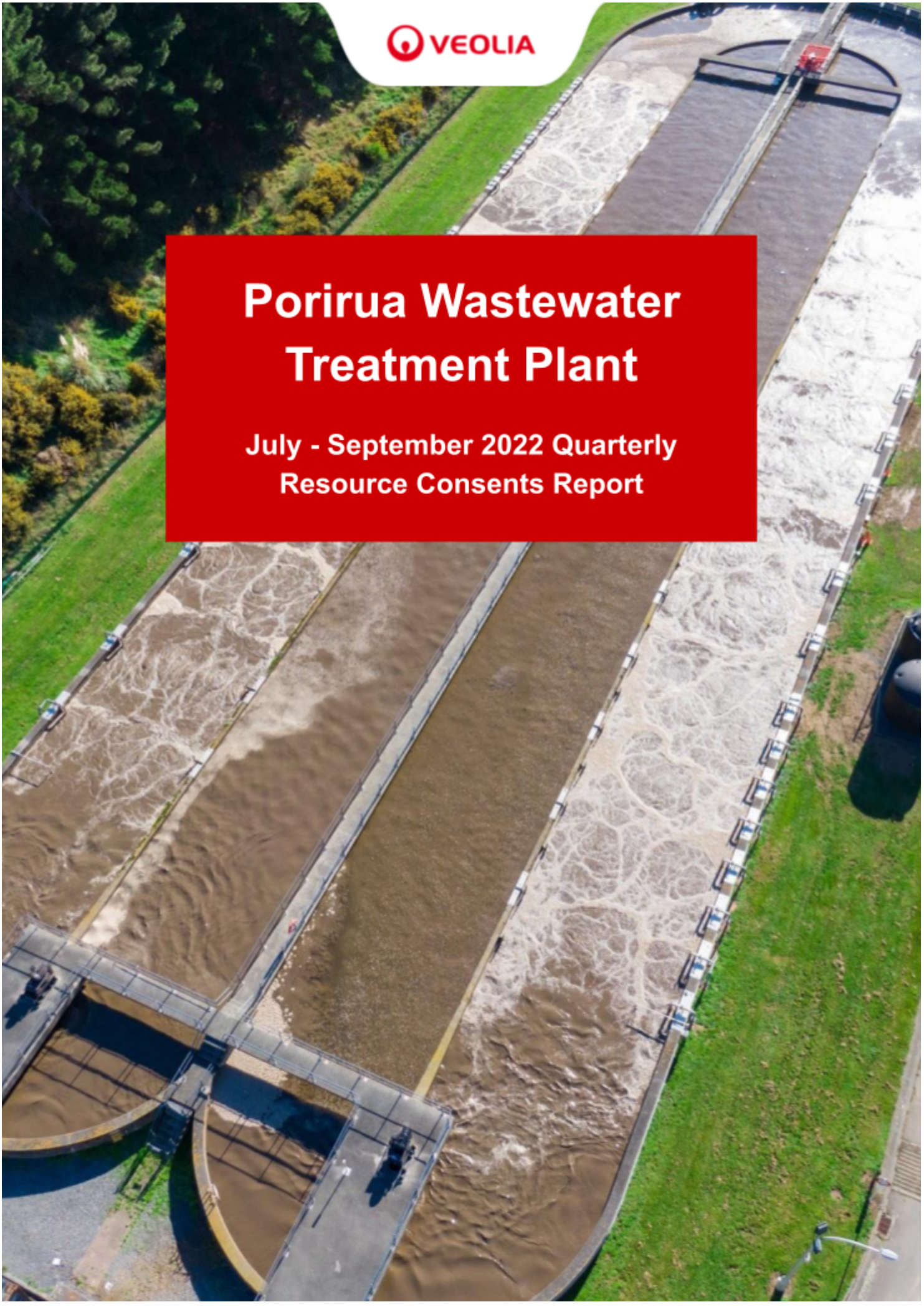

Porirua Wastewater Treatment Plant

July - September 2022 Quarterly Resource Consents Report

This report has been prepared solely for the benefit of **Wellington Regional Council.**

No liability is accepted by this company or any employee or sub-consultant of this company with respect to its use by any other person.

This disclaimer shall apply notwithstanding that the report may be made available to other persons for an application for permission or approval or to fulfil a legal requirement.

CONTROL SHEET

Document Title: Porirua Wastewater Treatment Plant July - September 2022 Quarterly Resource Consents Report

Prepared by: Julian Villada

Reviewed by: Petra Vachova

Authorised by: Alex Phelan

DOCUMENT CONTROL REGISTER

Version	Status	Date	Details of Revision
0	Draft	10/10/2022	Original version for review.
1	Final	28/10/2022	Internally reviewed.

EXECUTIVE SUMMARY

The following report was prepared by Veolia on behalf of the Porirua City Council (PCC) for the Greater Wellington Regional Council (GWRC). This report includes results and observations that satisfy the reporting requirements of the following Porirua Wastewater Treatment Plant resource consents:

WGN980083 [33805]

The Porirua WWTP is governed by the resource consent under the Greater Wellington Regional Council consent file number WGN980083. In general, the consent allows the discharge of treated and partially treated effluent from the Porirua City Council's Wastewater Treatment Plant at Rukutane Point through an existing outfall at or about map reference NZMS 260:R27;320.097.

The report will cover the quarterly period from July - September 2022 as requested in this resource consent. The following is a brief overview of the compliance with the consent conditions:

Resource Consent Condition	Compliant/Non-Compliant/Not Applicable
11	Compliant
13	Compliant
14	Compliant
15	Compliant
18	Compliant
21	Compliant

Table 1: WGN980083 [33805] Resource Consent Condition Compliance

WGN980083 (02)

The Porirua WWTP is governed by the resource consent under the Greater Wellington Regional Council consent file number WGN980083 (02). In general, the consent allows the discharge of contaminants from the Porirua City Council's Wastewater Treatment Plant to the air at the or about map reference NZMS 260: R27;632.096.

The report will cover the quarterly period from July - September 2022 as requested in this resource consent. The following is a brief overview of the compliance with the consent conditions:

Resource Consent Condition	Compliant/Non-Compliant/Not Applicable
8	Compliant
9	Compliant

Table 2: WGN980083 (02) Resource Consent Condition Compliance

WGN980083 (03)

To occupy the coastal marine area with a concrete deflection wall and outfall structures, the resource consent under the Greater Wellington Regional Council consent file number WGN980083 (03) was obtained. There are no reporting requirements for this resource consent.

TABLE OF CONTENTS

WGN980083 [33805]

Condition (11)

After 1 October 2003, the permit holder shall sample the treated effluent at the sample point required by condition 9 and the following effluent standards shall apply:

a. Based on daily 24 hour flow proportional composite sampling, with a running geometric mean and 90 percentile calculated each day using 90 consecutive daily test results, the effluent shall meet the following standard:
   i. Biochemical Oxygen Demand : Geometric mean of 90 day consecutive BOD5 values shall not exceed 30g/m^3 and no more than 10% of 90 consecutive daily values shall exceed 75g/m^3.
   ii. Suspended Solids : Geometric mean of 90 consecutive daily suspended solids values shall not exceed 30g/m^3 and no more than 10% of 90 consecutive daily values shall exceed 75g/m^3.

b. Based on no fewer than 20 representative grab samples per month, (such samples shall be taken from the date of commencement of this permit, on separate days per month between the hours of 9am and 5pm), the effluent shall not exceed the following standard:
   i. Faecal Coliform Bacteria: Geometric mean of 1000 per 100 millilitres and no more than 10% of monthly samples shall exceed 2,000 per 100 millilitres.

c. Based on no fewer than one flow proportioned 24 hour composite sample collected on a normal Monday to Friday working day on a quarterly basis, concentrations of metals and other specified compounds shall not exceed the following limits:

Arsenic	0.5g/m^3
Cadmium as the element	0.05 g/m^3
Chromium	0.2 g/m^3
Copper as the element	0.8 g/m^3
Nickel as the element	0.05 g/m^3
Lead as the element	0.5 g/m^3
Zinc as the element	2.0 g/m^3
Mercury as the element	0.002 g/m^3
Phenol	0.2 g/m^3
Cyanide as CN	0.1 g/m^3
Chlorinated hydrocarbons	0.01 g/m^3

Section (a)

Below is a summary of the geometric mean and 90th percentile for the Biochemical Oxygen Demand and the Suspended Solids daily analytical results.

Please note that clarification was provided by GWRC regarding Condition (11) (a). The methodology adopted in this report will be the 10% of the 90 consecutive days.

(i) Final Effluent Biochemical Oxygen Demand

Day	July 2022			August 2022			September 2022		
	Results	Geometric Mean	Percent Compliance	Results	Geometric Mean	Percent Compliance	Results	Geometric Mean	Percent Compliance
	g/m^3	g/m^3	%	g/m^3	g/m^3	%	g/m^3	g/m^3	%
1	9	6	100	15	7	100	16	9	100
2	15	6	100	12	7	100	24	9	100
3	15	6	100	5	7	100	25	9	100
4	5	6	100	16	7	100	17	9	100
5	33	6	100	14	7	100	15	9	100
6	35	6	100	23	7	100	17	9	100
7	4	6	100	8	7	100	13	9	100
8	8	6	100	7	7	100	11	9	100
9	5	6	100	7	7	100	17	9	100
10	4	6	100	8	7	100	21	9	100
11	6	6	100	9	7	100	30	9	100
12	15	6	100	8	7	100	13	9	100
13	4	6	100	4	7	100	11	9	100
14	15	6	100	16	7	100	10	9	100
15	5	6	100	13	7	100	20	10	100
16	5	6	100	8	8	100	9	10	100
17	5	6	100	10	8	100	11	9	100
18	8	6	100	15	8	100	18	10	100
19	8	7	100	9	8	100	26	10	100
20	7	7	100	4	8	100	24	10	100
21	5	7	100	9	8	100	12	10	100
22	9	7	100	9	8	100	10	10	100
23	16	7	100	9	8	100	17	10	100
24	11	7	100	7	8	100	23	10	100
25	10	7	100	18	8	100	18	10	100
26	6	7	100	8	9	100	24	10	100
27	16	7	100	6	9	100	19	11	100
28	9	7	100	7	9	100	13	11	100
29	5	7	100	6	9	100	13	11	100
30	23	7	100	8	9	100	16	11	100
31	14	7	100	13	9	100	-	-	-
Limits	75	30	90	75	30	90	75	30	90

Table 3: BOD_5 Geometric Mean and Percent Compliance

Please note that analytical results highlighted in amber are above the $30g/m^3$ geometric mean limit. Analytical results highlighted in red are above the $75g/m^3$ percent compliance limit.

(ii) Final Effluent Suspended Solids

Day	July 2022			August 2022			September 2022		
	Results	Geometric Mean	Percent Compliance	Results	Geometric Mean	Percent Compliance	Results	Geometric Mean	Percent Compliance
	g/m^3	g/m^3	%	g/m^3	g/m^3	%	g/m^3	g/m^3	%
1	4	5	100	6	5	100	6	5	100
2	9	5	100	3	5	100	16	5	100
3	6	5	100	3	5	100	20	5	100
4	3	5	100	7	5	100	10	5	100
5	22	5	100	4	5	100	7	5	100
6	29	5	100	14	5	100	10	5	100
7	2	5	100	4	5	100	8	5	100
8	6	5	100	7	5	100	6	5	100
9	3	5	100	4	5	100	14	5	100
10	2	5	100	3	5	100	17	5	100
11	3	5	100	4	5	100	25	5	100
12	8	5	100	5	5	100	7	5	100
13	2	5	100	4	5	100	6	5	100
14	7	5	100	7	5	100	4	5	100
15	3	5	100	6	5	100	10	5	100
16	2	5	100	6	5	100	5	5	100
17	4	5	100	4	5	100	8	5	100
18	3	5	100	7	5	100	10	5	100
19	10	5	100	8	5	100	19	5	100
20	4	5	100	5	5	100	15	5	100
21	5	5	100	6	5	100	10	6	100
22	4	5	100	4	5	100	4	6	100
23	10	5	100	6	5	100	9	6	100
24	4	5	100	4	5	100	8	6	100
25	4	5	100	7	5	100	11	6	100
26	3	5	100	4	5	100	17	6	100
27	7	5	100	4	5	100	11	6	100
28	3	5	100	2	5	100	8	6	100
29	3	5	100	4	5	100	7	6	100
30	13	5	100	5	5	100	14	6	100
31	24	5	100	6	5	100	-	-	-
Limits	**75**	**30**	**90**	**75**	**30**	**90**	**75**	**30**	**90**

Table 4: Suspended Solid Geometric Mean and Percent Compliance

Please note that analytical results highlighted in amber are above the $30g/m^3$ geometric mean limit. Analytical results highlighted in red are above the $75g/m^3$ percent compliance limit.

Section (b)

Below is a summary of the geometric mean and percent compliance for faecal coliform analytical results.

In July 2015, an agreement with GWRC was made to use only the first 20 faecal coliform analytical results for compliance purposes. A maximum of two samples above 2,000cfu/100mL are permissible.

Day	July 2022			August 2022			September 2022		
	Results	Geometric Mean	Percent Compliance	Results	Geometric Mean	Percent Compliance	Results	Geometric Mean	Percent Compliance
	cfu/100mL	cfu/100mL	%	cfu/100mL	cfu/100mL	%	cfu/100mL	cfu/100mL	%
1	23			105			118		
2	299			24			768		
3	2466			48			85		
4	40			55			55		
5	33			689			175		
6	69			14			629		
7	57			31			144		
8	63			133			379		
9	44			103			32		
10	185			91			49		
11	860			75			100		
12	85			78			34		
13	14			41			12		
14	41			22			30		
15	128			31			109		
16	57			21			28		
17	35			55			42		
18	325			52			24		
19	177			99			109		
20	100			66			150		
21	77			39			160		
22	32			104			96		
23	42			336			65		
24	14			35			28		
25	60			44			36		
26	23			54			12		
27	37			30			438		
28	47			38			42		
29	36			50			80		
30	15			53			273	83	100
31	56	94	95	80	57	100	-	-	-
Limits	**2000**	**1000**	**85**	**2000**	**1000**	**85**	**2000**	**1000**	**85**

Table 5: 20 Day Geometric Mean and Percent Compliance

Please note that analytical results highlighted in amber are above the 1000cfu/100mL geometric mean limit. Analytical results highlighted in red are above the 2000g/m^3 percent compliance limit.

Section (c)

Below is a summary of the quarterly metals and other specified compounds analytical results.

Compound	Units	Limit	04/07/2022
Arsenic	**g/m^3**	**0.5**	0.002
Cadmium as the element	**g/m^3**	**0.05**	0.000
Chromium	**g/m^3**	**0.2**	0.002
Copper as the element	**g/m^3**	**0.8**	0.003
Nickel as the element	**g/m^3**	**0.05**	0.014
Lead as the element	**g/m^3**	**0.5**	0.001
Zinc as the element	**g/m^3**	**2.0**	0.000
Mercury as the element	**g/m^3**	**0.002**	0.000
Phenol	**g/m^3**	**0.2**	0.002
Cyanide as CN	**g/m^3**	**0.1**	0.005
Chlorinated hydrocarbons	**g/m^3**	**0.01**	See Appendix ii

Table 6: Analytical Results for Quarterly Metals and other Specified Compounds

For full analytical results of the metals and other specified compounds as well as the breakdown of the chlorinated hydrocarbons see Appendix ii: Heavy Metals and Specified Compounds Results.

Condition 13

> The discharge shall not cause any of the following effects in the receiving waters beyond a 200 metre radius (the mixing zone) of the Rukutane Point outfall:
>
> a. The production of any conspicuous oil or grease films, scums or foams, or floatable or suspended material;
> b. Any conspicuous change in the colour or visual clarity of water;
> c. Any adverse effect on marine aquatic life.
>
> Paragraphs (a) and (b) of this condition shall not apply to discharges during times of plant overflow or plant bypass. Paragraph (b) shall not apply to changes in colour or visual clarity of water which occur as a result of a freshwater lens on the surface of receiving water.

When shoreline samples are collected for Condition (14) an inspection is performed for conditions 13(a) and 13(b). The results of these inspections can be made available upon request.

Condition 14

> The permit holder shall monitor the enterococci and faecal coliform contents of the receiving waters at six shoreline locations between Titahi Bay Beach and Te Korohiwa Rocks. The shoreline monitoring locations shall include the following sites:
>
> - At or about 200 metres generally eastwards of the outfall;
> - At or about 200 metres generally southwestwards of the outfall; and
> - Titahi Bay Beach
>
> In addition, the permit holder shall establish a sample control site and measure background enterococci and faecal coliform contents of the coastal waters. All sampling locations shall be to the satisfaction of the Manager, Consents management, Wellington Regional Council.

Please note that the original control site posed a health and safety issue for the technician when collecting the sample. A meeting was held with GWRC on site 29th August 2019 regarding the relocation of the control site sampling location. GWRC agreed to the new sample location via e-mail on 12th September 2019 so the new control site is at the end of Whitireia Road. The following is a list of the seven sampling points and a map of their locations:

Sampling Point 1 - Te Korohiwa Rocks
Sampling Point 2 - West of Outfall
Sampling Point 3 - East of Outfall
Sampling Point 4 - Titahi Bay Beach South
Sampling Point 5 - Titahi Bay Beach
Sampling Point 6 - Mount Cooper
Control Point - Whitireia Park

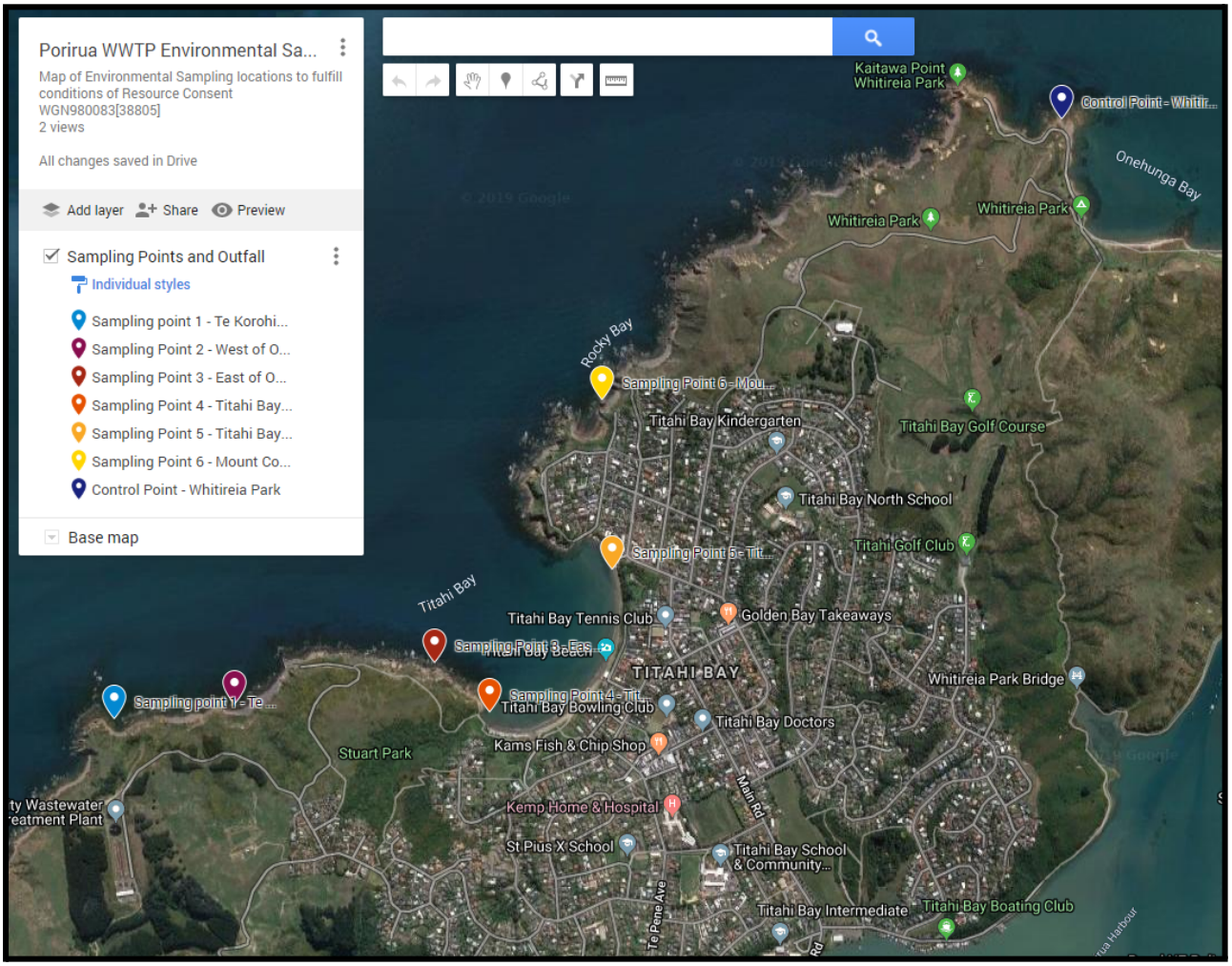

Figure 1: Shoreline Monitoring Sampling Sites

Condition 15

> The water at all sampling locations required by condition 14 shall be monitored for enterococci and faecal coliforms ~~at least three~~ monthly. ~~Between 1 April and 30 September and monthly between 1 October and 31 march, until such time as any new disinfection plant is commissioned. For the first 12 months after commissioning such monitoring shall be carried out on at least a monthly basis. Thereafter, the monitoring may be at such reduced intensity as determined by the Manager, Consents Management, Wellington Regional Council.~~
>
> In the event of a discharge of partly or untreated sewage effluent due to either *plant malfunction*, or *plant overflow*, or *plant bypass*, the above said waters shall further be monitored at or about 24 hours, 72 hours, and 144 hours after that discharge commenced.
>
> For each water sample required by this condition, the permit holder shall make record of the date, time, weather, wind and tidal conditions at its sampling location. These records for each preceding quarter shall be supplied to the Manager, Consents Management, Wellington Regional Council, in the quarterly monitoring report required by condition 17.

Shoreline samples are collected from all the sampling locations mentioned in Condition (14) during bypass or overflow events 24 hours, 72 hours, 144 hours after the discharge if there are no health and safety concerns. During a meeting with GWRC on the 29th August 2019, the interpretation of this condition by the resource consent office differed from the previous consent officer. It is now a requirement to collect a set of samples from the sampling locations once a month to comply with Condition (15). Prior to this, any bypass sampling was counted as the month sample.

Below is a summary of the bypass and overflow events that have occurred each month during this reporting quarter. The breakdown for each month and explanation of the events can be found in Condition (21). The results from each set of samples collected can be found in Appendix i: Shoreline Monitoring Data. Analytical results from each set of samples collected can be made available upon request.

Month	Bypass/Overflow Events	
	Consented	Non-Consented
July	4	0
August	2	0
September	0	0

Table 7: Monthly Bypass and Overflow Events

Please note that shoreline monitoring was not initiated for bypass discharge events where the volume was less than 1,000m^3, as agreed with GWRC.

Condition 18

> Notwithstanding any enforcement action Wellington Regional Council may choose to take, should the criteria set out in conditions 10 or 11 be exceeded or breached, or the effects in condition 13 (a) – (c) be caused by the discharge, the permit holder shall undertake the following:
> - Immediately notify the Manager, Consents Management, Wellington Regional Council.
> - Immediately investigate the reason why the criteria was exceeded.
> - Immediately identify and undertake whatever appropriate remedial action to the satisfaction of the Manager, Consents Management, Wellington Regional Council, to mitigate the effects.
> - Forward within five working days to the Manager, Consents Management, Wellington Regional Council, a report on the steps taken to ensure that the criteria are not breached in the future.

None of the conditions have been exceeded or breached during the July - September 2022 reporting period.

Condition 21

In the event of a plant malfunction or the discharge of untreated or partially treated effluent, the permit holder shall:

- Immediately notify both the Manager, Consents Management, Wellington Regional Council, and the Public Health Service.
- If required by Manager, Consents Management, Wellington Regional Council, provide within 48 hours a written report to the Manager, detailing manner and cause of the malfunction and the nature of the released effluent, and the steps taken (and being taken if appropriate) to remedy and control that discharge, and to prevent any such releases of untreated or partially treated effluent.

Date	Date of Notification	Duration	Volume Treated During Bypass	Total Volume of Bypass	Dilution Ratio	Consented	Cause
dd/mm/yy	dd/mm/yy	hrs:mins	m^3	m^3	--	Y/N	
08/07/2022	08/07/2022	4:56	17272	2931	6:1	Y	Heavy rainfall
12/07/2022	12/07/2022	13:29	47193	7105	7:1	Y	Heavy rainfall
19/07/2022	19/07/2022	21:01	61226	9423	6:1	Y	Heavy rainfall
31/07/2022	31/07/2022	9:37	32672	5337	6:1	Y	Heavy rainfall
08/08/2022	08/08/2022	8:17:00	28267	3771	7:1	Y	Heavy rainfall
18/08/2022	18/08/2022	69:22:00	239716	42525	6:1	Y	Heavy rainfall

Table 8: Discharge Events

WGN980083 (02)

Condition 8

If required by the Manager, Consents Management, Wellington Regional Council, the permit holder shall carry out monitoring of air-borne pathogens to demonstrate compliance with condition 6 or 7. The monitoring shall be undertaken at six monthly intervals and the results forwarded to the Manager, Consents Management, Wellington Regional Council within one month of each survey being conducted. The location of the sample site shall be mutually agreed by the permit holder and the Manager, Consents Management, Wellington Regional Council. The survey shall be carried out by a standard method to the satisfaction of the Manager, Consents Management, Wellington Regional Council.

The Manager, Consents Management, Wellington Regional Council has not requested these surveys be performed.

Condition 9

The permit holder shall keep a record of any complaints received. The complaints will be forwarded to the Manager, Consents Management, Wellington Regional Council, within twenty-four hours of the complaint being received by the permit holder. The permit holder shall endeavor to record the complainant's name, time of the incident, wind direction and speed, as well as the plant operating conditions at the time of the complaint.

There have been no complaints during the July - September 2022 reporting period.

APPENDIX I: Shoreline Monitoring Data

Te Korohiwa Rocks

Date	Time	Enterococci	Faecal Coliforms	Wind Direction	Wind Strength	Tide	Sea Conditions	WWTP Bypass/Overflow Event	Possible Source (if out of spec)
dd/mm/yyyy	hh:mm	cfu/100mL	cfu/100mL	--	--	--	--	Y/N	--
8/07/2022	16:00	50	16	N	Moderate	Low	Flood	Y	NA
10/07/2022	18:30	2	2	N	Moderate	High	Ebb	Y - 24hr	NA
12/07/2022	18:30	80	52	S	Light	Mid	Flood	Y - 72hr	NA
14/07/2022	17:05	2	4	N	Light	Low	Flood	Y - 144hr	NA
19/07/2022	9:30	2	2	S	Light	Low	Ebb	Y	NA
20/07/2022	9:25	64	68	S	Light	Low	Flood	Y - 24hr	NA
21/07/2022	17:30	18	2	S	Light	Low	Ebb	Y - 72hr	NA
23/07/2022	17:00	10	4	NW	Light	Low	Ebb	Y - 144hr	NA
27/07/2022	16:05	54	11	S	Moderate	Low	Flood	N	NA
31/07/2022	15:30	13	33	NW	Light	Low	Ebb	Y	NA
02/08/2022	17:25	2	2	SE	Light	Low	Ebb	Y	NA
8/08/2022	14:00	120	84	S	Strong	Mid	Flood	Y	N/A
10/08/2022	15:40	2	10	S	Light	Mid	Flood	Y - 24hr	N/A
13/08/2022	16:10	2	2	S	Light	Low	Ebb	Y - 72hr	N/A
16/08/2022	9:47	24	28	S	Light	Low	Ebb	Y - 144hr	N/A
19/08/2022	9:56	2	4	N	Light	Low	Ebb	Y - 24hr	N/A
22/08/2022	16:05	52	86	N	Light	High	Ebb	Y - 72hr	N/A
24/08/2022	9:43	14	10	N	Strong	High	Flood	Y - 144hr	N/A

200m West of Outfall

Date	Time	Enterococci	Faecal Coliforms	Wind Direction	Wind Strength	Tide	Sea Conditions	WWTP Bypass/Overflow Event	Possible Source (if out of spec)
dd/mm/yyyy	hh:mm	cfu/100mL	cfu/100mL	--	--	--	--	Y/N	--
8/07/2022	17:23	40	31	N	Moderate	Low	Flood	Y	NA
10/07/2022	17:15	58	38	N	Moderate	High	Ebb	Y - 24hr	NA
12/07/2022	17:16	42	6	S	Light	Mid	Flood	Y - 72hr	NA
14/07/2022	15:57	6	12	N	Light	Low	Flood	Y - 144hr	NA
19/07/2022	7:37	4	2	S	Light	Low	Ebb	Y	NA
20/07/2022	7:37	25	5.5	S	Light	Low	Flood	Y - 24hr	NA
21/07/2022	16:07	12	4	S	Light	Low	Ebb	Y - 72hr	NA
23/07/2022	17:10	18	60	NW	Light	Low	Ebb	Y - 144hr	NA
27/07/2022	17:16	620	64	S	Moderate	Low	Flood	N	NA
31/07/2022	16:30	170	960	NW	Light	Low	Ebb	Y	NA
02/08/2022	16:07	2	4	SE	Light	Low	Ebb	Y	NA
8/08/2022	16:46	29	20	S	Strong	Mid	Flood	Y	N/A
10/08/2022	16:53	4	28	S	Light	Mid	Flood	Y - 24hr	N/A
13/08/2022	17:22	10	2	S	Light	Low	Ebb	Y - 72hr	N/A
16/08/2022	8:40	2	2	S	Light	Low	Ebb	Y - 144hr	N/A
19/08/2022	8:07	58	52	N	Light	Low	Ebb	Y - 24hr	N/A
22/08/2022	17:16	30	72	N	Light	High	Ebb	Y - 72hr	N/A
24/08/2022	8:40	2	2	N	Strong	High	Flood	Y - 144hr	N/A

200m East of Outfall

Date	Time	Enterococci	Faecal Coliforms	Wind Direction	Wind Strength	Tide	Sea Conditions	WWTP Bypass/Overflow Event	Possible Source (if out of spec)
dd/mm/yyyy	hh:mm	cfu/100mL	cfu/100mL	--	--	--	--	Y/N	--
8/07/2022	17:42	5.5	7.3	N	Moderate	Low	Flood	Y	NA
10/07/2022	16:49	62	52	N	Moderate	High	Ebb	Y - 24hr	NA
12/07/2022	19:22	46	6	S	Light	Mid	Flood	Y - 72hr	NA
14/07/2022	17:30	2	2	N	Light	Low	Flood	Y - 144hr	NA
19/07/2022	8:09	6	10	S	Light	Low	Ebb	Y	NA
20/07/2022	8:39	3.6	1.8	S	Light	Low	Flood	Y - 24hr	NA
21/07/2022	17:50	16	60	S	Light	Low	Ebb	Y - 72hr	NA
23/07/2022	17:30	14	8	NW	Light	Low	Ebb	Y - 144hr	NA
27/07/2022	17:30	1.8	1.8	S	Moderate	Low	Flood	N	NA
31/07/2022	16:51	22	40	NW	Light	Low	Ebb	Y	NA
02/08/2022	18:22	6	2	SE	Light	Low	Ebb	Y	NA
8/08/2022	17:42	6	7	S	Strong	Mid	Flood	Y	N/A
10/08/2022	17:33	2	4	S	Light	Mid	Flood	Y - 24hr	N/A
13/08/2022	17:39	16	4	S	Light	Low	Ebb	Y - 72hr	N/A
16/08/2022	8:17	6	6	S	Light	Low	Ebb	Y - 144hr	N/A
19/08/2022	8:47	2	7	N	Light	Low	Ebb	Y - 24hr	N/A
22/08/2022	17:30	76	130	N	Light	High	Ebb	Y - 72hr	N/A
24/08/2022	8:00	2	2	N	Strong	High	Flood	Y - 144hr	N/A

Titahi Bay Beach South

Date	Time	Enterococci	Faecal Coliforms	Wind Direction	Wind Strength	Tide	Sea Conditions	WWTP Bypass/Overflow Event	Possible Source (if out of spec)
dd/mm/yyyy	hh:mm	cfu/100mL	cfu/100mL	--	--	--	--	Y/N	--
8/07/2022	17:16	13	9.1	N	Moderate	Low	Flood	Y	NA
10/07/2022	17:09	2	2	N	Moderate	High	Ebb	Y - 24hr	NA
12/07/2022	17:10	160	88	S	Light	Mid	Flood	Y - 72hr	NA
14/07/2022	15:50	2	2	N	Light	Low	Flood	Y - 144hr	NA
19/07/2022	7:30	6	8	S	Light	Low	Ebb	Y	NA
20/07/2022	7:30	58	150	S	Light	Low	Flood	Y - 24hr	NA
21/07/2022	16:00	12	10	S	Light	Low	Ebb	Y - 72hr	NA
23/07/2022	16:58	2	6	NW	Light	Low	Ebb	Y - 144hr	NA
27/07/2022	17:06	3.6	1.8	S	Moderate	Low	Flood	N	NA
31/07/2022	16:21	29	72	NW	Light	Low	Ebb	Y	NA
02/08/2022	16:00	50	50	SE	Light	Low	Ebb	Y	NA
8/08/2022	16:37	13	9	S	Strong	Mid	Flood	Y	N/A
10/08/2022	16:47	20	240	S	Light	Mid	Flood	Y - 24hr	N/A
13/08/2022	17:15	2	2	S	Light	Low	Ebb	Y - 72hr	N/A
16/08/2022	8:33	2	2	S	Light	Low	Ebb	Y - 144hr	N/A
19/08/2022	8:00	2400	700	N	Light	Low	Ebb	Y - 24hr	N/A
22/08/2022	17:07	740	340	N	Light	High	Ebb	Y - 72hr	N/A
24/08/2022	8:32	26	14	N	Strong	High	Flood	Y - 144hr	N/A

Titahi Bay Beach

Date	Time	Enterococci	Faecal Coliforms	Wind Direction	Wind Strength	Tide	Sea Conditions	WWTP Bypass/Overflow Event	Possible Source (if out of spec)
dd/mm/yyyy	hh:mm	cfu/100mL	cfu/100mL	--	--	--	--	Y/N	--
8/07/2022	17:00	110	66	N	Moderate	Low	Flood	Y	NA
10/07/2022	17:33	6	8	N	Moderate	High	Ebb	Y - 24hr	NA
12/07/2022	17:35	86	64	S	Light	Mid	Flood	Y - 72hr	NA
14/07/2022	16:14	6	2	N	Light	Low	Flood	Y - 144hr	NA
19/07/2022	7:50	8	10	S	Light	Low	Ebb	Y	NA
20/07/2022	7:49	3.6	1.8	S	Light	Low	Flood	Y - 24hr	NA
21/07/2022	16:25	36	56	S	Light	Low	Ebb	Y - 72hr	NA
23/07/2022	16:46	4	4	NW	Light	Low	Ebb	Y - 144hr	NA
27/07/2022	16:47	540	70	S	Moderate	Low	Flood	N	NA
31/07/2022	16:09	98	180	NW	Light	Low	Ebb	Y	NA
02/08/2022	16:25	2	2	SE	Light	Low	Ebb	Y	NA
8/08/2022	16:22	16	7	S	Strong	Mid	Flood	Y	N/A
10/08/2022	16:30	2	2	S	Light	Mid	Flood	Y - 24hr	N/A
13/08/2022	17:00	2	2	S	Light	Low	Ebb	Y - 72hr	N/A
16/08/2022	8:52	4	4	S	Light	Low	Ebb	Y - 144hr	N/A
19/08/2022	9:09	64	40	N	Light	Low	Ebb	Y - 24hr	N/A
22/08/2022	16:52	8	18	N	Light	High	Ebb	Y - 72hr	N/A
24/08/2022	8:49	2	2	N	Strong	High	Flood	Y - 144hr	N/A

Mount Cooper

Date	Time	Enterococci	Faecal Coliforms	Wind Direction	Wind Strength	Tide	Sea Conditions	WWTP Bypass/Overflow Event	Possible Source (if out of spec)
dd/mm/yyyy	hh:mm	cfu/100mL	cfu/100mL	--	--	--	--	Y/N	--
8/07/2022	18:07	20	1.8	N	Moderate	Low	Flood	Y	NA
10/07/2022	16:30	2	2	N	Moderate	Low	Flood	Y - 24hr	NA
12/07/2022	16:00	150	54	N	Moderate	Low	Flood	Y - 72hr	NA
14/07/2022	17:51	2	2	S	Light	Mid	Flood	Y - 144hr	NA
19/07/2022	8:31	2	2	N	Light	Low	Flood	Y	NA
20/07/2022	8:59	82	62	S	Light	Low	Ebb	Y - 24hr	NA
21/07/2022	18:07	52	84	S	Light	Low	Flood	Y - 72hr	NA
23/07/2022	17:51	2	4	S	Light	Low	Ebb	Y - 144hr	NA
27/07/2022	17:46	58	200	NW	Light	Low	Ebb	N	NA
31/07/2022	17:15	11	38	S	Moderate	Low	Flood	Y	NA
02/08/2022	18:00	6	2	NW	Light	Low	Ebb	Y	NA
8/08/2022	17:30	140	130	S	Strong	Mid	Flood	Y	N/A
10/08/2022	17:17	4	16	S	Light	Mid	Flood	Y - 24hr	N/A
13/08/2022	18:05	4	2	S	Light	Low	Ebb	Y - 72hr	N/A
16/08/2022	8:00	46	42	S	Light	Low	Ebb	Y - 144hr	N/A
19/08/2022	8:33	140	170	N	Light	Low	Ebb	Y - 24hr	N/A
22/08/2022	17:43	24	40	N	Light	High	Ebb	Y - 72hr	N/A
24/08/2022	8:17	2	2	N	Strong	High	Flood	Y - 144hr	N/A

Control

Date	Time	Enterococci	Faecal Coliforms	Wind Direction	Wind Strength	Tide	Sea Conditions	WWTP Bypass/Overflow Event	Possible Source (if out of spec)
dd/mm/yyyy	hh:mm	cfu/100mL	cfu/100mL	--	--	--	--	Y/N	--
8/07/2022	16:26	11	11	N	Moderate	Low	Flood	Y	NA
10/07/2022	18:00	2	2	N	Moderate	Low	Flood	Y - 24hr	NA
12/07/2022	18:30	80	52	N	Moderate	High	Ebb	Y - 72hr	NA
14/07/2022	16:37	2	2	S	Light	Mid	Flood	Y - 144hr	NA
19/07/2022	9:01	2	4	N	Light	Low	Flood	Y	NA
20/07/2022	8:15	31	7.3	S	Light	Low	Ebb	Y - 24hr	NA
21/07/2022	17:00	46	66	S	Light	Low	Flood	Y - 72hr	NA
23/07/2022	16:27	18	40	S	Light	Low	Ebb	Y - 144hr	NA
27/07/2022	16:30	1.8	1.8	NW	Light	Low	Ebb	N	NA
31/07/2022	15:53	15	25	S	Moderate	Low	Flood	Y	NA
02/08/2022	17:00	2	4	NW	Light	Low	Ebb	Y	NA
8/08/2022	16:05	6	13	S	Strong	Mid	Flood	Y	N/A
10/08/2022	16:05	4	4	S	Light	Mid	Flood	Y - 24hr	N/A
13/08/2022	16:31	12	4	S	Light	Low	Ebb	Y - 72hr	N/A
16/08/2022	9:20	14	16	S	Light	Low	Ebb	Y - 144hr	N/A
19/08/2022	9:32	140	190	N	Light	Low	Ebb	Y - 24hr	N/A
22/08/2022	16:30	40	130	N	Light	High	Ebb	Y - 72hr	N/A
24/08/2022	9:16	26	26	N	Strong	High	Flood	Y - 144hr	N/A

Please note that bathing beach guidelines were used to generate the colouring for the Enterococci samples. Because there are no bathing beach guidelines for faecal coliforms, fresh water guidelines were applied. The following are the limits for both bacterial species:

Bacterial Species	Amber Limit	Red Limit
	cfu/100mL	cfu/100mL
Enterococci	140	280
Faecal Coliforms	260	550

APPENDIX II: Heavy Metals and Specified Compounds

Watercare Services Limited
52 Aintree Ave, Mangere, Auckland, 2022
PO Box 107028, Auckland, 2150
T: (09) 539 7600
clientsupport@water.co.nz
www.watercarelabs.co.nz

Certificate of Analysis
Laboratory Reference:220704-011

Attention:	Julian Villada	*Final Report:*	**467672-0**
Client:	**VEOLIA WATER**	*Report Issue Date:*	**14-Jul-2022**
Address:	**127 Stewart Duff Drive, Rongotai, Wellington, 6022**	*Received Date:*	**04-Jul-2022**
Client Reference:		*Laboratory Activity Dates:*	**05-Jul-2022 - 13-Jul-2022**
Purchase Order:	**7300191289**	*Quote Reference :*	**11592**

Sample Details		WATERS	WATERS	WATERS
Lab Sample ID:		**220704-011-1**	**220704-011-2**	**220704-011-3**
Client Sample ID:				
Sample Date/Time		04/07/2022 09:04	04/07/2022 09:10	04/07/2022 09:15
Description:		Porirua Influent Grab 1Month	Porirua Effluent Grab 1Month	Porirua Effluent Composite 1Quaterly
General Testing				
Ammoniacal Nitrogen (as N)	mg/L	31.4	2.75	-
COD (as O2)	mg/L	600	<30	-
Total Cyanide	mg/L	-	-	<0.005
Total Nitrogen (as N)	mg/L	45	4.0	-
Total Phosphorus (as P)	mg/L	5.44	2.22	-
Metals				
Total Metals by ICP-MS—Trace (Default Digest)				
Arsenic (Total)	mg/L	-	-	0.0018
Cadmium (Total)	mg/L	-	-	<0.00005
Chromium (Total)	mg/L	-	-	0.0023
Copper (Total)	mg/L	-	-	0.0028
Lead (Total)	mg/L	-	-	0.00023
Mercury (Total)	mg/L	-	-	<0.00005
Nickel (Total)	mg/L	-	-	0.00086
Zinc (Total)	mg/L	-	-	0.014
Organics				
Phenols (Recoverable) by Gas Chromatography-Mass Spectrometry(Trace level)				
2,3,4,6-tetrachlorophenol	mg/L	-	-	<0.001
2,4,5-trichlorophenol	mg/L	-	-	<0.001
2,4,6-trichlorophenol	mg/L	-	-	<0.004
2,4-dichlorophenol	mg/L	-	-	<0.001
2,4-dimethylphenol	mg/L	-	-	<0.001
2,6-dichlorophenol	mg/L	-	-	<0.001
2-chlorophenol	mg/L	-	-	<0.001
2-methyl 4,6-dinitrophenol	mg/L	-	-	<0.001
2-methylphenol	mg/L	-	-	<0.001
2-nitrophenol	mg/L	-	-	<0.002
4-Chloro-3-methylphenol	mg/L	-	-	<0.001
4-methylphenol	mg/L	-	-	<0.001
Pentachlorophenol	mg/L	-	-	<0.001
Phenol	mg/L	-	-	<0.002
VOC by Gas Chromatography-Mass Spectrometry (Trace level)				
1-1-1-2-tetrachloroethane	mg/L	-	-	<0.004
1-1-1-trichloroethane	mg/L	-	-	<0.004
1-1-2-2-tetrachloroethane	mg/L	-	-	<0.004
1-1-2-trichloroethane	mg/L	-	-	<0.004
1-1-dichloroethane	mg/L	-	-	<0.004
1-1-dichloroethene	mg/L	-	-	<0.02

Sample Details (continued)		WATERS	WATERS	WATERS
Lab Sample ID:		**220704-011-1**	**220704-011-2**	**220704-011-3**
Client Sample ID:				
Sample Date/Time:		04/07/2022 09:04	04/07/2022 09:10	04/07/2022 09:15
Description:		Porirua Influent Grab 1Month	Porirua Effluent Grab 1Month	Porirua Effluent Composite 1Quaterly
Organics				
VOC by Gas Chromatography-Mass Spectrometry (Trace level)				
1-1-dichloropropene	mg/L	-	-	<0.004
1-2-3-trichlorobenzene	mg/L	-	-	<0.004
1-2-3-trichloropropane	mg/L	-	-	<0.004
1-2-4-trichlorobenzene	mg/L	-	-	<0.004
1-2-4-trimethylbenzene	mg/L	-	-	<0.004
1-2-dibromo-3-chloropropane	mg/L	-	-	<0.004
1-2-dibromoethane	mg/L	-	-	<0.004
1-2-dichlorobenzene	mg/L	-	-	<0.004
1-2-dichloroethane	mg/L	-	-	<0.004
1-2-dichloroethene (cis and trans)	mg/L	-	-	<0.0080
1-2-dichloropropane	mg/L	-	-	<0.004
1-3-5-trimethylbenzene	mg/L	-	-	<0.004
1-3-dichlorobenzene	mg/L	-	-	<0.004
1-3-dichloropropane	mg/L	-	-	<0.004
1-3-dichloropropene (cis and trans)	mg/L	-	-	<0.0080
1-4-dichlorobenzene	mg/L	-	-	<0.004
2-2-dichloropropane	mg/L	-	-	<0.02
2-chlorotoluene	mg/L	-	-	<0.004
4-chlorotoluene	mg/L	-	-	<0.004
benzene	mg/L	-	-	<0.004
bromobenzene	mg/L	-	-	<0.004
Bromodichloromethane to MAV Ratio		-	-	0.00
bromodichloromethane	mg/L	-	-	<0.004
Bromoform to MAV Ratio		-	-	0.00
bromoform	mg/L	-	-	<0.004
bromomethane	mg/L	-	-	<0.02
carbon tetrachloride	mg/L	-	-	<0.004
chlorobenzene	mg/L	-	-	<0.004
Chloroform to MAV Ratio		-	-	0.00
chloroform	mg/L	-	-	<0.004
chloromethane	mg/L	-	-	<0.02
cis-1-2-dichloroethylene	mg/L	-	-	<0.004
cis-1-3-dichloropropene	mg/L	-	-	<0.004
Dibromochloromethane to MAV Ratio		-	-	0.00
dibromochloromethane	mg/L	-	-	<0.004
dibromomethane	mg/L	-	-	<0.004
dichlorodifluoromethane	mg/L	-	-	<0.02
ethylbenzene	mg/L	-	-	<0.004
ethylchloride	mg/L	-	-	<0.004
fluorotrichloromethane	mg/L	-	-	<0.004
hexachlorobutadiene	mg/L	-	-	<0.004
iso-propylbenzene	mg/L	-	-	<0.004
m- & p-xylene	mg/L	-	-	<0.004
methylene chloride	mg/L	-	-	<0.02
naphthalene	mg/L	-	-	<0.004
n-butylbenzene	mg/L	-	-	<0.004
n-propylbenzene	mg/L	-	-	<0.004
o-xylene	mg/L	-	-	<0.004
p-isopropyl toluene	mg/L	-	-	<0.004
sec-butylbenzene	mg/L	-	-	<0.004
styrene	mg/L	-	-	<0.004
tert-butyl benzene	mg/L	-	-	<0.004
tetrachloroethylene	mg/L	-	-	<0.004
THM Ratio		-	-	0.00

Sample Details (continued)		WATERS	WATERS	WATERS
Lab Sample ID:		**220704-011-1**	**220704-011-2**	**220704-011-3**
Client Sample ID:				
Sample Date/Time:		04/07/2022 09:04	04/07/2022 09:10	04/07/2022 09:15
Description:		Porirua Influent Grab 1Month	Porirua Effluent Grab 1Month	Porirua Effluent Composite 1Quaterly
Organics				
VOC by Gas Chromatography-Mass Spectrometry (Trace level)				
toluene	mg/L	-	-	<0.004
trans-1-2-dichloroethene	mg/L	-	-	<0.004
trans-1-3-dichloropropene	mg/L	-	-	<0.004
trichloroethylene	mg/L	-	-	<0.004
vinyl chloride	mg/L	-	-	<0.004
Xylenes (total)	mg/L	-	-	<0.0080

*Results marked with * are not accredited to International Accreditation New Zealand. A dash indicates no test performed.*

Where samples have been supplied by the client, they are tested as received.

The results of analysis contained in this report relate only to the sample(s) tested. Where sample collection was performed by the laboratory, the results of analysis contained in this report relate only to the sample(s) collected.

Reference Methods

The sample(s) referred to in this report were analysed by the following method(s)

Analyte	Method Reference	MDL	Samples	Location
General Testing				
Ammoniacal Nitrogen (as N) by Colorimetry/Discrete Analyser	HMSO (1981) ISBN 0117516139	0.4 mg/L	1, 2	Auckland
Chemical Oxygen Demand (as O2) by Dichromate/Sulphuric Acid Digestion and Spectrophotometry, Screen level	APHA (online edition) 5220 D	30 mg/L	1, 2	Auckland
Total Cyanide by Distillation and Colorimetry/Discrete Analyser	APHA (online edition) 4500-CN C & E (modified)	0.005 mg/L	3	Auckland
Total Nitrogen (as N) by Persulphate Digestion and Flow Analysis	APHA (online edition) 4500-P J (modified), 4500-NO3 I	0.010 mg/L	1, 2	Auckland
Total Phosphorus (as P) by Persulphate Digestion and Colorimetry/Discrete Analyser	APHA (online edition) 4500-P J (modified) (Discrete Analyser)	0.004 mg/L	1, 2	Auckland
Metals				
Total Metals by ICP-MS—Trace (Default Digest)				
Arsenic (Total)	APHA (online edition) 3125 B by ICPMS	0.00010 mg/L	3	Auckland
Cadmium (Total)	APHA (online edition) 3125 B by ICPMS	0.00005 mg/L	3	Auckland
Chromium (Total)	APHA (online edition) 3125 B by ICPMS	0.0005 mg/L	3	Auckland
Copper (Total)	APHA (online edition) 3125 B by ICPMS	0.0002 mg/L	3	Auckland
Lead (Total)	APHA (online edition) 3125 B by ICPMS	0.00010 mg/L	3	Auckland
Mercury (Total)	APHA (online edition) 3125 B by ICPMS	0.00005 mg/L	3	Auckland
Nickel (Total)	APHA (online edition) 3125 B by ICPMS	0.00010 mg/L	3	Auckland
Zinc (Total)	APHA (online edition) 3125 B by ICPMS	0.001 mg/L	3	Auckland
Organics				
Phenols (Recoverable) by Gas Chromatography-Mass Spectrometry(Trace level)				
2,3,4,6-tetrachlorophenol	Micro SPE, GC-MSD	0.001 mg/L	3	Auckland
2,4,5-trichlorophenol	Micro SPE, GC-MSD	0.001 mg/L	3	Auckland
2,4,6-trichlorophenol	Micro SPE, GC-MSD	0.004 mg/L	3	Auckland
2,4-dichlorophenol	Micro SPE, GC-MSD	0.001 mg/L	3	Auckland
2,4-dimethylphenol	Micro SPE, GC-MSD	0.001 mg/L	3	Auckland
2,6-dichlorophenol	Micro SPE, GC-MSD	0.001 mg/L	3	Auckland
2-chlorophenol	Micro SPE, GC-MSD	0.001 mg/L	3	Auckland
2-methyl 4,6-dinitrophenol	Micro SPE, GC-MSD	0.001 mg/L	3	Auckland
2-methylphenol	Micro SPE, GC-MSD	0.001 mg/L	3	Auckland
2-nitrophenol	Micro SPE, GC-MSD	0.002 mg/L	3	Auckland
4-Chloro-3-methylphenol	Micro SPE, GC-MSD	0.001 mg/L	3	Auckland
4-methylphenol	Micro SPE, GC-MSD	0.001 mg/L	3	Auckland
Pentachlorophenol	Micro SPE, GC-MSD	0.001 mg/L	3	Auckland
Phenol	Micro SPE, GC-MSD	0.002 mg/L	3	Auckland
VOC by Gas Chromatography-Mass Spectrometry (Trace level)				
1-1-1-2-tetrachloroethane	APHA (online edition) 6200 B (Purge and Trap) Modified	0.00010 mg/L	3	Auckland

Organics

VOC by Gas Chromatography-Mass Spectrometry (Trace level)

1-1-1-trichloroethane	APHA (online edition) 6200 B (Purge and Trap) Modified	0.00010 mg/L	3	Auckland
1-1-2-2-tetrachloroethane	APHA (online edition) 6200 B (Purge and Trap) Modified	0.00010 mg/L	3	Auckland
1-1-2-trichloroethane	APHA (online edition) 6200 B (Purge and Trap) Modified	0.00010 mg/L	3	Auckland
1-1-dichloroethane	APHA (online edition) 6200 B (Purge and Trap) Modified	0.00010 mg/L	3	Auckland
1-1-dichloroethene	APHA (online edition) 6200 B (Purge and Trap) Modified	0.0005 mg/L	3	Auckland
1-1-dichloropropene	APHA (online edition) 6200 B (Purge and Trap) Modified	0.00010 mg/L	3	Auckland
1-2-3-trichlorobenzene	APHA (online edition) 6200 B (Purge and Trap) Modified	0.00010 mg/L	3	Auckland
1-2-3-trichloropropane	APHA (online edition) 6200 B (Purge and Trap) Modified	0.00010 mg/L	3	Auckland
1-2-4-trichlorobenzene	APHA (online edition) 6200 B (Purge and Trap) Modified	0.00010 mg/L	3	Auckland
1-2-4-trimethylbenzene	APHA (online edition) 6200 B (Purge and Trap) Modified	0.00010 mg/L	3	Auckland
1-2-dibromo-3-chloropropane	APHA (online edition) 6200 B (Purge and Trap) Modified	0.00010 mg/L	3	Auckland
1-2-dibromoethane	APHA (online edition) 6200 B (Purge and Trap) Modified	0.00010 mg/L	3	Auckland
1-2-dichlorobenzene	APHA (online edition) 6200 B (Purge and Trap) Modified	0.00010 mg/L	3	Auckland
1-2-dichloroethane	APHA (online edition) 6200 B (Purge and Trap) Modified	0.00010 mg/L	3	Auckland
1-2-dichloroethene (cis and trans)	APHA (online edition) 6200 B (Purge and Trap) Modified	0.0002 mg/L	3	Auckland
1-2-dichloropropane	APHA (online edition) 6200 B (Purge and Trap) Modified	0.00010 mg/L	3	Auckland
1-3-5-trimethylbenzene	APHA (online edition) 6200 B (Purge and Trap) Modified	0.00010 mg/L	3	Auckland
1-3-dichlorobenzene	APHA (online edition) 6200 B (Purge and Trap) Modified	0.00010 mg/L	3	Auckland
1-3-dichloropropane	APHA (online edition) 6200 B (Purge and Trap) Modified	0.00010 mg/L	3	Auckland
1-3-dichloropropene (cis and trans)	APHA (online edition) 6200 B (Purge and Trap) Modified	0.0002 mg/L	3	Auckland
1-4-dichlorobenzene	APHA (online edition) 6200 B (Purge and Trap) Modified	0.00010 mg/L	3	Auckland
2-2-dichloropropane	APHA (online edition) 6200 B (Purge and Trap) Modified	0.0005 mg/L	3	Auckland
2-chlorotoluene	APHA (online edition) 6200 B (Purge and Trap) Modified	0.00010 mg/L	3	Auckland
4-chlorotoluene	APHA (online edition) 6200 B (Purge and Trap) Modified	0.00010 mg/L	3	Auckland
benzene	APHA (online edition) 6200 B (Purge and Trap) Modified	0.00010 mg/L	3	Auckland
bromobenzene	APHA (online edition) 6200 B (Purge and Trap) Modified	0.00010 mg/L	3	Auckland
Bromodichloromethane to MAV Ratio	APHA (online edition) 6200 B (Purge and Trap) Modified	0.1	3	Auckland
bromodichloromethane	APHA (online edition) 6200 B (Purge and Trap) Modified	0.00010 mg/L	3	Auckland
Bromoform to MAV Ratio	APHA (online edition) 6200 B (Purge and Trap) Modified	0.1	3	Auckland
bromoform	APHA (online edition) 6200 B (Purge and Trap) Modified	0.00010 mg/L	3	Auckland
bromomethane	APHA (online edition) 6200 B (Purge and Trap) Modified	0.0005 mg/L	3	Auckland
carbon tetrachloride	APHA (online edition) 6200 B (Purge and Trap) Modified	0.00010 mg/L	3	Auckland
chlorobenzene	APHA (online edition) 6200 B (Purge and Trap) Modified	0.00010 mg/L	3	Auckland
Chloroform to MAV Ratio	APHA (online edition) 6200 B (Purge and Trap) Modified	0.1	3	Auckland
chloroform	APHA (online edition) 6200 B (Purge and Trap) Modified	0.00010 mg/L	3	Auckland
chloromethane	APHA (online edition) 6200 B (Purge and Trap) Modified	0.0005 mg/L	3	Auckland

Organics

VOC by Gas Chromatography-Mass Spectrometry (Trace level)

cis-1-2-dichloroethylene	APHA (online edition) 6200 B (Purge and Trap) Modified	0.00010 mg/L	3	Auckland
cis-1-3-dichloropropene	APHA (online edition) 6200 B (Purge and Trap) Modified	0.00010 mg/L	3	Auckland
Dibromochloromethane to MAV Ratio	APHA (online edition) 6200 B (Purge and Trap) Modified	0.1	3	Auckland
dibromochloromethane	APHA (online edition) 6200 B (Purge and Trap) Modified	0.00010 mg/L	3	Auckland
dibromomethane	APHA (online edition) 6200 B (Purge and Trap) Modified	0.00010 mg/L	3	Auckland
dichlorodifluoromethane	APHA (online edition) 6200 B (Purge and Trap) Modified	0.0005 mg/L	3	Auckland
ethylbenzene	APHA (online edition) 6200 B (Purge and Trap) Modified	0.00010 mg/L	3	Auckland
ethylchloride	APHA (online edition) 6200 B (Purge and Trap) Modified	0.00010 mg/L	3	Auckland
fluorotrichloromethane	APHA (online edition) 6200 B (Purge and Trap) Modified	0.00010 mg/L	3	Auckland
hexachlorobutadiene	APHA (online edition) 6200 B (Purge and Trap) Modified	0.00010 mg/L	3	Auckland
iso-propylbenzene	APHA (online edition) 6200 B (Purge and Trap) Modified	0.00010 mg/L	3	Auckland
m- & p-xylene	APHA (online edition) 6200 B (Purge and Trap) Modified	0.00010 mg/L	3	Auckland
methylene chloride	APHA (online edition) 6200 B (Purge and Trap) Modified	0.0005 mg/L	3	Auckland
naphthalene	APHA (online edition) 6200 B (Purge and Trap) Modified	0.00010 mg/L	3	Auckland
n-butylbenzene	APHA (online edition) 6200 B (Purge and Trap) Modified	0.00010 mg/L	3	Auckland
n-propylbenzene	APHA (online edition) 6200 B (Purge and Trap) Modified	0.00010 mg/L	3	Auckland
o-xylene	APHA (online edition) 6200 B (Purge and Trap) Modified	0.00010 mg/L	3	Auckland
p-isopropyl toluene	APHA (online edition) 6200 B (Purge and Trap) Modified	0.00010 mg/L	3	Auckland
sec-butylbenzene	APHA (online edition) 6200 B (Purge and Trap) Modified	0.00010 mg/L	3	Auckland
styrene	APHA (online edition) 6200 B (Purge and Trap) Modified	0.00010 mg/L	3	Auckland
tert-butyl benzene	APHA (online edition) 6200 B (Purge and Trap) Modified	0.00010 mg/L	3	Auckland
tetrachloroethylene	APHA (online edition) 6200 B (Purge and Trap) Modified	0.00010 mg/L	3	Auckland
THM Ratio	APHA (online edition) 6200 B (Purge and Trap) Modified	0.1	3	Auckland
toluene	APHA (online edition) 6200 B (Purge and Trap) Modified	0.00010 mg/L	3	Auckland
trans-1-2-dichloroethene	APHA (online edition) 6200 B (Purge and Trap) Modified	0.00010 mg/L	3	Auckland
trans-1-3-dichloropropene	APHA (online edition) 6200 B (Purge and Trap) Modified	0.00010 mg/L	3	Auckland
trichloroethylene	APHA (online edition) 6200 B (Purge and Trap) Modified	0.00010 mg/L	3	Auckland
vinyl chloride	APHA (online edition) 6200 B (Purge and Trap) Modified	0.00010 mg/L	3	Auckland
Xylenes (total)	APHA (online edition) 6200 B (Purge and Trap) Modified	0.0002 mg/L	3	Auckland

Preparations

Digest for Total Metals in Liquids	APHA 3030E Modified (4:1 Nitric:Hydrochloric Acid: 95°C 2 hours)		3	Auckland

The method detection limit (MDL) listed is the limit attainable in a relatively clean matrix. If dilutions are required for analysis the detection limit may be higher. For more information please contact the Compliance and Projects Manager.

Samples, with suitable preservation and stability of analytes, will be held by the laboratory for a period of two weeks after results have been reported, unless otherwise advised by the submitter.

Watercare Laboratory Services is a division of Watercare Services Limited .

Chandra Sharma

KTP Signatory

Stephen Money

KTP - Chemistry

Peter Boniface

KTP Signatory