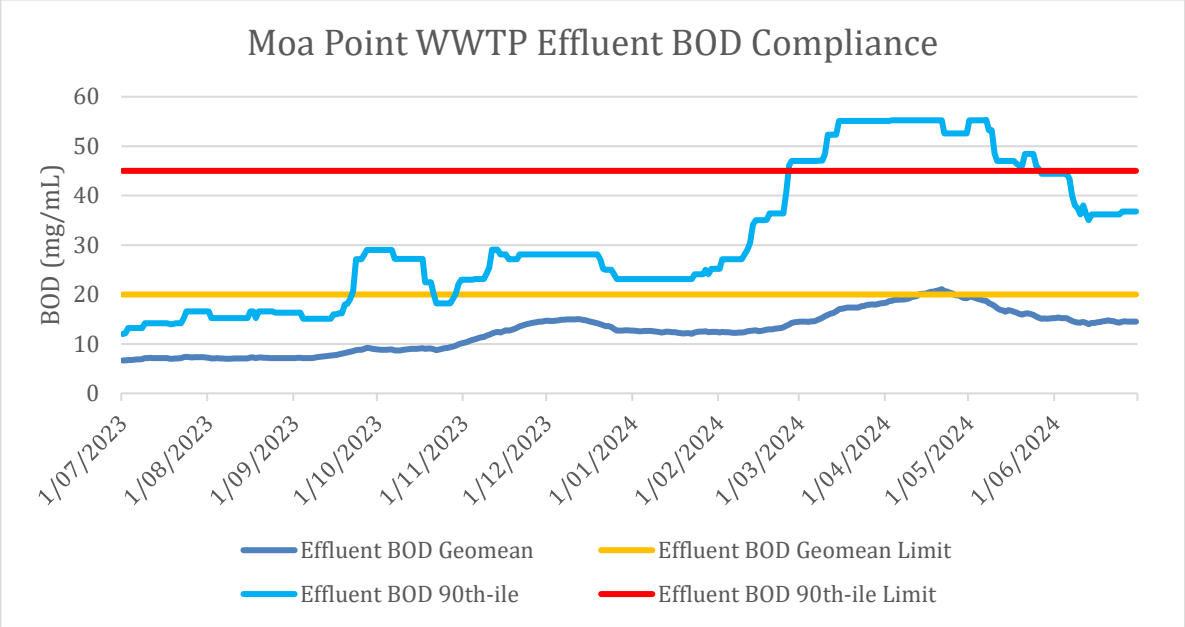


Figure 2: Effluent Carbonaceous Biological Oxygen Demand Results Geometric Mean and 90th Percentile

Section (b)

Below is a summary of the geometric mean and ninetieth percentile for the Suspended Solids. The plant was non-compliant in the reporting period.

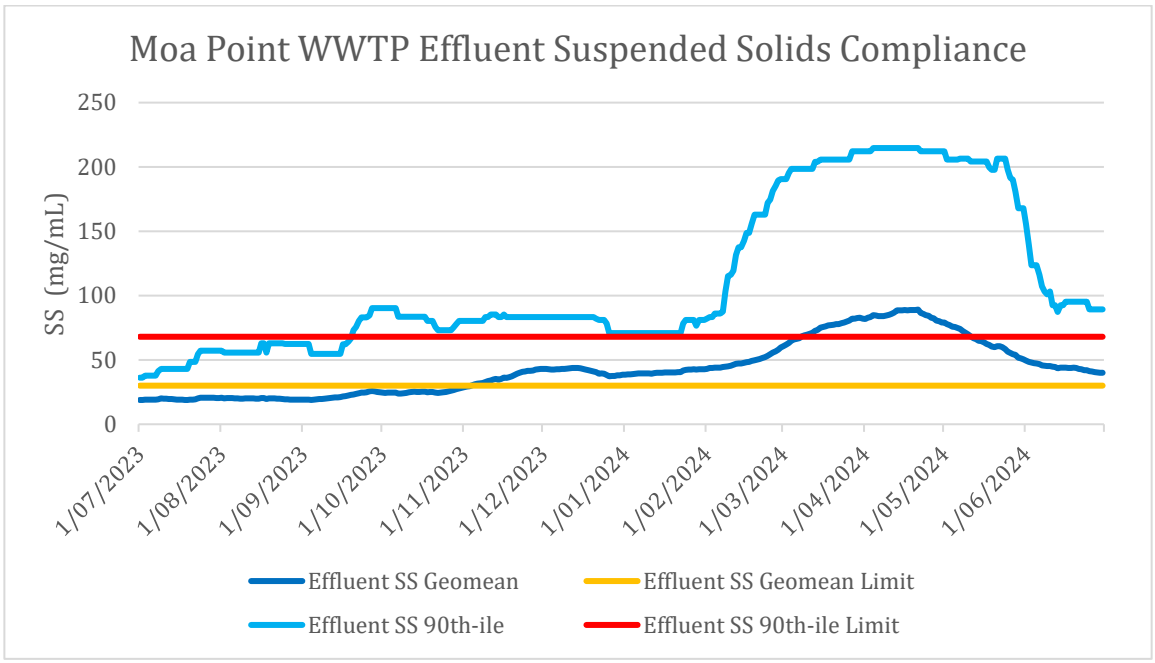


Figure 3: Effluent Suspended Solids Results Geometric Mean and 90th Percentile

Section (c)

Below is a summary of the geometric mean and ninetieth percentile for the Faecal Coliforms. The plant was non-compliant in the reporting period. Please note the faecal coliform ninetieth percentile peak is not displayed in the graph below due to graph scaling. The maximum 90th percentile recorded for FY23/24 was 44,169 cfu/100mL . It has since dropped considerably to nearer the required compliance limit at the end of the reporting period at 2,096 cfu/100mL.

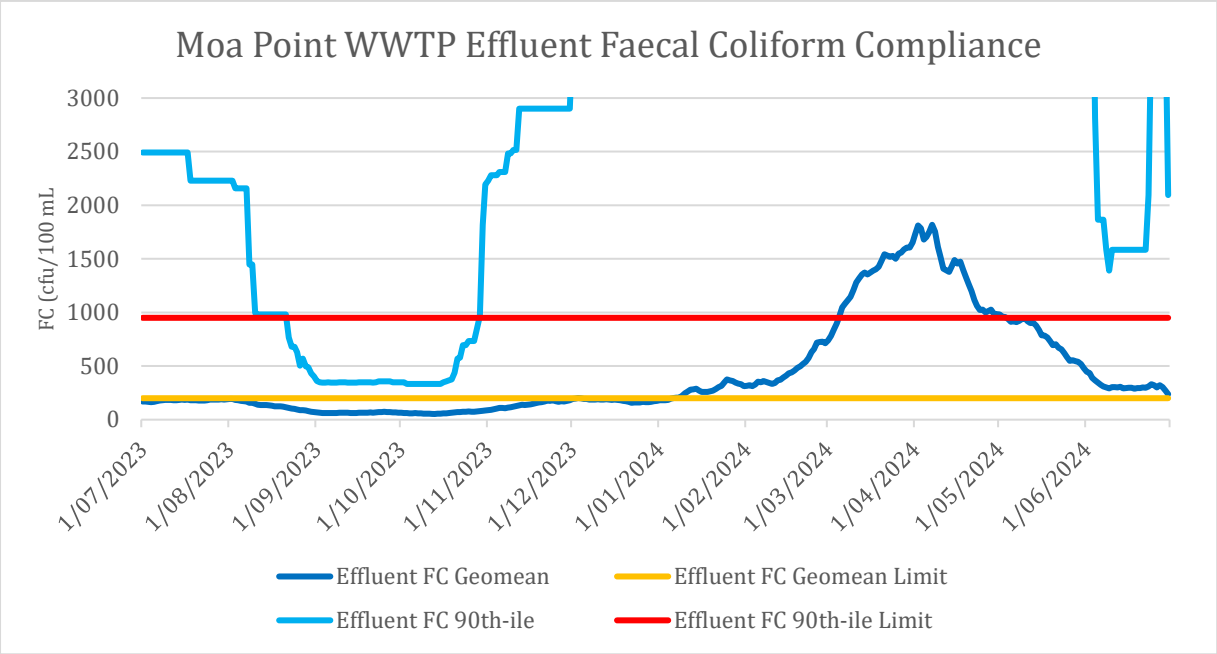


Figure 4: Effluent Faecal Coliform Geometric Mean, and 90th Percentile

A graphical representation of the daily effluent results from July 2023 to June 2024 can be found in Appendix I: Daily Effluent Results.

Condition (11)

The permit holder shall at least once every three months obtain a sample of the treated wastewater discharged from the treatment plant to the outfall. This sample shall be analyzed for and not exceed the following:

Total arsenic	0.26g/m³
Total cadmium	0.08 g/m³
Total chromium	0.48 g/m³
Total copper	0.14 g/m³
Total lead	0.48 g/m³
Total mercury	0.01 g/m³
Total nickel	0.77 g/m³
Total zinc	1.65 g/m³
Phenol	0.80 g/m³
Cyanide as CN	0.10 g/m³

The sample shall also be analysed for:

pH

Ammoniacal Nitrogen

Oil and Grease

Table 1 below is a summary of the analytical results for the quarterly effluent samples.

Compound	Unit	Limit	12/07/2023	24/10/2023	18/01/2024	23/04/2024
Total Arsenic	**g/m³**	**0.26**	0.00200	0.00200	0.00200	0.00200
Total Cadmium	**g/m³**	**0.08**	0.00100	0.00100	0.00100	0.00100
Total Chromium	**g/m³**	**0.48**	0.00200	0.00100	0.00200	0.00200
Total Copper	**g/m³**	**0.14**	0.00400	0.00800	0.00500	0.02
Total Lead	**g/m³**	**0.48**	0.00100	0.00100	0.00100	0.00100
Total Mercury	**g/m³**	**0.01**	0.00100	0.00100	0.00100	0.00100
Total Nickel	**g/m³**	**0.77**	0.00100	0.00100	0.00200	0.00300
Total Zinc	**g/m³**	**1.65**	0.02200	0.02300	0.02700	0.043
Phenol	**g/m³**	**0.80**	0.01000	0.01000	0.01000	0.01000
Cyanide as CN	**g/m³**	**0.10**	0.00500	0.00500	0.00500	0.013
pH	- -	**--**	7	7	7	7
Ammoniacal Nitrogen	**g/m³**	**--**	27	6	14.9	21.9
Oil and Grease	**g/m³**	**--**	4	4	4	6

Table 1: Quarterly Effluent Sample Results

T All analytical results for the quarterly effluent samples are well below the limits set in the resource consent. This is because of the lack of heavy industry in Wellington City. The analytical data sheets can be made available upon request.

All data for the 2023/2024 reporting year is compliant.

Condition (13)

The permit holder shall notify the Manager, Environmental Regulation, Wellington Regional Council immediately in the event that a running geometric mean and/or ninetieth percentile effluent quality value or other value calculated following each wastewater quality sampling event exceeds the criteria stipulated in conditions 10 and 11 of this permit for more than three consecutive sampling events. Such a notification shall include the likely reason for exceedance, and measures to be undertaken by the permit holder to remedy the situation. The permit holder shall also immediately notify the Medical Officer of Health of any such event.

Notifications were sent to the regional council if the plant was not able to comply with conditions 10 and 11 of this consent. Furthermore, WWL, Veolia and Greater Wellington Regional Council have regular monthly review meetings to discuss the compliance concerns at Moa Point WWTP.

Condition (19)

A quarterly monitoring report for each three-month period ending 31 March, 30 June, 30 September and 31 December shall be provided to the Manager, Environmental Regulation, Wellington Regional Council within 30 days of the end of each three month period. The quarterly report shall include, but not be limited to, the following: a) The results of all monitoring undertaken, as required by conditions 9a, 9b and 11 of this permit. These results shall be provided in an electronic format and a hard-copy format; b) An assessment of compliance with conditions 10, 11 and 14 of this permit; and c) Reasons for any non-compliance and subsequent actions undertaken to remedy any non-compliance.

This annual report also intends to comply with this quarterly report requirement for the period April to June 2024. The required information for the conditions listed above can be found in this report.

Condition (20)

The permit holder shall provide to the Manager, Environmental Regulation, Wellington Regional Council an Annual Assessment and Analysis Report for the period 1 July to 30 June by 31 July each year summarising compliance with the conditions of this permit. This report shall include, but not be limited to the following:

a) A summary of all monitoring undertaken in accordance with the conditions of this permit and a critical analysis of the information in terms of compliance and adverse environmental effects;
b) A comparison of data with previously collected data in order to identify any emerging trends;
c) Comments on compliance with the conditions of this permit;
d) Any reasons for non-compliance or difficulties in achieving compliance with the conditions of this permit;
e) Any measures that have been undertaken to improve the environmental performance of the wastewater treatment and disposal system;
f) A copy of any complaints recorded (in accordance with condition 18 of this permit) during the year;
g) Any other issues considered to be important;

A copy of the report shall be provided to Community Liaison Group, Te Atiawa, Te Runanganui O Taranaki Whanui kit e Upoko o te Ika a Maui, Ngati Toa Rangatira and the Wellington Tenths Trust, if requested.

Section (a)

a) A summary of all monitoring undertaken in accordance with the conditions of this permit and a critical analysis of the information in terms of compliance and adverse environmental effects;

Table 2 summarises all the treatment plant data monitored from July 2023 to June 2024. The median, minimum and maximum values are tabulated for each parameter.

Parameter	Minimum	Median	90th Percentile	Maximum
Inflow	32,490	64,381	76,793	132,717
Effluent BOD	3	11	36	90
Effluent SS	6	37	137	496
Effluent Faecal Coliform	2	210	8,426	60,000

Table 2: Summary of Monitoring Results

Effluent BOD5:

The Effluent 90-day rolling BOD5 Geometric Mean was non-compliant with the compliance limit of 20 g/m^3 from 13th April 2024 to 27th April 2024.

The Effluent 90-day rolling BOD5 90th percentile was non-compliant with the compliance limit of 45 g/m^3 from 26th February 2024 to 25th May 2024.

Effluent Total Suspended Solids (TSS):

The Effluent 90-day rolling TSS Geometric Mean was non-compliant with the compliance limit of 30 g/m^3 from 4th November 2023 to the end of the reporting period.

The Effluent 90-day rolling TSS 90th percentile was non-compliant with the compliance limit of 68 g/m^3 from 20th September 2023 to the end of the reporting period.

Effluent Faecal Coliform:

The Effluent 90-day rolling Faecal Coliform Geometric Mean was non-compliant with the compliance limit of 200 cfu/100 mL from:

- 3rd December 2023 (one day)
- 5th January 2024 to the end of the reporting period

The Effluent 90-day rolling Faecal Coliform Percentile Limit was non-compliant with the compliance limit of 950 cfu/100 mL from:

- 1st July 2023 to 22nd August 2023
- 30th October 2023 to the end of the reporting period

The reasons for non-compliance can be found in section (d).

Assessment of Environmental Effects:

In 2006, the Cawthron Institute was commissioned to predict the dilution and dispersal characteristics from Moa Point WWTP discharges. The most conservative predicted initial dilution that was 95:1 based on a peak flow of 4,000 L/s with a typical dilution of 196:1 that can be achieved within the 100-m mixing radius of the outfall based on predicted 2043 Average Dry Weather Flow of 980 L/s.

Using the dilution data, the predicted concentration on the receiving environment is summarised below:

Parameter	Unit	Wastewater concentration using 90th percentile Effluent Quality Value	Background seawater concentration (cfu/100ml)	Minimum dilution (x-fold)	Predicted concentration after initial dilution
BOD	g/m^3	36	5	95	5.37
				196	5.18
Total Suspended Solids (TSS)	g/m^3	137	5	95	6.44
				196	5.69
Faecal Coliform	cfu/100 mL	8,426	2	95	90.69
				196	44.98

Table 3: Effect of Dilution on the Receiving Environment

Note: The background seawater concentration data for TSS and faecal coliform was taken from Stantec's AEE Report for Moa Point WWTP March 2022. A background concentration of 5 g/m3 was assumed for BOD.

The predicted BOD, TSS and faecal coliform concentration in the receiving environment after initial dilution are low, it is expected that it will not result in any long-term adverse effect in the environment.

As shown in condition (11): Table 1, The heavy metal concentrations in the treated wastewater discharges are compliant as such the effect to the receiving environment is expected to be minor.

As concluded in the Assessment of Environmental Effects Report (AEE) for Moa Point WWTP March 2022, the long ocean outfall and multiport diffuser will play an important role in mitigating the adverse effects of the reduced treatment capacity and poorer effluent quality by separating the point of discharge from sensitive receptors and ensuring a high level of initial dilution.

An AEE has been commissioned for FY23/24 and the report will be provided to GWRC once it is available

Section (b)

b) A comparison of data with previously collected data in order to identify any emerging trends;

A comparison of data was made between 2023/2024 reporting period and the previous four (4) years. The following section summarizes that comparison.

WWTP Effluent Discharge Volume:

WWTP effluent discharge volume is used to establish a trend. The effluent volumes have been plotted for the last 5 years. The discharge flow increases during winter season and decreases in summer.

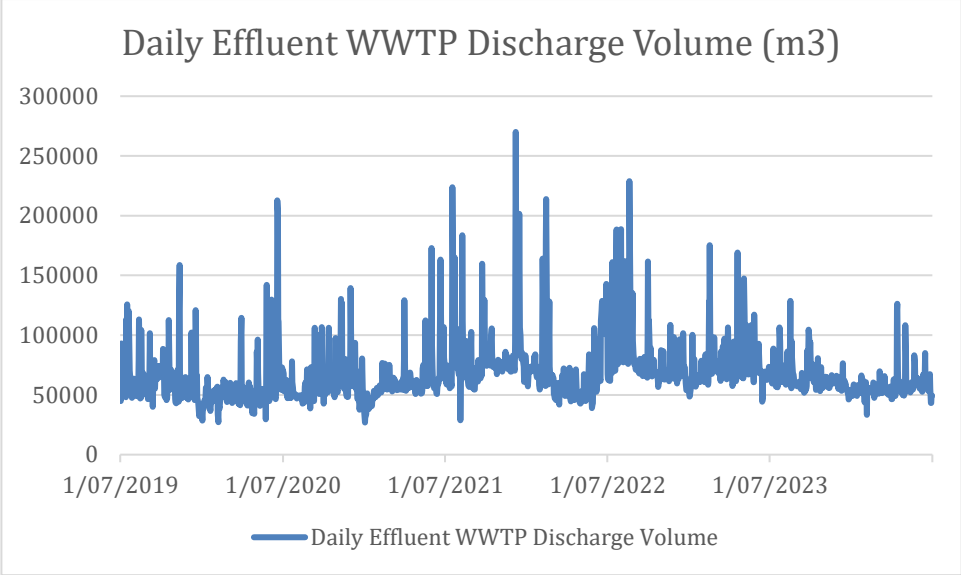


Figure 5: WWTP Effluent Discharge Volume

WWTP Effluent Quality:

To establish a trend, all daily effluent quality results in the last five years have been used.

From 2018 - 2019, the plant was able to consistently meet the effluent quality requirements.

There were exceedances in the effluent quality results since 2020 which can be attributed to the following:

- asset failures
- difficulty in controlling the treatment process in response to asset failures and change in seasons
- wet weather events

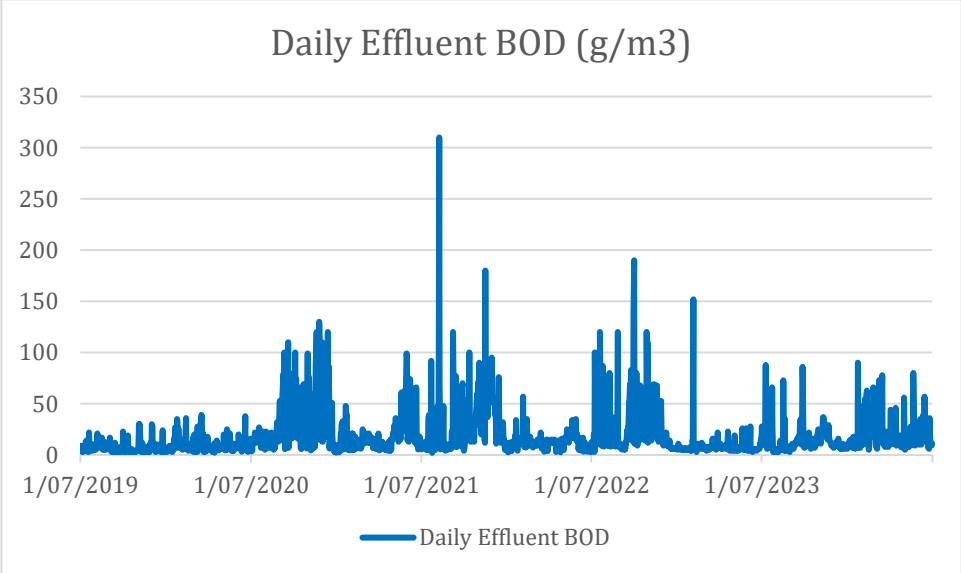


Figure 6: Daily Effluent BOD Results

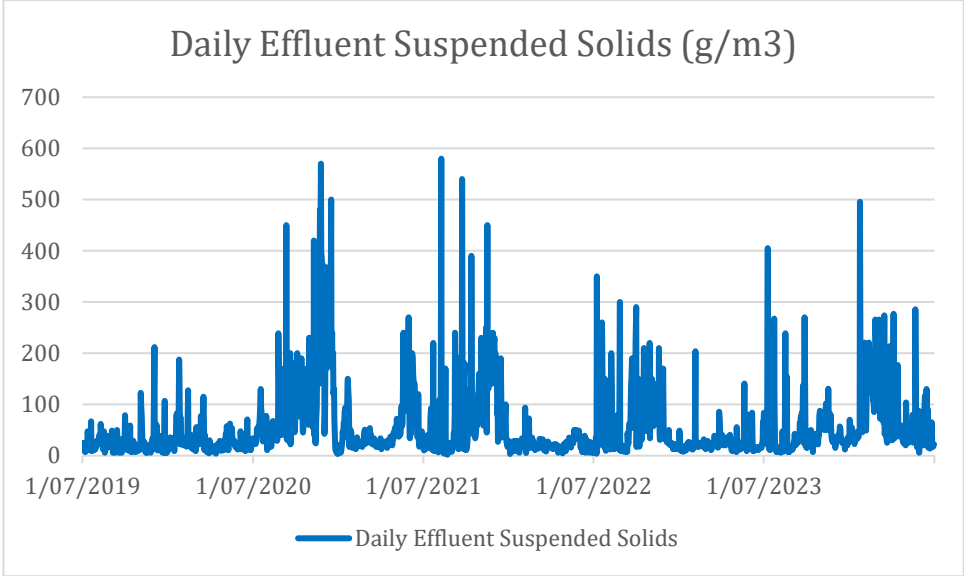


Figure 7: Daily Effluent Suspended Solids Results

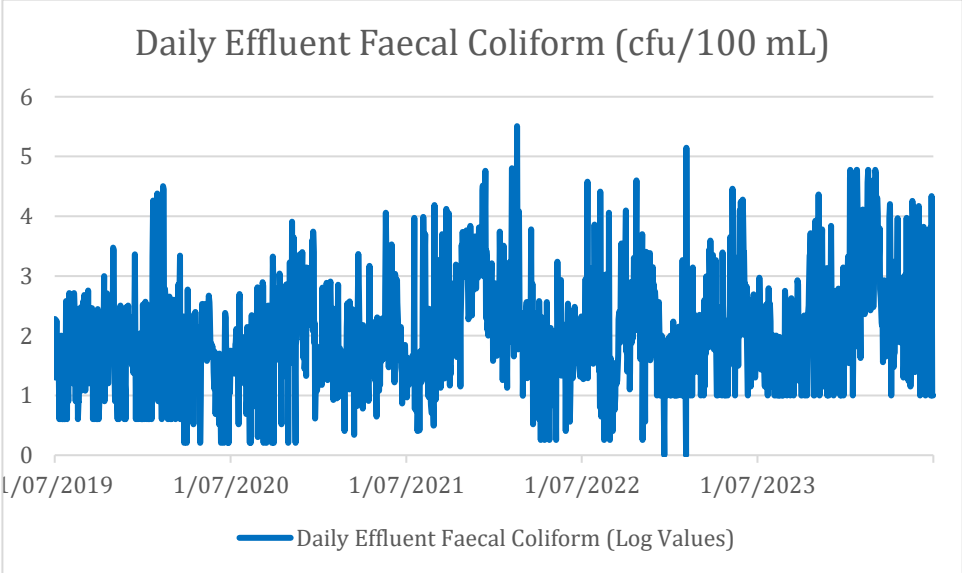


Figure 8: Daily Effluent Faecal Coliform Results

Section (c)

c) Comments on compliance with the conditions of this permit;

The plant was unable to consistently meet its effluent quality compliance requirements during the reporting period. Greater Wellington Regional Council issued a number of non-compliance notices throughout the financial year relating to effluent quality, these are detailed in Appendix IX.

Section (d)

d) Any reasons for non-compliance or difficulties in achieving compliance with the conditions of this permit;

The non-compliances in the effluent quality can be generally attributed to:

- asset failures
- difficulty in controlling the treatment process in response to asset failures and change in seasons
- wet weather events

Section (e)

e) Any measures that have been undertaken to improve the environmental performance of the wastewater treatment and disposal system;

A detailed plan to return the plant to effluent compliance is being developed which will define a programme of activities to effluent compliance, centered around three key areas:
1. Process control and operational administration
2. Maintenance
3. Capital Renewal Programme

The compliance plan will document a large range of inter-related actions and renewal projects that need to be completed before reliable compliance can be achieved. Process control and operational administration, and maintenance are mainly short-term measures, while the renewal programme is longer term.

The compliance plan is currently at the very early stage of planning and the timeline still needs to be agreed by relevant stakeholders.

Section (f)

f) A copy of any complaints recorded (in accordance with condition 18 of this permit) during the year;

No complaints were recorded for the 2023/2024 reporting period.

Section (g)

g) Any other issues considered to be important;

There were no other issues to be raised for FY23/24.

WGN080003 [35047]

Condition (8)

The permit holder shall monitor and record the flow rate, total volume and duration of any bypass discharge from the Moa Point Wastewater Treatment Plant to the long outfall, and calculate and record a dilution ratio (secondary treated: screened effluent) for each bypass event based on average rates of flow during that event. The results of this monitoring shall be forwarded to the Manager, Environmental Regulation, Wellington Regional Council, within 10 working days of the bypass discharge occurring.

Table 4 below is a summary of the bypass events from the Moa Point WWTP for the 2023/2024 reporting period. There was a large reduction in discharges to the CMA in the reporting period compared to previous years. This was due to the renewal works at the Inlet Pumping Station (IPS). Regional council have issued please explain letters regarding the unconsented discharges and responses were given by Wellington Water on those occasions.

Please note that the duration of the discharge is calculated as the difference between the start and end of the discharge and the discharges are happening intermittently rather than continuously throughout this period. On 23rd January, a discoloration in the coastal marine area along the vicinity of the long outfall was likely caused by the ongoing clarifier maintenance activity. Regional council has issued a please explain letter regarding this incident and a response was given by Wellington Water within the required timeframe.

Date	Start	End	Duration	Average Discharge Flow Rate	Total Volume Treated Effluent During Overflow	Total Volume of Bypass	Dilution Ratio	Consented	Cause
dd/mm/yyyy			hrs/min	L/s	m^3	m^3	--	Y/N	
16/08/2023	16/08/2023 21:40	17/08/2024 2:15	04hr 35m	742	33,890	12,468	N/A	N	Mechanical failure within the plant - Discharge to CMA Via Short Outfall
27/09/2023	27/09/2023 1:31	27/09/2023 20:24	18hr 53m	623	91,580	42,002	N/A	N	Wet weather and reduction in capacity in the Inlet pump station (IPS)-Discharge to CMA Via Short Outfall
30/09/2023	30/09/2023 6:32	30/09/2023 13:30	06hr 58m	442	not available	1,099	availableN/A	N	Wet weather and reduction in capacity in the Inlet pump station (IPS)-Discharge to CMA Via Short Outfall
12/04/2024	12/04/2024 13:19	12/04/2024 23:18	09hr 59m	343	74,005	11,410	N/A	N	Wet weather and reduction in capacity in the Inlet pump station (IPS)-Discharge to CMA Via Short Outfall
2/05/2024	1/05/2024 19:30	2/05/2024	14hr 04m	1,182	83,502	59,911	N/A	N	Wet weather and reduction in capacity in the Inlet pump station (IPS)-Discharge to CMA Via Short Outfall
23/01/2024	26/01/2024 18:42	not available	not available	not available	not available	not available	N/A	N	Planned maintenance on Clarifier caused a discoloured discharge out the Long Outfall in the Cook Strait

Table 4: Bypass Events from 2023/2024 Reporting Period

Condition (10)

During a bypass discharge (if during normal working hours) and on days one, two and three after the discharge, the permit holder shall take **a grab sample** of coastal water at each of the following locations, providing safe access is available:

- Dorrie Leslie Park at boat ramp
- Hue Te Taka Peninsula;
- Tarakena Bay Beach at boat ramp
- Tarakena Bay Beach, Western side
- Hue te Taka Peninsula, Western side;
- Moa Point Road, opposite number 49
- Lyall Bay Beach, Eastern side
- Dorrie Leslie Park, South side of boat ramp
- Dorrie Leslie Park, West of boat ramp
- Peninsula at Queens Drive and The Esplanade
- Houghton Bay, Western side
- Marine Centre, Island Bay, Eastern side
- Island Bay, Western side

Each sample shall be analysed for faecal coliforms and enterococci.
The permit holder shall identify and record the location of the sampling points (including map references) and supply this information to the Manager, Environmental Regulation, Wellington Regional Council, within three months of the commencement of this permit.

The details of the monitoring programme, as outlined in the Overflow Contingency Plan (required under condition 12 of this permit), shall be to the satisfaction of the Manager, Environmental Regulation, Wellington Regional Council.

Note: These sample locations have been selected to act as audit sites to determine if the results obtained from the modelling undertaken in regards to public health risks from bypass discharges are substantiated by sample results.

Resource consent WGN080003 [35047], Condition 10 was amended on 13 December 2017 to add another ten (10) shoreline monitoring sites. These additional shoreline monitoring sites are located near storm water discharges which may affect the monitoring results.

The following map displays the (13) sites for shoreline sampling:

Figure 1: Moa Point WWTP Shoreline Sampling Sites

The following is a summary of the shoreline samples taken for the bypass event(s) listed in Condition 8.

The shoreline sampling results can be found in Appendix II: Shoreline Sample Results

Condition (13)

The annual report required by condition 19 of this permit shall detail what steps have been taken in the reporting year and what steps are proposed to be undertaken in the future to reduce infiltration and stormwater ingress into the Wellington City sewerage network.

This information shall include, but not be limited to, the following information:

a) Details on the adoption of a policy to identify, and to repair or replace, defective private sewer drains in the Wellington City catchment. If such a policy is adopted, detail on its implementation made within the previous year
b) Details of additional works that have been undertaken and what these works are expected to achieve
c) An indication of when any on-going works will be completed
d) Details of any investigations undertaken with regard to inflow and infiltration in the Wellington City catchment
e) Details of any works or investigations planned for the next financial year

An inflow and infiltration report can be found in Appendix III.

Condition (16)

The permit holder shall provide suitable wastewater sample locations for monitoring the quality of:

a) The bypass flows; and
b) Secondary treated wastewater (i.e. both wastewater streams prior to mixing) during bypass discharges.

The permit holder shall obtain grab samples of both wastewater streams within the first two hours of a bypass discharge occurring during normal working hours or as soon as practicable for those events occurring outside normal working hours. These Samples shall be analysed for:

- cBOD5
- suspended solids
- faecal coliform
- pH
- ammoniacal nitrogen
- oil and grease

And on at least one bypass event each year these samples shall also be analysed for the following indicator contaminants:

- Total cadmium
- Total chromium
- Total copper
- Total lead
- Total nickel
- Total zinc

The wastewater quality results, together with the results of wastewater flow monitoring shall be used to calculate, by mass balance, the quality of the wastewater discharge after both wastewater streams have mixed. The mass balance calculation for a contaminant (a) is:

$C_{mixed}(a) - (C_{tr}(a)*Q_{tr} - C_{by}(a)*Q_{by})/Q_{mixed}$

Where: **C** is contaminant concentration
Q is the flow rate (litres/sec)
tr subscript relates to parameter of the secondary treated wastewater stream
by subscript relates to parameter of the bypassed wastewater stream
mixed subscript relates to the parameter of the mixed secondary treated and bypassed waste streams.

The calculated mixed wastewater discharge quality results shall be reported to the Manager, Environmental Regulation, Wellington Regional Council, within 10 working days of the overflow event occurring.

This consent condition is not applicable to five of the six discharges that were listed under WGN080003 [35047], Condition 8 as they conveyed via the short outfall pipeline rather than the long outfall pipeline.

Sampling was not initiated for the January 2024 discharge event as the operators were not aware of the discoloration to the CMA via the long outfall till well after the event had occurred. GWRC issued a Please Explain letter followed by a Formal Warning in relation to this event. More details can be found with this and other non-compliance notices in Appendix IX.

Condition (19)

The permit holder shall provide to the Manager, Environmental Regulation, Wellington Regional Council an Annual Assessment and Analysis Report for the period 1 July to 30 June by 31 July each year summarising compliance with the conditions of this permit. This report shall include, but not be limited to the following:

a) A summary of all monitoring undertaken in accordance with the conditions of this permit and a critical analysis of the information in terms of compliance and adverse environmental effects;
b) A comparison of data with previously collected data in order to identify any emerging trends;
c) Comments on compliance with the conditions of this permit;
d) Any reasons for non-compliance or difficulties in achieving compliance with the conditions of this permit;
e) Any measures that have been undertaken to improve the environmental performance of the wastewater treatment and disposal system;
f) A copy of any complaints recorded (in accordance with condition 18 of this permit) during the year;
g) Any other issues considered to be important;

Section (a)

a) A summary of all monitoring undertaken in accordance with the conditions of this permit and a critical analysis of the information in terms of compliance and adverse environmental effects;

A summary of all the monitoring data can be found in preceding parts of this consent report.

Wellington Water commissioned an independent expert to assess the adverse environmental effects. This report is provided in Appendix IV. of the short outfall discharges and will be provided as soon as it is available.

Section (b)

b) A comparison of data with previously collected data in order to identify any emerging trends;

The number of discharges in the last 4 financial years is shown in Figure 9.

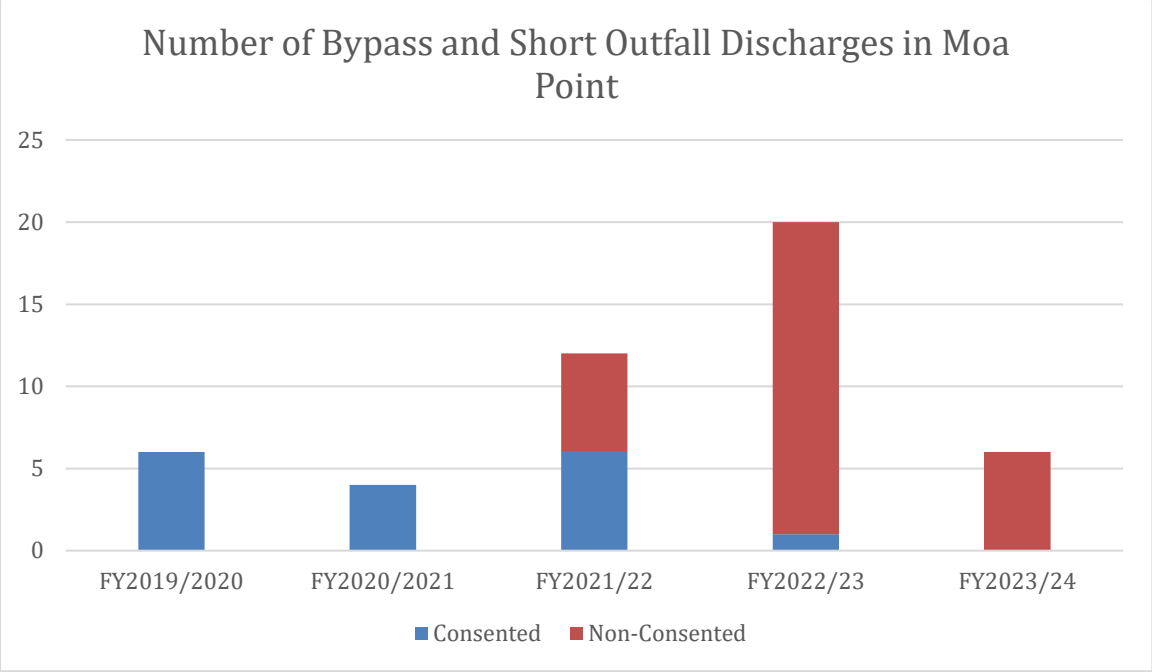


Figure 9: Comparison of Number of Discharges in Moa Point WWTP

For the 2023-24 reporting period, the plant recorded 6 discharges all of which were non-consented. Five of the discharges occurred via the short outfall pipe. On four of these occasions, the incidents occurred when construction was taking place at the IPS to replace the riser pipework and heavy rain occurred. GWRC were notified prior to works commencing that this was an unavoidable risk while construction took place.

Section (c & d)

c) Comments on compliance with the conditions of this permit;

d) Any reasons for non-compliance or difficulties in achieving compliance with the conditions of this permit;

The plant failed to comply to the flow threshold before a bypass discharge can occur due to the reduction in full treatment capacity due to both the IPS renewal works and the refurbishment of Clarifier #2. The plant had six bypass non-consented discharges in this reporting period.

GWRC issued a number of non-compliance notices relating to these discharges, responses were given within the required timeframe. These notices are listed in Appendix IX.

Section (e)

e) Any measures that have been undertaken to improve the environmental performance of the wastewater treatment and disposal system;

As mentioned at the earlier part of the report, Wellington Water will create a plan to return Moa Point WWTP back into compliance.

Section (f)

f) A copy of any complaints recorded (in accordance with condition 18 of this permit) during the year;

The have been no complaints recorded for the 2023/2024 reporting period.

Section (g)

g) Any other issues considered to be important;

The third and final phase of the IPS works are scheduled to begin in the early months of 2025 to replace the 4 remaining risers. Wellington Water and Veolia choose to do this in the summer months when flows into the plant are lower thus reducing the risk of heavy rain events and a short outfall discharge occurring - however, this is an unavoidable risk unfortunately.
Plans are also being made to refurbish the third and final Clarifier (#1) at Moa Point in the financial year 2024/25. This will reduce the plants treatment capacity as mentioned in preceding parts of this report but once completed will strengthen the plant's reliability.

WGN 080003 [26812]

Condition (3)

The permit holder shall undertake an annual physical assessment of the condition of the outfall pipeline. This assessment shall include, but not be limited to, the following:

a. An assessment of the structural condition of the pipeline;
b. An inspection of the diffuser ports;
c. An assessment of the erosion or scour around exposed sections of the pipeline; and
d. Recommend any maintenance that is required.

The results of the assessment shall be submitted to the Manager, Environmental Regulation, Wellington Regional Council no later than three months after the assessment has been undertaken.

A survey of the outfall pipe was conducted in over the months of February and March 2024. A copy of the report can be found in Appendix V.

WGN 080003 [26813]

Condition (7)

The permit holder shall monitor air quality in the vicinity of the plant to confirm the absence of faecal coliforms and salmonella originating from the plant. Sampling is to be carried out at least once every six months.

The sampling method and locations are to be agreed with the Manager, Environmental Regulation, Wellington Regional Council within three months of the granting of this permit. Tests are to be carried out at a minimum of three sites downwind and three sites upwind of the plant, with at least one in the vicinity of Air New Zealand kitchens and one at a level of Kekerenga Street. The other sites are to be located outside of/and within 100 metres of the site boundary.

The results shall be provided annually in the annual report required under condition 14 of this permit, or on request.

Ambient Microbe Monitoring was performed at Moa Point WWTP. The following table is a summary of the air quality monitoring in the vicinity of the WWTP:

The full report can be found in Appendix VI: Ambient Microbe Monitoring

	Faecal Coliforms		Salmonella	
Date	**Sep 2023**	**Sep 2023**	**Apr 2024**	**Apr 2024**
Site 1	Absent	Absent	Absent	Absent
Site 2	Absent	Absent	Absent	Absent
Site 3	Absent	Absent	Absent	Absent
Site 4	Absent	Absent	Absent	Absent
Site 5	Absent	Absent	Absent	Absent
Site 6	Absent	Absent	Absent	Absent

Table 9: Semi-Annual Air Quality Monitoring

Condition (8)

Hydrogen Sulphide (H_2S) and other reduced Sulphur compounds shall be monitored in the deodorized gas discharge. Monitoring shall be undertaken in the stack leading from the chemical scrubber system on a monthly basis.

The results shall be provided annually in the annual report required under condition 14 of this permit, or on request.

The monthly results from the Hydrogen Sulphide (H_2S) and Total Reduced Sulphur (TRS) are summarised in the in the following table:

Month	**WWTP**	
	H_2S	**TRS**
	ppm	**ppm**
Jul-23	0.001	0.002
Aug-23	0.001	0.002
Sep-23	0.001	0.002
Oct-23	0.001	0.002
Nov-23	0.001	0.002
Dec-23	0.001	0.002
Jan-24	0.0001	0.002
Feb-24	0	0.002
Mar-24	0	0.162
Apr-24	0.0016	0.216
May-24	0.0125	0.002
Jun-24	0.0178	0.002
Limits	**0.01**	**0.05**

Table 10: Monthly H_2S and TRS Concentrations

A faulty instrument caused the hydrogen sulphide figures to read zero in February and March 2024. The instrument was repaired in April. In March and April 2024, the plant failed to comply with the Total Reduced Sulphur requirement for air discharge quality.

The March exceedance was related to a failed transmitter that controls the Ph & ORP levels in the scrubber vessels which was repaired.

An investigation into the April exceedance found a significant leak in the post-scrubber air ducting which was repaired allowing the parameter to return to compliance in May 2024.

The full reports can be found in the quarterly reports for the 2023/2024 reporting period.

Condition (9)

> The discharge to air from the chemical scrubber system shall contain no more than 0.01ppm hydrogen sulphide (H_2S) and no more than 0.05ppm total reduced Sulphur compounds (including H_2S).

These limits have been included in the summary under WGN080003[26813] Condition (8).

Condition (10)

The permit holder shall undertake smoke testing of the Moa Point wastewater treatment plant and ventilation system. The smoke tests are to be carried out on an annual basis between the months of August and November.

The results of the smoke test shall be submitted to the Manager, Environmental Regulation, Wellington Regional Council within one month of the testing being carried out by the permit holder. A copy of the analysed results shall also be provided to Community Liaison Group, if requested.

A smoke test was performed on the WWTP in January 2024. The smoke test report can be found in Appendix VII: Smoke Test Report.

Condition (14)

The permit holder shall provide to the Manager, Environmental Regulation, Wellington Regional Council an annual monitoring report for the period 1 July to 30 June, by 31 July each year summarising compliance with the conditions of this permit. A copy of the report shall be provided to Community Liaison Group, if requested.

This report shall include, but not be limited to the following:

a) A summary of all monitoring undertaken in accordance with the conditions of this permit and a critical analysis of the information in terms of compliance and adverse environmental effects
b) A comparison of data with previously collected data in order to identify any emerging trends
c) Comments on compliance with the conditions of this permit
d) Any reasons for non-compliance or difficulties in achieving compliance with the conditions of this permit
e) Any measures that have been undertaken, to improve the environmental performance of the wastewater treatment and disposal system
f) A copy of any complaints recorded (in accordance with condition 13 of this permit) during the year
g) Outcomes from the implementation of the Odour Management Plan
h) Any other issues considered important by the permit holder.

Section (a)

A summary of all the monitoring data can be found in preceding parts of this consent report.

Section (b)

A comparison of data from the 2023/2024 reporting period was made to the previous five (5) years. The following section summarises that comparison.

The following tables are a comparison of the results from the air quality monitoring:

Location	Faecal Coliforms									
	Q1 - 2020	Q1 - 2021	Q1 - 2022	Q1 - 2023	Q1 - 2024	Q2 - 2020	Q2 - 2021	Q2 - 2022	Q2 - 2023	Q2 - 2024
Site 1	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent
Site 2	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent
Site 3	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent
Site 4	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent
Site 5	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent
Site 6	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent

Table 11: Comparison of Faecal Coliforms in Air

Location	Salmonella									
	Q1 - 2020	Q1 - 2021	Q1 - 2022	Q1 - 2023	Q1 - 2024	Q2 - 2020	Q2 - 2021	Q2 - 2022	Q2 - 2023	Q2 - 2024
Site 1	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent
Site 2	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent
Site 3	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent
Site 4	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent
Site 5	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent
Site 6	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent

Table 12: Comparison of Salmonella in Air

The following is a comparison of the monthly Hydrogen Sulphide and Total Reduced Sulphur (TRS) results:

Month	Moa Point WWTP											
	H_2S (ppm)						TRS (ppm)					
	2019/ 2020	2020/ 2021	2021/ 2022	2021/ 2022	2022/ 2023	2023/ 2024	2019/ 2020	2020/ 2021	2021/ 2022	2021/ 2022	2022/ 2023	2023/ 2024
July	0.00013	0.00013	0.001	0.004	0.001	0.001	0.011	0.002	0.002	0.002	0.004	0.002
August	0.00915	0.00013	0.003	0.00018	0.001	0.001	0.002	0.002	0.002	0.002	0.003	0.002
September	0.0047	0.00013	0.001	0.00018	0.001	0.001	0.004	0.002	0.002	0.002	0.003	0.002
October	0.00422	0.0001	0.003	0.0011	<0.001	0.001	0.004	0.009	0.002	0.002	0.002	0.002
November	0.00327	0.0057	0.003	0.0022	<0.001	0.001	0.007	0.002	0.002	0.002	0.002	0.002
December	0.00499	0.0015	0.003	0.00018	<0.001	0.001	0.011	0.002	0.002	0.037	0.002	0.002
January	0.00464	0.0001	0.00015	0.00018	0.001	0.0001	0.007	0.002	0.002	0.002	0.002	0.002
February	0.00453	0.003	0.0002	0.00020	0.001	0	0.013	0.003	0.002	0.002	0.002	0.002
March	0.00073	0.002	0.00018	0.0011	0.006	0	0.002	0.002	0.002	0.002	0.017	0.162
April	0.00017	0.00011	0.002	0.00018	0.0002	0.0016	0.002	0.002	0.002	0.002	0.2	0.216
May	0.00219	0.0001	0.01	0.00018	0.0002	0.0125	0.004	0.002	0.002	0.002	0.002	0.002
June	0.00013	0.001	0.001	0.00015	0.001	0.0178	0.002	0.002	0.002	0.002	0.002	0.002
Limit	0.01						0.05					

Table 13: Monthly Moa Point WWTP H_2S and TRS Comparison

The H_2S were comparable over the 5-year period.

The TRS failure in March & April 2024 have been explained in condition 8 of this report.

Section (c)

See condition 8.

Section (d)

See condition 8.

Section (e)

See condition 8.

Section (f)

Wellington Water received 2 complaints regarding plant odour in the reporting period. These are detailed in Appendix VIII.

Section (g)

The outcomes for the implementation of the Odour Management Plan are satisfactory. The plan needs to be reviewed to make sure that odour response across all the WWTPs is standardised.

Section (h)

The odour scrubber system will undergo a detailed condition assessment in the 2024/25 financial year to identify any potential problems and improvements that can be made moving forward to improve odour treatment at the plant. The findings will be shared with GWRC and updates will be provided as any remedial works take place.

WGN9600094 [1471]

Condition (8)

The pumping station and the chemical scrubber shall be operated in accordance with the manual provided for condition 7.

The pumping station is operated under the O&M manual of the plant.

Condition (11)

The following monitoring shall be carried out and the results shall be forwarded to the Wellington Regional Council:

(a) The pumping station stack shall be tested for hydrogen sulphide and total reduced sulphur compounds. The concentrations shall not exceed 0.01ppm and 0.05ppm respectively. This testing shall be carried out monthly for the first six months of operation of the pumping station. The Regional Council shall then review the frequency. The method of testing shall be agreed to with the Wellington Regional Council.

(b) Records of the pH and the Oxidation Reduction potential of the scrubber solutions shall be kept by the consent holder and made available to the Wellington Regional Council. The form of these records shall be agreed to with the Wellington Regional Council prior to commissioning of the pumping station.

A summary of the hydrogen sulfide and TRS monitoring can be found in Table 14.

Month	IPS	
	H_2S	TRS
	ppm	ppm
Jul-23	0.001	0.002
Aug-23	0.001	0.002
Sep-23	0.001	0.002
Oct-23	0.001	0.002
Nov-23	0.001	0.002
Dec-23	0.001	0.002
Jan-24	0	0.002
Feb-24	0	0.002
Mar-24	0	0.002
Apr-24	0.17	0.002
May-24	2.08	0.002

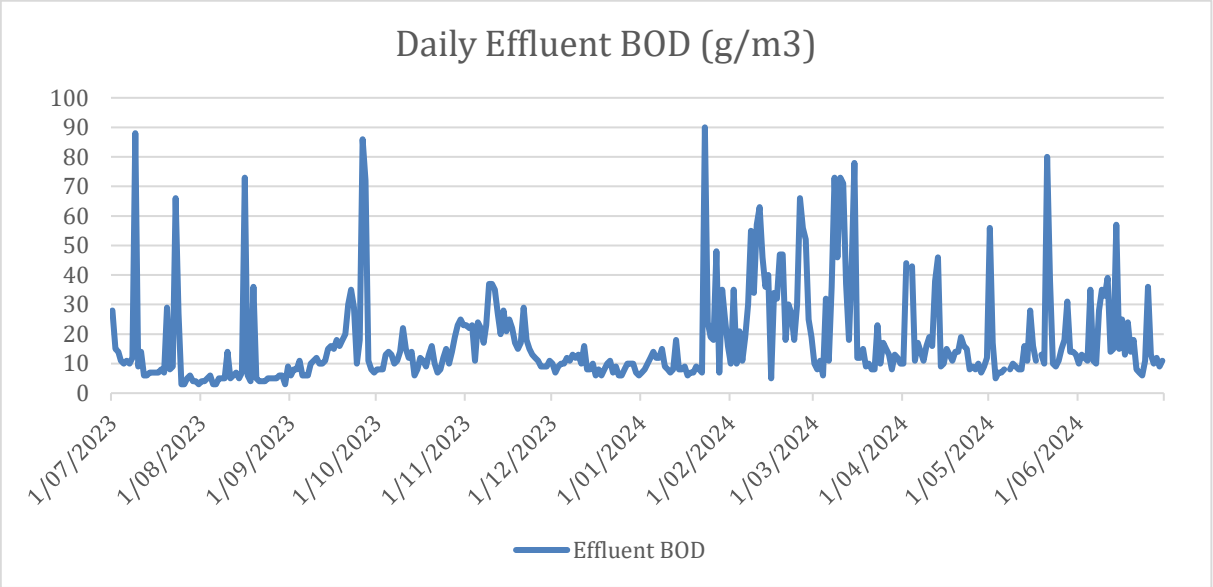
Jun-24	10.95	0.002
Limits	**0.01**	**0.05**

Table 14: Monthly Moa Point IPS H_2S and TRS Comparison

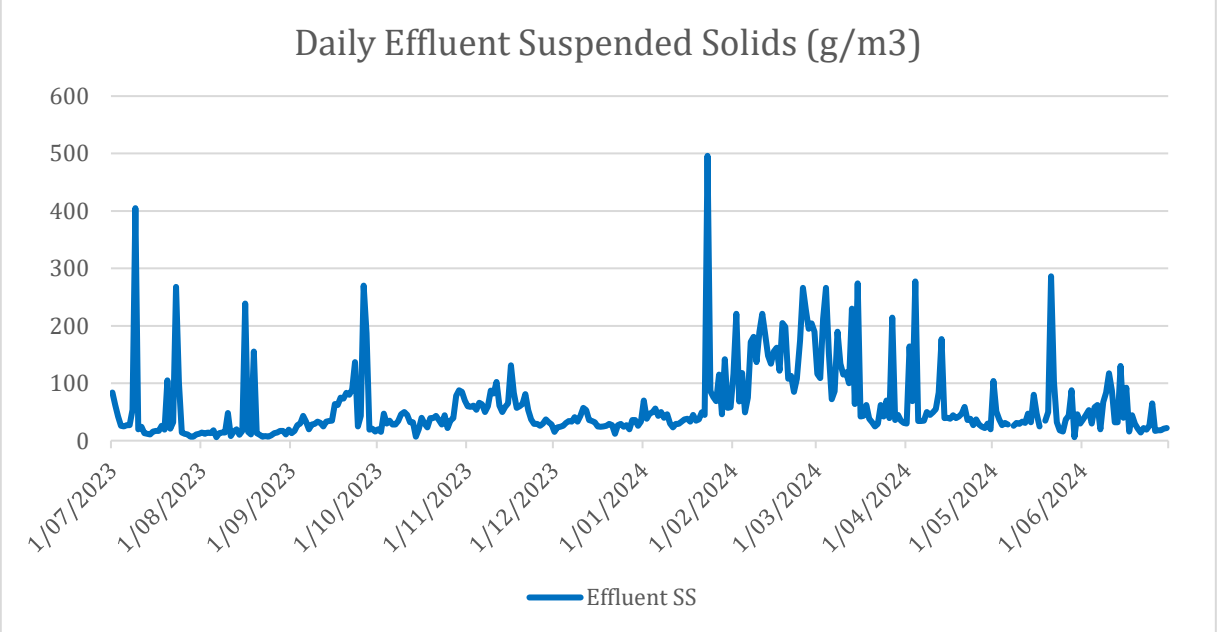
The high values for H2S in the final quarter can be attributed to faults with the instrument. The pH and oxidation reduction records can be made available upon request.

Appendix I: Daily Effluent Results

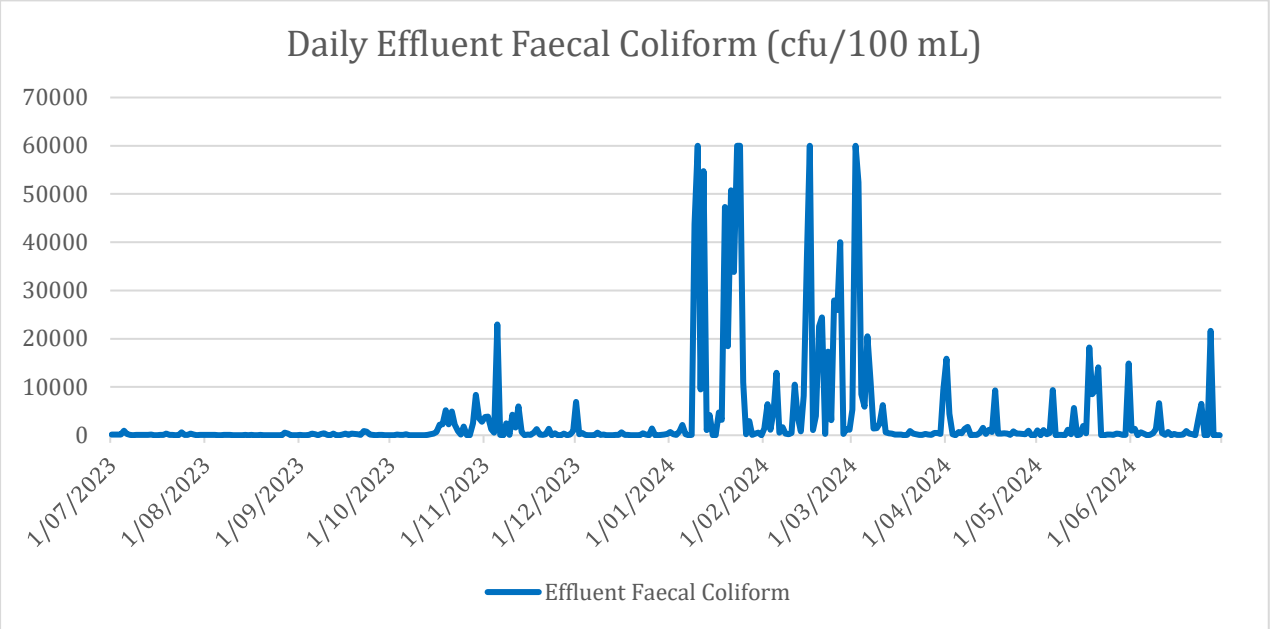
Daily Effluent Carbonaceous Biological Oxygen Demand Results



Daily Effluent Suspended Solids Results



Daily Effluent Faecal Coliforms Results



Appendix II: Shoreline Sample Results

	Dorrie Leslie Park at boat ramp - Enterococci		Dorrie Leslie Park at boat ramp - faecal coliforms
Date	CFU/100mL	Date	CFU/100mL
24/07/2023	10	24/07/2023	10
25/07/2023	10	25/07/2023	10
26/07/2023	10	26/07/2023	10
27/07/2023	10	27/07/2023	10
28/07/2023	10	28/07/2023	10
29/07/2023	10	29/07/2023	10
17/08/2023	10	17/08/2023	10
18/08/2023	10	18/08/2023	10
19/08/2023	10	19/08/2023	180
27/09/2023	30	27/09/2023	30
28/09/2023	20	28/09/2023	30
29/09/2023	10	29/09/2023	10
30/09/2023	30	30/09/2023	10
2/10/2023	10	2/10/2023	10
12/04/2024	70	12/04/2024	10
13/04/2024	800	13/04/2024	340
14/04/2024	30	14/04/2024	20
2/05/2024	10	2/05/2024	40
3/05/2024	10	3/05/2024	10
4/05/2024	50	4/05/2024	60

	Hue Te Taka Peninsula - Enterococci		Hue Te Taka Peninsula - faecal coliforms
Date	CFU/100mL	Date	CFU/100mL
24/07/2023	10	24/07/2023	10
25/07/2023	10	25/07/2023	20
26/07/2023	90	26/07/2023	80
27/07/2023	10	27/07/2023	10
28/07/2023	10	28/07/2023	10
29/07/2023	10	29/07/2023	10
17/08/2023	1000	17/08/2023	1800
18/08/2023	10	18/08/2023	10
19/08/2023	10	19/08/2023	10
27/09/2023	4000	27/09/2023	5000
28/09/2023	60	28/09/2023	240
29/09/2023	10	29/09/2023	10
30/09/2023	230	30/09/2023	900
1/10/2023	10	1/10/2023	10
2/10/2023	10	2/10/2023	10
12/04/2024	30	12/04/2024	240
13/04/2024	80	13/04/2024	70
14/04/2024	60	14/04/2024	20
2/05/2024	1400	2/05/2024	3000
3/05/2024	20	3/05/2024	10
4/05/2024	40	4/05/2024	10

	Tarakena Bay Beach at boat ramp - Enterococci		Tarakena Bay Beach at boat ramp - faecal coliforms
Date	CFU/100mL	Date	CFU/100mL
24/07/2023	10	24/07/2023	10
25/07/2023	10	25/07/2023	10
26/07/2023	10	26/07/2023	90
27/07/2023	10	27/07/2023	10
28/07/2023	10	28/07/2023	10
29/07/2023	10	29/07/2023	10
17/08/2023	380	17/08/2023	1500
18/08/2023	10	18/08/2023	10
19/08/2023	20	19/08/2023	10
27/09/2023	300	27/09/2023	600
28/09/2023	10	28/09/2023	110
29/09/2023	30	29/09/2023	10
30/09/2023	6000	30/09/2023	6000
30/09/2023	10	30/09/2023	10
1/10/2023	20	1/10/2023	10
2/10/2023	10	2/10/2023	520
12/04/2024	1100	12/04/2024	410
13/04/2024	460	13/04/2024	80
14/04/2024	10	14/04/2024	10
2/05/2024	40	2/05/2024	10
3/05/2024	60	3/05/2024	260
4/05/2024	10	4/05/2024	40

	Tarakena Bay Beach, Western side - Enterococci		Tarakena Bay Beach, Western side - faecal coliforms
Date	CFU/100mL	Date	CFU/100mL
24/07/2023	150	24/07/2023	10
25/07/2023	10	25/07/2023	20
26/07/2023	300	26/07/2023	60
27/07/2023	70	27/07/2023	10
28/07/2023	400	28/07/2023	50
29/07/2023	10	29/07/2023	10
17/08/2023	1200	17/08/2023	1800
18/08/2023	220	18/08/2023	10
19/08/2023	10	19/08/2023	10
27/09/2023	220	27/09/2023	400
28/09/2023	30	28/09/2023	70
29/09/2023	20	29/09/2023	10
30/09/2023	10	30/09/2023	120
1/10/2023	10	1/10/2023	10
2/10/2023	10	2/10/2023	10
12/04/2024	30	12/04/2024	20
13/04/2024	180	13/04/2024	140
14/04/2024	50	14/04/2024	30
2/05/2024	30	2/05/2024	20
3/05/2024	10	3/05/2024	10
4/05/2024	20	4/05/2024	60

	Hue te Taka Peninsula, Western side - Enterococci		Hue te Taka Peninsula, Western side - faecal coliforms
Date	CFU/100mL	Date	CFU/100mL
24/07/2023	10	24/07/2023	10
25/07/2023	20	25/07/2023	10
26/07/2023	10	26/07/2023	20
27/07/2023	10	27/07/2023	10
28/07/2023	10	28/07/2023	10
29/07/2023	10	29/07/2023	10
17/08/2023	800	17/08/2023	1900
18/08/2023	40	18/08/2023	40
19/08/2023	50	19/08/2023	10
27/09/2023	1600	27/09/2023	4000
28/09/2023	10	28/09/2023	10
29/09/2023	20	29/09/2023	60
30/09/2023	10	30/09/2023	180
1/10/2023	10	1/10/2023	10
2/10/2023	10	2/10/2023	10
12/04/2024	2400	12/04/2024	320
13/04/2024	280	13/04/2024	130
14/04/2024	90	14/04/2024	10
2/05/2024	900	2/05/2024	3000
3/05/2024	30	3/05/2024	60
4/05/2024	20	4/05/2024	80

	Moa Point Road, opposite number 49 - Enterococci		Moa Point Road, opposite number 49 - faecal coliforms
Date	CFU/100mL	Date	CFU/100mL
24/07/2023	10	24/07/2023	10
25/07/2023	20	25/07/2023	20
26/07/2023	10	26/07/2023	20
27/07/2023	10	27/07/2023	10
28/07/2023	20	28/07/2023	10
29/07/2023	80	29/07/2023	10
17/08/2023	80	17/08/2023	260
18/08/2023	10	18/08/2023	10
19/08/2023	10	19/08/2023	10
27/09/2023	160	27/09/2023	600
28/09/2023	20	28/09/2023	60
29/09/2023	10	29/09/2023	10
30/09/2023	40	30/09/2023	250
1/10/2023	10	1/10/2023	10
2/10/2023	10	2/10/2023	10
12/04/2024	2700	12/04/2024	340
13/04/2024	220	13/04/2024	30
14/04/2024	10	14/04/2024	10
2/05/2024	80	2/05/2024	20
3/05/2024	10	3/05/2024	10
4/05/2024	40	4/05/2024	30

	Lyall Bay Beach, Eastern side - Enterococci		Lyall Bay Beach, Eastern side - faecal coliforms
Date	CFU/100mL	Date	CFU/100mL
24/07/2023	10	24/07/2023	10
25/07/2023	10	25/07/2023	10
26/07/2023	180	26/07/2023	100
27/07/2023	10	27/07/2023	10
28/07/2023	100	28/07/2023	40
29/07/2023	10	29/07/2023	10
17/08/2023	10	17/08/2023	10
18/08/2023	10	18/08/2023	10
19/08/2023	10	19/08/2023	10
27/09/2023	300	27/09/2023	100
28/09/2023	60	28/09/2023	80
29/09/2023	40	29/09/2023	10
30/09/2023	10	30/09/2023	10
1/10/2023	10	1/10/2023	10
2/10/2023	10	2/10/2023	10
12/04/2024	280	12/04/2024	140
13/04/2024	1300	13/04/2024	280
14/04/2024	10	14/04/2024	50
2/05/2024	20	2/05/2024	70
3/05/2024	100	3/05/2024	50
4/05/2024	160	4/05/2024	310

	Dorrie Leslie Park, South side of boat ramp - Enterococci		Dorrie Leslie Park, South side of boat ramp - faecal coliforms
Date	CFU/100mL	Date	CFU/100mL
24/07/2023	10	24/07/2023	10
25/07/2023	10	25/07/2023	10
26/07/2023	10	26/07/2023	10
27/07/2023	10	27/07/2023	10
28/07/2023	10	28/07/2023	10
29/07/2023	120	29/07/2023	20
17/08/2023	10	17/08/2023	10
18/08/2023	10	18/08/2023	10
19/08/2023	10	19/08/2023	10
27/09/2023	10	27/09/2023	10
28/09/2023	50	28/09/2023	90
29/09/2023	10	29/09/2023	10
30/09/2023	10	30/09/2023	10
1/10/2023	10	1/10/2023	10
2/10/2023	10	2/10/2023	10
12/04/2024	40	12/04/2024	10
13/04/2024	360	13/04/2024	200
14/04/2024	20	14/04/2024	10
2/05/2024	10	2/05/2024	10
3/05/2024	70	3/05/2024	20
4/05/2024	30	4/05/2024	10

	Dorrie Leslie Park, West of boat ramp - Enterococci		Dorrie Leslie Park, West of boat ramp - faecal coliforms
Date	CFU/100mL	Date	CFU/100mL
24/07/2023	10	24/07/2023	10
25/07/2023	10	25/07/2023	10
26/07/2023	10	26/07/2023	10
27/07/2023	10	27/07/2023	10
28/07/2023	10	28/07/2023	10
29/07/2023	10	29/07/2023	10
17/08/2023	20	17/08/2023	10
18/08/2023	10	18/08/2023	10
19/08/2023	20	19/08/2023	10
27/09/2023	10	27/09/2023	10
28/09/2023	20	28/09/2023	30
29/09/2023	10	29/09/2023	10
30/09/2023	10	30/09/2023	10
1/10/2023	10	1/10/2023	10
1/10/2023	10	1/10/2023	10
2/10/2023	10	2/10/2023	30
12/04/2024	20	12/04/2024	10
13/04/2024	580	13/04/2024	220
14/04/2024	60	14/04/2024	10
2/05/2024	30	2/05/2024	20
3/05/2024	10	3/05/2024	10
4/05/2024	10	4/05/2024	10

	Peninsula at Queens Drive and The Esplanade - Enterococci		Peninsula at Queens Drive and The Esplanade - faecal coliforms
Date	CFU/100mL	Date	CFU/100mL
24/07/2023	10	24/07/2023	10
25/07/2023	10	25/07/2023	10
26/07/2023	10	26/07/2023	10
27/07/2023	10	27/07/2023	10
28/07/2023	40	28/07/2023	40
29/07/2023	10	29/07/2023	10
17/08/2023	10	17/08/2023	10
18/08/2023	10	18/08/2023	10
19/08/2023	40	19/08/2023	10
27/09/2023	240	27/09/2023	30
28/09/2023	30	28/09/2023	40
29/09/2023	20	29/09/2023	10
30/09/2023	10	30/09/2023	10
1/10/2023	10	1/10/2023	10
2/10/2023	10	2/10/2023	10
12/04/2024	60	12/04/2024	20
13/04/2024	1700	13/04/2024	260
14/04/2024	40	14/04/2024	10
2/05/2024	2200	2/05/2024	2300
3/05/2024	10	3/05/2024	10
4/05/2024	120	4/05/2024	190

	Houghton Bay, Western side - Enterococci		Houghton Bay, Western side - faecal coliforms
Date	CFU/100mL	Date	CFU/100mL
24/07/2023	10	24/07/2023	10
25/07/2023	10	25/07/2023	10
26/07/2023	10	26/07/2023	40
27/07/2023	10	27/07/2023	10
28/07/2023	20	28/07/2023	60
29/07/2023	100	29/07/2023	30
17/08/2023	50	17/08/2023	40
18/08/2023	10	18/08/2023	10
19/08/2023	10	19/08/2023	10
27/09/2023	140	27/09/2023	30
28/09/2023	10	28/09/2023	30
29/09/2023	10	29/09/2023	10
30/09/2023	40	30/09/2023	10
1/10/2023	10	1/10/2023	10
2/10/2023	10	2/10/2023	600
12/04/2024	30	12/04/2024	20
13/04/2024	480	13/04/2024	90
14/04/2024	60	14/04/2024	20
2/05/2024	10	2/05/2024	10
3/05/2024	50	3/05/2024	50
4/05/2024	80	4/05/2024	20

	Marine Centre, Island Bay, Eastern side - Enterococci		Marine Centre, Island Bay, Eastern side - faecal coliforms
Date	CFU/100mL	Date	CFU/100mL
24/07/2023	80	24/07/2023	10
25/07/2023	10	25/07/2023	10
26/07/2023	70	26/07/2023	260
27/07/2023	30	27/07/2023	20
28/07/2023	20	28/07/2023	60
29/07/2023	30	29/07/2023	10
17/08/2023	500	17/08/2023	440
18/08/2023	10	18/08/2023	10
19/08/2023	10	19/08/2023	20
27/09/2023	200	27/09/2023	70
28/09/2023	40	28/09/2023	20
29/09/2023	120	29/09/2023	30
30/09/2023	10	30/09/2023	10
1/10/2023	20	1/10/2023	20
2/10/2023	20	2/10/2023	10
12/04/2024	90	12/04/2024	900
13/04/2024	1500	13/04/2024	1000
14/04/2024	1100	14/04/2024	700
2/05/2024	1100	2/05/2024	1000
3/05/2024	60	3/05/2024	20
4/05/2024	200	4/05/2024	120

	Island Bay, Western side - Enterococci		Island Bay, Western side - faecal coliforms
Date	CFU/100mL	Date	CFU/100mL
24/07/2023	160	24/07/2023	180
25/07/2023	10	25/07/2023	10
26/07/2023	330	26/07/2023	270
27/07/2023	30	27/07/2023	10
28/07/2023	170	28/07/2023	220
29/07/2023	280	29/07/2023	10
17/08/2023	700	17/08/2023	320
18/08/2023	10	18/08/2023	10
19/08/2023	20	19/08/2023	10
27/09/2023	160	27/09/2023	80
28/09/2023	40	28/09/2023	30
29/09/2023	20	29/09/2023	40
30/09/2023	10	30/09/2023	10
1/10/2023	10	1/10/2023	20
2/10/2023	10	2/10/2023	440
12/04/2024	370	12/04/2024	140
13/04/2024	2800	13/04/2024	1500
14/04/2024	50	14/04/2024	50
2/05/2024	2000	2/05/2024	1200
3/05/2024	10	3/05/2024	10
4/05/2024	220	4/05/2024	230

Appendix III: Inflow and Infiltration Report

Condition (13)

The annual report required by condition 19 of this permit shall detail what steps have been taken in the reporting year and what steps are proposed to be undertaken in the future to reduce infiltration and stormwater ingress into the Wellington City sewerage network.

This information shall include, but not be limited to, the following information:

a) Details on the adoption of a policy to identify, and to repair or replace, defective private sewer drains in the Wellington City catchment. If such a policy is adopted, detail on its implementation made within the previous year
b) Details of additional works that have been undertaken and what these works are expected to achieve
c) An indication of when any on-going works will be completed
d) Details of any investigations undertaken with regard to inflow and infiltration in the Wellington City catchment
e) Details of any works or investigations planned for the next financial year

Inflow and Infiltration Report

A variety of mitigation measures have been undertaken to reduce Inflow and Infiltration (I&I) and to contain wastewater within the reticulated wastewater network. This work aims to reduce the wet weather flows at Moa Point Wastewater Treatment Plant (WWTP) and to also improve the health of waterways. Sections (a), (b), (c), (d) and (e) of Condition 13 are addressed below through the various activities and work programs that contribute to reducing I&I.

Section (a)

Wellington City Council (WCC) have updated the ownership arrangement for wastewater laterals, which came into effect on 1 July 2021. The section of wastewater lateral located in the legal road was previously a private asset and is now council owned.

Detection of faulty laterals contributing to infiltration and inflow from stormwater to wastewater cross connections continue to be identified through ongoing operations and

maintenance work and targeted inspections. Property owners are advised to repair faults within their property and faults within the legal road from 1 July are repaired or replaced by Wellington Water.

Section (b), (c), (d) and (e)

The following work programs and activities described below provide information relating to Condition 13, sections (b) to (e).

Inflow Surveys

No inflow surveys have been undertaken in 2022-2023 financial year in the Moa Point WWTP Catchment. The map showing the status of recent inflow surveys projects is provided in Figure 1 below. Kingsbridge and Northland/Karori inflow surveys were recently completed and are shown below in green. The final inspections for the Kingsbridge Inflow Survey were completed in December 2020. This catchment was selected for an inflow survey due to significant peak wet weather flows.

Two properties in this catchment were found to have their stormwater and wastewater pipes cross- connected which were resolved. Post-rehabilitation flow monitoring has not been undertaken, however an affected customer advised since the inflow survey works were completed, there has been no recent wastewater surcharges in wet weather at their affected property.

The Brooklyn sub-catchment shown in green is historical and was completed more than 5 years ago. Hataitai and Trelissick Park catchments were inflow survey projects that commenced in 2017-2018 and were only partially completed, which are shown in red in

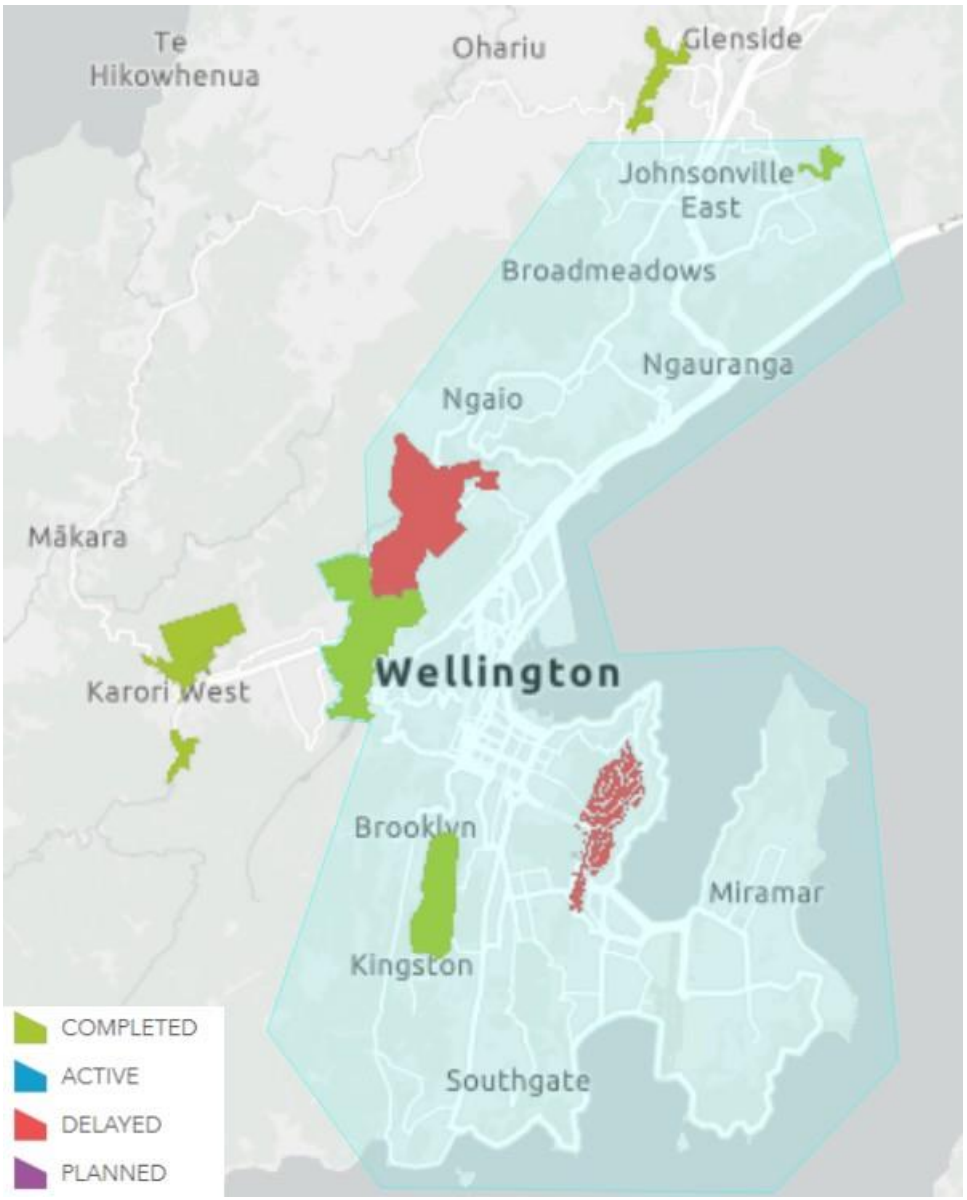


Figure 1. Both sub-catchments require re-inspection and are both currently delayed.

Figure 1 - Inflow Survey Project Locations for Moa Point WWTP catchment

The Wellington Water Drainage Investigation Team is working on a range of projects, which includes smoke testing, dye testing and CCTV inspections for both wastewater and stormwater assets. The investigations are able to identify private and public faults. The areas inspected within the Moa Point WWTP Catchment boundary in 2022-2023 are listed below:

- Waitohi Stream Johnsonville
- Human health mitigation survey in Newlands
- Harris Street storm water siphon monitoring
- Koromiko Stream NgaioFox Street renewal Ngaio
- Pump station 7 in Mt Victoria

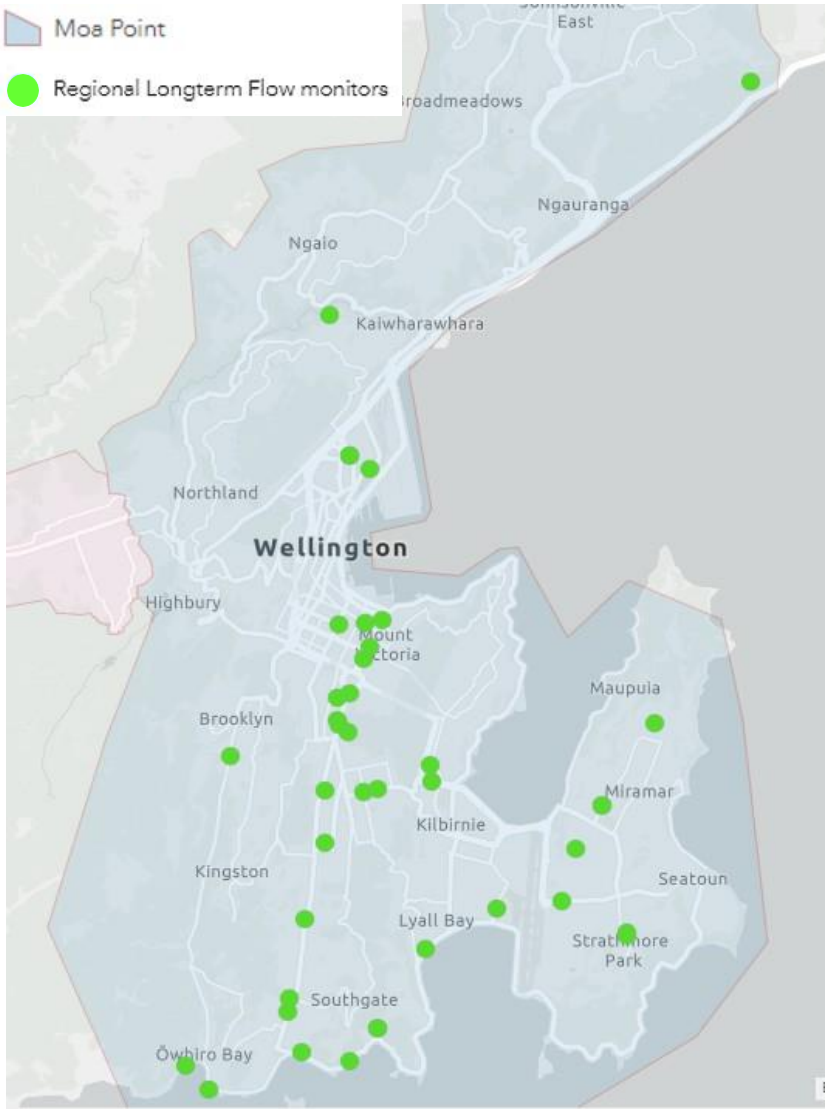
These projects are ongoing. It is expected that Waitohi and Newlands projects will be completed this year, in the 2023-2024 financial year.

Flow Monitoring and Rain Gauge Monitoring

These active long-term flow monitoring sites within the Moa Point WWTP Catchment are shown within the blue polygon in Figure 2 below. There are three flow and four Operational Level Monitoring sites measuring level only. There are also 32 overflow monitoring sites currently installed within the Moa Point WWTP catchment. Two sites monitor both wastewater flow and overflow.

These monitoring sites are part of the long-term monitoring contract. The latest regional contract commenced in July 2022 and some updates to the monitoring locations were undertaken. This data is used to understand network performance and the extent of inflow and infiltration in various catchments. This data also enables investigation of network issues and maintenance of hydraulic models. Wastewater monitoring is also undertaken at most Wastewater Pump Station sites.

Figure 2 - Map of Active Wastewater Flow and Overflow Monitoring Sites within Moa Pt WWTP Catchment



There are currently 10 rain gauges monitoring stations in the Moa Point catchment. This data is used in conjunction with flow monitoring data to understand the extent of I&I for catchments. The rain gauges sites are listed below:

- Miramar at Miramar Bowling Club
- Miramar at Miramar North Road
- Berhampore at Nusery (sic)
- Newtown at Mansfield Street
- Newtown at Carmichael Reserve
- Hataitai at Hataitai Park
- Wellington at Te Papa
- Wellington at Regional Council Centre
- Khandallah at Library
- Kaiwharawhara Stream at Ngaio Reserve

Condition Assessments

Condition Assessment using closed circuit television (CCTV) footage or other inspection methods of wastewater networks are used to identify faults, determine the condition of assets, and inform repair and renewal programs.

The Very High Critical Assets (VHCA) condition assessments completed as of June 2023 are shown in Figure 3 below. The primary inspection techniques were CCTV and Drone inspection for wastewater pipes and CCTV for Stormwater. For the inspections represented in the below map, approximately 1.1 and 4.0 km stormwater and wastewater respectively were completed in 2022-2023 financial year.

CCTV inspections are also underway in the Owhiro Bay, Newlands and Haitaitai were the main catchments and planned for completion in June 2023. The data from these condition assessment programs will be analysed and used to inform the repair and renewal programs in upcoming financial years.

Figure 3 - Very High Critical Assets (VHCA) CCTV and laser profiling inspections completed as of June 2023.

Wastewater Modelling

The Moa Point WWTP Catchment has four wastewater network models including Evans Bay, Island Bay, CBD Model and Western hills model. Recently work has been carried out to integrate all models into the one model to reflect the entire Moa Point WWTP Catchment.

Stormwater and Wastewater Capital Projects

Table 1 below provides a summary of planned capital projects for wastewater and stormwater assets that were undertaken in 2022-20232 as well as works scheduled for 2023-2024. The projects are proposed and subject to approval by council. Ongoing operational work such as investigations, reactive maintenance and renewals are also carried out in addition to the planned work listed below. Some projects in the table below are noted in both columns as the project is delivered over multiple years or ongoing programmes of work.

Table 1 - Stormwater and Wastewater Capital Projects in the Moa Point WWTP Catchment

Activity	2022-2023	2023-2024

Wastewater	Pitt Street (40-55) Wastewater Renewal Maida Vale Road Wastewater Pipe Renewals Whitmore Street (17) - Bowen Street (38) Rising Main Renewal Torrens Terrace(2-48), Arlington Street (6-14, 24-31) and Hopper Street (20-70) Wastewater Renewal Tirangi Road Pump Station (PS34) Mechanical and Electrical Refit with Magflow Installation Ross and Yule WW Renewals Hania Street (3-18) - 60 Kent Terrace Wastewater Renewal Elphinstone Ave (5-22) - Tannadyce St (5) Wastewater Renewal 75 Rhine Street and 24A Freeling Street Development	Yule Stoke Tainui and Broomhedge Wastewater Renewals Wilton Road (127-151) Wastewater Renewal Wellington Road (43) to Vallance Sreet (16) Trunk Wastewater Renewal Wakefield St new Rising Main Taranaki Street WW PS and Rising Main Stratford Way (5) - Wilton Road (89) Wastewater Renewal Portsmouth Road (Southampton Rd, Hobart St, Wexford Rd) Wastewater Renewal Pitt Street (40-55) Wastewater Renewal Maida Vale Road Wastewater Pipe Renewals Hawkestone Street (6-27) and Molesworth Street (79-83) Wastewater Renewal (with SW) Golden Mile WW Renewals Featherston St (Whitmore St to Waring Taylor St) Rising Main Renewal Chaytor Street (Raroa Cr - Waiapu Rd) Wastewater Renewal Buller Street (27) - Vivian Sreet (175) Wastewater Renewal Aro Valley Wastewater Renewals (Adams Aro Holloway Maarama Fairlie Landcross Streets)
Stormwater	Stirling Street (10-14) Adelaide Road	Agra Crescent Stormwater Renewal

	(493) Stormwater Renewal	
	Ross and Yule SW Renewals	Golden Mile SW Renewals

Appendix IV: Moa Point WWTP Assessment of Environmental Effects

Appendix V: Outfall Pipeline Assessment

Appendix VI: Ambient Microbe Monitoring

Appendix VII: Smoke Test Report

Appendix VIII: Complaints Record

Date	Complaints	Details	Actions Taken
31/10/2023	Odour complaint	Received notification from WCC at 6:48 PM - comment - Customer called to say that when she returned home today and opened her French doors and windows, there was an awful smell of waste in the air	No odour assessment carried out as notified a day later. H2S records from plant supplied to GWRC showing low h2s levels indicating not the plant.
22/02/2024	Odour complaint	On 07/03/2024, GWRC emailed Wellington Water " We received a complaint from a member of the public on 22 Feb 2024 between 12-1pm about a stinky cabbage-like odour emanating from the Moa point treatment plant. The member of the public mentioned that there was the same smell coming out of the plant yesterday (21st Feb) and coming out this morning as well. Could you please let me know the reason/source for the smell coming from the plant and is there a record and any investigation that happened regarding this smell?	Response to GWRC : The Moa Point plant was operating as normal, except for the clarifier #2 work that is ongoing. There was no odour survey carried out for those days as we were unaware there was an odour issue reported.

Appendix IX: Non-compliance notices

Notice Description	Date Issued	Facility	Details
Please Explain	3/10/2023	Moa Point WWTP	PX letter issued by GWRC in relation to untreated waste water to CMA via short outfall pipe at Moa Point WWTP - Discharge occured on 27/09/2023 & 30/09/2023 because of the heavy rain and the reduced capacity at the Moa Point Inlet Pumping Station (IPS) due to mechanical failure
Please Explain	12/10/2023	Moa Point WWTP	GWRC issued PX letter in relation to discharge of non-compliant effluent quality under condition 10 of WGN08003 [31505] between 21 September 2022 and 27 September 2023. On 27/09/2023, Moa Point became non-compliant with 90 day 90th percentile limit for suspended solids
Abatement Notice - A1074	20/10/2023	Moa Point WWTP	Abatement notice issued by GWRC due to the increase in the number of discharges GWRC has listed requirements to complete Moa Point WWTP Inlet pump station upgrade by 24 November 2023 & bring the pumping capacity back to what it was designed for.
Amended/Updated Abatement Notice - A1074	21/11/2023	Moa Point WWTP	GWRC sent through an ammendment to Abatement notice A1074, which now requires WWL to Complete (implement and make operational) the Moa Point WWTP Inlet Pump Station Upgrade (Phase 1) by 01 December 2023
Infringement Notice **I962**	1/12/2023	Moa Point WWTP	GWRC issued Infringement Notice I962 for the discharge of non-compliant effluent quality from Moa Point Plant).WWL have been charged $750 for each of the infringement notice
Infringement Notice **I965** for breach of abatement notice A981.	1/12/2023	Moa Point WWTP	GWRC issued Infringement Notice I965 for breach of Abatement Notice A981 .WWL have been charged $750 for each of the infringement notice
Please Explain	30/01/2024	Moa Point WWTP	GWRC issued a PX letter requesting for an explanation in relation to a conspicuous change in water colour within the proximity of the Moa Point Wastewater Treatment Plant long outfall discharge point within the Coastal Marine Area,on 23/01/2024
Please explain	23/04/2024	Moa Point WWTP	GWRC issued a PX letter to Veolia on 23/04/2024, seeking explanation of events around discharge of untreated wastewater to the coastal marine area via the short outfall pipeline at Moa Point WWTP on 12 April 2024.
Advisory Notice	16/05/2024	Moa Point WWTP	We (WWL) have been given an advisory notice in relation to the discoloration in the CMA around the vicinity of the long outfall of Moa Point WWTP on 23rd January 2024.

			Veolia have received two infringement notices relation to this incident. GWRC have mentioned that the investigation is still on going. I will include this as an item in the next quarterly report to WCC and on the next monthly dashboard
Formal Warning	22/05/2024	Moa Point WWTP	GWRC issued a Formal warning for the Sludge carry over from the Moa Point WWTP long outfall discharge point within the Coastal Marine Area 23 January 2024.GWRC's investigations are still ongoing & they have issued 2 infringements have been sent to Veolia for sludge carry over from the Moa Point WWTP 23 Jan 2024.
Please explain	11/06/2024	Moa Point WWTP	As per the email, GWRC is seeking explanation of events around discharge on 01 May 2024 - “Mechanical failure within the plant at 19:31 on 01/05/2024 there has been a discharge of untreated wastewater to the Short outfall into the ocean at Tarakena Bay which will make the water appear cloudy or murky and may have some odour.”