Porirua Wastewater Treatment Plant Resource Consents

April – June 2019 Quarterly Report & 2018/2019 Annual Report

Control Sheet

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Executive Summary

The following report was prepared by Wellington Water 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:

WGN 980083 [33805]

The report will cover the quarterly period from April to June 2019 and the annual period from July 2018 to June 2019 as requested in this resource consent.

WGN 980083 (02)

The above resource consent was required to discharge contaminants to the air from the Porirua Wastewater Treatment Plant.

WGN 980083 (03)

The above resource consent was required to occupy the coastal marine area with a concrete defection wall and outfall structures. There are no annual reporting requirements for this resource consent.

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Resource Consent

WGN980083

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 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 following outlines the conditions of the resource consent required for this report and all relevant information.

WGN 980083 (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.

WGN 980083 (03)

To occupy the coastal marine area with a concrete deflection wall and the outfall structures, the resource consent under the Greater Wellington Regional Council consent file number WGN980083 (03) was obtained.

The following report will reference the conditions of these resource consents when they are applicable.

WGN980083

Condition (10)

Before 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 proportioned 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 day 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 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

Condition 10 is no longer enforced since the 1 October 2003 date has passed. Therefore, no reporting for this condition is required.

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 proportioned 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 day consecutive 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 – 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 Biological Oxygen Demand and the Suspended Solids daily analytical results.

Please note that clarification is required regarding Condition (11) (a). It makes reference to both the 90th percentile and 10% of 90 consecutive days for the BOD_5 and SS. The two calculations methodologies are very different. Unless otherwise notified, the methodology adopted in this report will be the 10% of the 90 consecutive days.

Date	Biological Oxygen Demand		Suspended Solids	
	90 Day Geometric Mean	90 Day Percent Compliance	90 Day Geometric Mean	90 Day Percent Compliance
	g/m^3	%	g/m^3	%
31/07/2018	10.7	96	11.2	94
31/08/2018	12.8	97	11.6	93
30/09/2018	12.6	97	10.8	91
31/10/2018	10.3	98	9.7	93
30/11/2018	7.4	99	8.0	97
31/12/2018	6.6	100	7.3	100
31/01/2019	6.7	100	7.1	100
28/02/2019	6.7	100	6.8	100
31/03/2019	6.6	100	6.8	100
30/04/2019	6.4	99	6.9	99
31/05/2019	6.5	99	7.0	99
30/06/2019	6.6	99	6.8	99
Limits	**30**	**85**	**30**	**85**

Table 1: 90 Consecutive Day Geometric Mean and Percent Compliance

For all daily effluent geometric mean and percent compliance of Biological Oxygen Demand and Suspended Solids results please see Appendix i: Daily Effluent Biological Oxygen Demand and Suspended Solids Results. All analytical results data sheets from Eurofins-ELS can be available upon request.

All effluent BOD_{5T} and Suspended Solids results for the April – June 2019 quarter were compliant. During the period or July 2018 – June 2019 there were several effluent BOD_{5T} and Suspended Solids results missing due to equipment malfunctions. To ensure continuation with the geometric mean, averaged results were used for the following dates:

- 24 November 2018
- 25 November 2018
- 16 March 2019
- 17 March 2019

Section (b)

Below is a summary of the geometric mean and percent compliance for faecal coliforms 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 three samples above 2,000cfu/100mL are permissible.

Date	Faecal Coliforms	
	20 Sample Geometric Mean	20 Sample Percent Compliance
	cfu/100mL	%
31/07/2018	20.64	100
31/08/2018	41.03	100
30/09/2018	53.54	95
31/10/2018	38.52	95
30/11/2018	77.36	100
31/12/2018	168.64	95
31/01/2019	1134.26	65
28/02/2019	174.35	85
31/03/2019	18.98	100
30/04/2019	88.78	90
31/05/2019	81.03	100
30/06/2019	94.26	95
Limits	**1000**	**85**

Table 2: Monthly Faecal Coliform Geometric Mean and Percent Compliance

For all faecal coliform results please see Appendix i: Effluent Faecal Coliform Results. All analytical results data sheets from Eurofins-ELS can be available upon request.

Effluent faecal coliform results during the April – May 2019 Quarter were compliant. The Porirua WWTP was not compliant during the month of June 2019. There were only 19 faecal coliform results during the month of June 2019. This violates the agreement made with GWRC regarding the use of the first 20 results for compliance purposes. The faecal coliform results are obtained from the analysis of an effluent grab sample. During holidays and weekends, the grab samples are not collected from the WWTP. Because June 3rd was a statutory holiday, no sample was collected. There were only 20 weekdays in the month of June so only 19 samples were collected. In order to calculate the geometric mean, an average of all the results for every Monday in the month of June 2019 was used to represent the missing value. The sample percent compliance was also reduced by one to represent the missing result. This resulted in a sample percent compliance of 95%.

As reported previously, the effluent faecal coliform results for the July 2018 – June 2019 year were not compliant during the month of January 2019. A full report regarding the cause of the failures can be found in Appendix iii: Porirua Wastewater Treatment Plant – January 2019 Final Effluent Faecal Coliform Exceedance. An update of this issue was provided to the resource consent manager Hugh Dixon-Paver during the quarterly consent report meeting on 27th March 2019. Further updates of the issues mentioned in the report can be found under Condition 18.

Section (c)

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

Compound	Units	Limit	26 July 2018	31 October 2018	25 January 2019	24 April 2019
Arsenic	**g/m³**	**0.5**	0.002	0.002	0.002	0.002
Cadmium as the element	**g/m³**	**0.05**	0.001	0.001	0.001	0.001
Chromium	**g/m³**	**0.2**	0.001	0.002	0.001	0.002
Copper as the element	**g/m³**	**0.8**	0.004	0.002	0.003	0.002
Nickel as the element	**g/m³**	**0.05**	0.001	0.001	0.001	0.001
Lead as the element	**g/m³**	**0.5**	0.001	0.001	0.001	0.001
Zinc as the element	**g/m³**	**2.0**	0.026	0.013	0.022	0.019
Mercury as the element	**g/m³**	**0.002**	0.001	0.001	0.001	0.001
Phenol	**g/m³**	**0.2**	0.05	0.05	0.05	0.05
Cyanide as CN	**g/m³**	**0.1**	0.005	0.005	0.005	0.005
Chlorinated hydrocarbons	**g/m³**	**0.01**	See Appendix ii			

Table 3: Quarterly Metals and other Specified Compounds Analytical Results

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.

All analytical results for the metals and specified compounds were in compliance for the fourth quarter.

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 Paragraphs (a) and (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. In an agreement with Eurofins-ELS the control site was re-located to the end of Whitireia Road (see map below). GWRC have not approved this site WWL contractor, Eurofins-ELS, will continue to collect the control sample at the new site to ensure the data is available.

Stormwater Outlets and Shoreline Monitoring Sites

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0 80 160 240 320 400 m

Wellington Water

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 has not been a discharge event during the month period, samples are collected from all sampling locations at the end of the month to comply with Condition (15).

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 2018	5	0
August 2018	2	0
September 2018	3	0
October 2018	2	1
November 2018	1	0
December 2018	2	0
January 2019	0	0
February 2019	0	0
March 2019	1	0
April 2019	1	0
May 2019	0	0
June 2019	1	0

Table 4: Monthly Bypass and Overflow Events

There was one unconsented discharge event on 6th October 2018. An investigation was performed by Wellington Water and submitted to GWRC. GWRC decided to prosecute Wellington Water for this discharge and is currently awaiting sentencing. A date for sentencing has been set for 14th August 2019.

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:

(a) Immediately notify the Manager, Consents Management, Wellington Regional Council.

(b) Immediately investigate the reason why the criteria was exceeded.

(c) Immediately identify and undertake whatever appropriate remedial action to the satisfaction of the Manager, Consents Management, Wellington Regional Council, to mitigate the effects.

(d) 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.

6th October 2018 Dry Weather Sludge Carry Over

On 6th October 2018, there was an unconsented discharge from the Porirua WWTP. A dry weather sludge carry over occurred. Wellington Water investigated the incident and submitted a report to GWRC. GWRC decided prosecute Wellington Water for the discharge. Wellington Water is currently waiting for the sentencing hearing on 14th August 2019.

January 2019 Final Effluent Faecal Coliform Exceedance

In the report found in Appendix iii: Porirua Wastewater Treatment Plant – January 2019 Final Effluent Faecal Coliform Exceedance, there was an interim solution and a long term solution proposed to resolve the performance issues. An update regarding the proposed solutions can be found below.

Interim Solution: Upgrade of Rental Blower Capacity

Wellington Water have been in contact with the supplier of the rental blower regarding an upgrade to increase the capacity. There have been further challenges with the supplier regarding the upgrade of the rental unit. This has resulted in several delays. Wellington Water are still in the process of securing a start date for the upgrade project.

Long Term Solution: Replacement of the Blowers

The ship date of the blowers has been pushed back to arrival on site in August 2019 with installation to be completed in September 2019.

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.

In March 2019, two new flow instruments were commissioned at the Porirua WWTP: one in the overflow channel and one in the bypass channel. These meters were installed to accurately measure the two discharges from the plant.

Prior to the installation of the new flow instrumentation, there was no method of measuring the individual discharge volumes from the plant. The flow indicator in the overflow channel and the ultrasonic level transmitter in the bypass channel failed. To compensate for the lack of flow measurement instrumentation, a mass balance was performed around the inlet of the plant. This mass balance relied on several assumptions:

- The inlet flow rate to the plant is the combination of the flow rate from Tangere Drive and Rukatane pump stations;
- There is no flow buffering in the tunnel;
- The outlet flow rate for the mass balance is the flow to the aeration basin;
- The density of the wastewater is the same as water.
- A bypass occurs when the inlet flow rate is greater than 1000L/s;
- An overflow occurs when the inlet flow rate is greater than 1200L/s.

If a discharge was suspected, an investigation will be performed by the Porirua WWTP staff. After the staff have confirmed that a discharge occurred, time series data from the inlet and outlet was collected in 1 minute increments that encompass the period of the suspected discharge. The data is filtered for periods where the inlet flow rate exceeded 1000L/s. The outlet flows during these periods are subtracted from the inlet flows. Whatever value is left over is assumed to be a discharge.

Calculation of the discharge volume in this manner has a tendency of overestimating the actual volume. Also, the overflow and bypass volumes cannot be isolated from each other. With the new flow meters, these issues are eliminated. That is why there is a sudden drop of the bypass and overflow discharge volume recorded in the breakdown below.

Date	Date of Notification	Duration	Volume Treated During Bypass	Total Daily Influent Flow	Total Daily Treated Flow	Total Volume of Bypass	Bypass as Percent of Daily	Consented	Cause	Monitoring Results
dd mmm yyyy	dd mmm yyyy	hrs/mins	m^3	m^3	m^3	m^3	%	Y/N		
01 Jul 2018	01 Jul 2018	05hr 31m	17,813	46323	43,235	450	0.97%	Y	Heavy rainfall.	No samples collected. Signage erected.
08 Jul 2018	08 Jul 2018	16hr 50m	60,116	81374	72,274	7,580	9.31%	Y	Heavy rainfall.	Samples undertaken and signage erected.
09 Jul 2018	09 Jul 2018	16hr 30m	56,042	80133	75,225	4,018	5.01%	Y	Heavy rainfall. This event is still a part of the previous event.	Samples undertaken and signage erected.
21 Jul 2018	21 Jul 2018	00hr 34m	1,854	32317	29,632	289	0.89%	Y	Heavy rainfall.	Samples undertaken and signage erected.
22 Jul 2018	22 Jul 2018	02hr 16m	11,480	51144	47,836	1,625	3.18%	Y	Heavy rainfall. This event is still a part of the previous event.	Samples undertaken and signage erected.
20 Aug 2018	20 Aug 2018	04hr 33m	15,004	40821	36,443	2,448	6.00%	Y	Sludge carry over, overflow, and bypass due to heavy rainfall.	Samples undertaken and signage erected.
21 Aug 2018	21 Aug 2018	14hr 12m	44,182	66849	63,240	4,103	6.14%	Y	Sludge carry over, overflow, and bypass due to heavy rainfall.. This event is still a part of the previous event.	Samples undertaken and signage erected.
03 Sep 2018	03 Sep 2018	16hr 21m	53,528	68834	62,979	7,184	10.44%	Y	Heavy rainfall.	Samples undertaken and signage erected.
04 Sep 2018	04 Sep 2018	20hr 09m	62,752	75048	72,213	5,652	7.53%	Y	Heavy rainfall. This event is still a part of the previous event.	Samples undertaken and signage erected.
05 Sep 2018	05 Sep 2018	00hr 01m	55	47877	43,615	56	0.12%	Y	Heavy rainfall. This event is still a part of the previous event.	Samples undertaken and signage erected.
06 Oct 2018	06 Oct 2018	02hr 45m	N/A	N/A	N/A	4,260	N/A	N	Dry weather sludge carry over.	Samples undertaken and signage erected.

Date	Date of Notification	Duration	Volume Treated During Bypass	Total Daily Influent Flow	Total Daily Treated Flow	Total Volume of Bypass	Bypass as Percent of Daily	Consented	Cause	Monitoring Results
dd mmm yyyy	dd mmm yyyy	hrs/mins	m^3	m^3	m^3	m^3	%	Y/N		
12 Oct 2018	12 Oct 2018	09hr 50m	33,132	57858	53,077	6,773	11.71%	Y	Heavy rainfall.	Samples undertaken and signage erected.
30 Oct 2018	30 Oct 2018	09hr 31m	32,598	63373	59,622	4,756	7.50%	Y	Heavy rainfall.	Samples undertaken and signage erected.
03 Nov 2018	03 Nov 2018	13hr 52m	39,087	54561	51,738	4,385	8.04%	Y	Heavy rainfall. Flows exceeded 1200L/s resulting is an overflow as well.	Samples undertaken and signage erected.
19 Dec 2018	19 Dec 2018	03hr 20m	12,356	30588	32,201	3,067	10.03%	Y	Heavy rainfall.	Samples undertaken and signage erected.
20 Dec 2018	20 Dec 2018	03hr 35m	13,369	44363	45,448	2,412	5.44%	Y	Heavy rainfall. This is a continuation from 19 December 2018.	Samples undertaken and signage erected.
08 Mar 2019	08 Mar 2019	04hr 39m	17,014	40757	41,015	126	0.31%	Y	Heavy rainfall.	Samples undertaken and signage erected.
11 Apr 2019	11 Apr 2019	01hr 55m	35,299	41588	41,124	226	0.54%	Y	Heavy rainfall.	Samples undertaken and signage erected.
01 Jun 2019	01 Jun 2019	01hr 12m	17,936	43832.09	43,526	2	0.00%	Y	Heavy rainfall.	Samples undertaken and signage erected.

Table 5: Bypass and Overflow Events

Condition (23)

The permit holder shall take all reasonable steps to investigate and implement ways and means of minimizing infiltration and stormwater ingress into the sewerage system and provide the Manager, Consents Management, Wellington Regional Council with an annual progress report.

Wastewater Monitoring

The on-going flow/overflow monitoring programmes have been developed to meet two objectives:

a. To assess the effectiveness of implemented work programmes;
b. To identify the network status and its performance.

Eight long-term wastewater flow monitors, seven overflow monitors, and four rain gauges have been installed in strategic locations within the Porirua catchment. They will be used to evaluate the extent of the inflow and infiltration (I/I) in the catchment and to develop management options.

In 2018/19 a wastewater overflow monitor was installed at Paremata wastewater pump station monitor any overflow to storm water.

Inflow and infiltration reduction work will also be continued in 2019/20.

Water Quality Management Plan

The water quality monitoring programme initiated in December 2014 was used to assess and prioritise catchments for investigation. We are currently monitoring water quality at 11 locations in Porirua City on monthly basis. Based on the 2018/19 water quality test results further investigations will be conducted in 2019/20 in the following catchments:

c. Porirua CBD (Semple Street)
d. Onepotu Stream

Wastewater Network Improvement Plan for PCC Trunk Wastewater Network

In 2018/19 a feasibility study was carried out for identifying suitable wastewater storage sites across the city to reduce wastewater overflows. Design works for a storage tank at CBD pump station was commissioned in 2018/19. The new storage tank will help to reduce wet weather wastewater overflows to Porirua harbour.

In 2018-19, the following wastewater and storm water assets renewal/investigation works have been completed in Porirua catchment:

Porirua storm water Stage 2 Investigation
Ngatitoa St Flood Protection investigation
Design of a new wastewater storage tank in Duck Creek
Investigation for Maraeroa School Storm water upgrades
Rawhiti Road storm water and wastewater upgrade design
Wall Place storm water upgrade works
Tangere Drive wastewater pump station upgrades
Investigation for Elsdon Park Wetland
Tawa School SW Construction
Whitehouse Rd Stg 3 & 4 wastewater design
Thompson Gully Renewals

These works will improve the reliability of the wastewater network and public health outcomes at both properties and receiving environments.

Condition (24)

Within nine months of the commencement of the permit, the permit holder shall establish a community liaison group. That community liaison group should include representatives of the Titahi Bay Residents and Ratepayers Progressive Assn Inc, Regional Public Health, the community as determined by the risk communication strategy, and the permit holder. Nothing in this condition shall be interpreted as requiring any member of the community liaison group to attend any or all of the group's meetings. The permit holder shall report in writing to the Manager, Consents Management, Wellington Regional Council, annually as to the consultation activities undertaken. A copy of the report shall be forwarded by the permit holder to each member of the community liaison group.

A Community Liaison Group was established with representatives of the Titahi Bay Residents and Ratepayers Progressive Assn Inc, Regional Public Health, the community as determined by the risk communication strategy, and the permit holder. Information is provided regularly to the group and meetings are organized. A meeting was held on the 13th November 2018 and minutes circulated at that time.

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 moth 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 s 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 April – June 2019 quarter. There have been no complaints during the July 2018 – June 2019 period.

Appendix i

Daily Effluent Biological Oxygen Demand and Suspended Solids Results

Day	BOD_{5T}			Suspended Solids			BOD_{5T}			Suspended Solids			BOD_{5T}			Suspended Solids		
	Apr-19			Apr-19			May-19			May-19			Jun-19			Jun-19		
	Results	90 Day Geometric Mean	Percent Compliance	Results	90 Day Geometric Mean	Percent Compliance	Results	90 Day Geometric Mean	Percent Compliance	Results	90 Day Geometric Mean	Percent Compliance	Results	90 Day Geometric Mean	Percent Compliance	Results	90 Day Geometric Mean	Percent Compliance
	g/m^3	g/m^3	%	g/m^3	g/m^3	%	g/m^3	g/m^3	%	g/m^3	g/m^3	%	g/m^3	g/m^3	%	g/m^3	g/m^3	%
1	6	6.5	100	6	6.8	100	6	6.4	99	6	6.9	99	6	6.5	99	6	6.9	99
2	6	6.4	100	6	6.8	100	6	6.4	99	6	6.9	99	6	6.5	99	6	6.9	99
3	6	6.4	100	6	6.8	100	6	6.4	99	6	6.9	99	6	6.5	99	6	6.9	99
4	6	6.4	100	6	6.8	100	6	6.4	99	6	6.9	99	6	6.5	99	6	6.9	99
5	6	6.4	100	6	6.8	100	6	6.4	99	6	6.9	99	6	6.5	99	6	6.9	99
6	6	6.3	100	6	6.8	100	6	6.4	99	6	6.9	99	6	6.5	99	6	6.9	99
7	6	6.3	100	6	6.7	100	6	6.4	99	6	6.9	99	6	6.5	99	6	6.9	99
8	6	6.3	100	6	6.7	100	6	6.4	99	6	6.9	99	6	6.5	99	6	6.9	99
9	6	6.2	100	6	6.6	100	6	6.4	99	6	6.9	99	6	6.5	99	6	6.9	99
10	6	6.2	100	6	6.6	100	6	6.4	99	6	6.9	99	6	6.5	99	5	6.8	99
11	6	6.2	100	6	6.6	100	6	6.4	99	6	6.9	99	6	6.5	99	6	6.8	99
12	286	6.5	99	1200	7.0	99	6	6.4	99	6	6.9	99	6	6.5	99	6	6.7	99
13	6	6.5	99	19	7.1	99	6	6.4	99	6	6.9	99	6	6.5	99	6	6.7	99
14	6	6.5	99	6	7.1	99	6	6.4	99	6	6.9	99	6	6.5	99	6	6.7	99
15	10	6.5	99	30	7.2	99	6	6.4	99	6	6.9	99	6	6.5	99	6	6.7	99
16	6	6.5	99	6	7.2	99	6	6.4	99	8	6.9	99	6	6.5	99	6	6.7	99
17	6	6.5	99	6	7.2	99	6	6.4	99	6	6.9	99	6	6.5	99	7	6.7	99
18	6	6.5	99	6	7.2	99	6	6.4	99	6	6.9	99	6	6.5	99	6	6.7	99
19	6	6.5	99	6	7.1	99	6	6.4	99	6	6.9	99	15	6.5	99	13	6.7	99
20	6	6.5	99	6	7.1	99	6	6.4	99	8	6.9	99	6	6.5	99	11	6.8	99
21	6	6.5	99	6	7.1	99	43	6.6	99	6	6.9	99	6	6.5	99	6	6.8	99
22	6	6.4	99	6	7.0	99	6	6.5	99	6	6.9	99	6	6.5	99	6	6.8	99
23	6	6.4	99	6	7.0	99	6	6.5	99	6	7.0	99	6	6.5	99	6	6.8	99
24	6	6.4	99	6	7.0	99	6	6.5	99	6	7.0	99	6	6.5	99	6	6.8	99
25	6	6.4	99	6	7.0	99	6	6.5	99	8	7.0	99	6	6.5	99	6	6.8	99
26	6	6.4	99	6	7.0	99	6	6.5	99	6	7.0	99	6	6.5	99	6	6.8	99
27	6	6.4	99	6	7.0	99	6	6.5	99	6	7.0	99	19	6.6	99	6	6.8	99
28	6	6.4	99	6	6.9	99	6	6.5	99	6	7.0	99	6	6.6	99	6	6.8	99
29	6	6.4	99	6	6.9	99	6	6.5	99	10	7.0	99	6	6.6	99	6	6.8	99
30	6	6.4	99	6	6.9	99	6	6.5	99	6	7.0	99	6	6.6	99	6	6.8	99
31							6	6.5	99	8	7.0	99						
Limits	**75**	**30**	**90**	**75**	**30**	**90**	**75**	**30**	**90**	**75**	**30**	**90**	**75**	**30**	**90**	**75**	**30**	**90**

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.

Effluent Faecal Coliforms Results

Day	Faecal Coliform			Faecal Coliforms			Faecal Coliforms		
	Apr-19			May-19			Jun-19		
	Results	20 Day Geometric Mean	Compliance	Results	20 Day Geometric Mean	Compliance	Results	20 Day Geometric Mean	Compliance
	cfu/100mL	cfu/100mL	%	cfu/100mL	cfu/100mL	%	cfu/100mL	cfu/100mL	%
1	2100			4					
2	100			20					
3	180			19			292		
4	220						4		
5	240						27		
6				54			16		
7				92			52		
8	290			60					
9	96			250					
10	750			890			16		
11	740						24		
12	2500						28		
13				24			120		
14				110			180		
15	20			56					
16	54			1500					
17	4			16			330		
18	4						350		
19	110						20		
20				390			260		
21				210			88		
22	8			300					
23	32			46					
24	20			230			530		
25	44						480		
26	28						240		
27				80			200		
28				20			780		
29	820			180					
30	56	88.78	90	680				94.26	95
31				990	81.03	100			
Limits	**2000**	**1000**	**85**	**2000**	**1000**	**85**	**2000**	**1000**	**85**

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

Shoreline Monitoring Data

	Titahi Bay Beach								200m East of Outfall								200m South West of Outfall								Control							
Date	Enterococci	Faecal Coliforms	Wind Direction	Wind strength	Tide	Sea conditions	WWTP Bypass/ Overflow Event	Possible Source (if out of spec)	Enterococci	Faecal Coliforms	Wind Direction	Wind strength	Tide	Sea conditions	WWTP Bypass/ Overflow Event	Possible Sources (if out of spec)	Enterococci	Faecal Coliforms	Wind Direction	Wind strength	Tide	Sea conditions	WWTP Bypass/ Overflow Event	Possible Sources (if out of spec)	Enterococci	Faecal Coliforms	Wind Direction	Wind strength	Tide	Sea conditions	WWTP Bypass/ Overflow Event	Possible Sources (if out of spec)
dd/mm/yyyy	cfu/100 mL	cfu/100 mL	--	--	--	--	Y/N	--	cfu/100 mL	cfu/100 ml	--	--	--	--	Y/N	--	cfu/100 mL	cfu/100 ml	--	--	--	--	Y/N	--	cfu/100 mL	cfu/100 ml	--	--	--	--	Y/N	--
10 Jul 2018	12	120	S	Moderate	Incoming tide	1m swell	Y - 24hr	N/A	4	12	S	Moderate	Incoming tide	1m swell	Y - 24hr	N/A	4	8	S	Moderate	Incoming tide	1m swell	Y - 24hr	N/A	24	48	S	Moderate	Incoming tide	1m swell	Y - 24hr	N/A
13 Jul 2018	8	8	N	Moderate	Half tide	1m swell	Y - 72hr	N/A	4	4	N	Moderate	Half tide	1m swell	Y - 72hr	N/A	12	28	N	Moderate	Half tide	1m swell	Y - 72hr	N/A	4	4	N	Moderate	Half tide	1m swell	Y - 72hr	N/A
16 Jul 2018	42	12	S	Moderate	High tide	0.5m swell	Y - 144hr	N/A	12	24	S	Moderate	High tide	0.5m swell	Y - 144hr	N/A	4	40	S	Moderate	High tide	0.5m swell	Y - 144hr	N/A	4	4	S	Moderate	High tide	0.5m swell	Y - 144hr	N/A
24 Jul 2018	4	4	S	Calm	Half tide	Calm	Y - 24hr	N/A	4	4	S	Calm	Half tide	Calm	Y - 24hr	N/A	4	4	S	Calm	Half tide	Calm	Y - 24hr	N/A	4	4	S	Calm	Half tide	Calm	Y - 24hr	N/A
27 Jul 2018	8	4	S	Strong	Half tide	0.5m swell	Y - 72hr	N/A	16	4	S	Strong	Half tide	0.5m swell	Y - 72hr	N/A	8	28	S	Strong	Half tide	0.5m swell	Y - 72hr	N/A	4	4	S	Strong	Half tide	0.5m swell	Y - 72hr	N/A
30 Jul 2018	120	220	NE	Calm	Low tide	0.5m swell	Y - 144hr	N/A	4	4	NE	Calm	Low tide	0.5m swell	Y - 144hr	N/A	4	4	NE	Calm	Low tide	0.5m swell	Y - 144hr	N/A	4	4	NE	Calm	Low tide	0.5m swell	Y - 144hr	N/A
21 Aug 2018	63	6600	NW	Strong	High tide	1m swell	Y - 0hr	N/A	250	240	NW	Strong	High tide	1m swell	Y - 0 hr	N/A	120	160	NW	Strong	High tide	1m swell	Y - 0 hr	N/A	36	40	NW	Strong	High tide	1m swell	Y - 0 hr	N/A
22 Aug 2018	44	100	W	Moderate	Outgoing tide	2m swell	Y - 24hr	N/A	16	4	W	Moderate	Outgoing tide	2m swell	Y - 24hr	N/A	4	12	W	Moderate	Outgoing tide	2m swell	Y - 24hr	N/A	4	16	W	Moderate	Outgoing tide	2m swell	Y - 24hr	N/A
25 Aug 2018	8	4	S	Moderate	High tide	0.5m swell	Y - 72hr	N/A	16	4	S	Moderate	High tide	0.5m swell	Y - 72hr	N/A	16	15	S	Moderate	High tide	0.5m swell	Y - 72hr	N/A	4	4	S	Moderate	High tide	0.5m swell	Y - 72hr	N/A
28 Aug 2018	8	24	NW	Calm	Low tide	0.5m swell	Y - 144hr	N/A	20	48	NW	Calm	Low tide	0.5m swell	Y - 144hr	N/A	4	4	NW	Calm	Low tide	0.5m swell	Y - 144hr	N/A	4	4	NW	Calm	Low tide	0.5m swell	Y - 144hr	N/A
04 Sep 2018	28	32	S	Moderate	Half tide	Calm	Y - 0hr	N/A	36	48	S	Moderate	Half tide	Calm	Y - 24hr	N/A	48	54	S	Moderate	Half tide	Calm	Y - 24hr	N/A	4	4	S	Moderate	Half tide	Calm	Y - 24hr	N/A
05 Sep 2018	1100	900	S	Light	Low tide	1m swell	Y - 24hr	WWTP	4	4	S	Light	Low tide	1m swell	Y - 0 hr	N/A	4	4	S	Light	Low tide	1m swell	Y - 0 hr	N/A	28	8	S	Light	Low tide	1m swell	Y - 0 hr	N/A
06 Sep 2018	4	4	N	Light	Low tide	Calm	Y - 48hr	N/A	4	4	N	Light	Low tide	Calm	Y - 0 hr	N/A	8	100	N	Light	Low tide	Calm	Y - 0 hr	N/A	4	4	N	Light	Low tide	Calm	Y - 0 hr	N/A
09 Sep 2018	4	20	N	Calm	Half tide	Calm	Y - 72hr	N/A	4	4	N	Calm	Half tide	Calm	Y - 72hr	N/A	4	4	N	Calm	Half tide	Calm	Y - 72hr	N/A	4	4	N	Calm	Half tide	Calm	Y - 72hr	N/A
12 Sep 2018	4	16	N	Calm	Low tide	0.5m swell	Y - 144hr	N/A	4	23	N	Calm	Low tide	0.5m swell	Y - 144hr	N/A	4	4	N	Calm	Low tide	0.5m swell	Y - 144hr	N/A	12	4	N	Calm	Low tide	0.5m swell	Y - 144hr	N/A
07 Oct 2018	4	4	NW	Calm	Low tide	Calm	Y - 24hr	N/A	4	8	NW	Calm	Low tide	Calm	Y - 24hr	N/A	4	110	NW	Calm	Low tide	Calm	Y - 24hr	N/A	4	4	NW	Calm	Low tide	Calm	Y - 24hr	N/A
10 Oct 2018	100	130	NW	Strong	High tide	2m swell	Y - 72hr	N/A	4	4	NW	Strong	High tide	2m swell	Y - 72hr	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Safety concerns with sampling.	4	4	NW	Strong	High tide	2m swell	Y - 72hr	N/A
13 Oct 2018	4	24	S	Moderate	High tide	0.5m swell	Y - 24hr & 144hr	N/A	69	92	S	Moderate	High tide	0.5m swell	Y - 24hr & 144hr	N/A	16	52	S	Moderate	High tide	0.5m swell	Y - 24hr & 144hr	N/A	8	4	S	Moderate	High tide	0.5m swell	Y - 24hr & 144hr	N/A

	Titahi Bay Beach								200m East of Outfall								200m South West of Outfall								Control							
Date	Enterococci	Faecal Coliforms	Wind Direction	Wind strength	Tide	Sea conditions	WWTP Bypass/ Overflow Event	Possible Source (if out of spec)	Enterococci	Faecal Coliforms	Wind Direction	Wind strength	Tide	Sea conditions	WWTP Bypass/ Overflow Event	Possible Sources (if out of spec)	Enterococci	Faecal Coliforms	Wind Direction	Wind strength	Tide	Sea conditions	WWTP Bypass/ Overflow Event	Possible Sources (if out of spec)	Enterococci	Faecal Coliforms	Wind Direction	Wind strength	Tide	Sea conditions	WWTP Bypass/ Overflow Event	Possible Sources (if out of spec)
dd/mm/yyyy	cfu/100 mL	cfu/100 mL	--	--	--	--	Y/N	--	cfu/100 mL	cfu/100 ml	--	--	--	--	Y/N	--	cfu/100 mL	cfu/100 ml	--	--	--	--	Y/N	--	cfu/100 mL	cfu/100 ml	--	--	--	--	Y/N	--
14 Oct 2018	4	4	N	Moderate	Low tide	Calm	Y - 72hr	N/A	4	16	N	Moderate	Low tide	Calm	Y - 72hr	N/A	12	12	N	Moderate	Low tide	Calm	Y - 72hr	N/A	4	4	N	Moderate	Low tide	Calm	Y - 72hr	N/A
17 Oct 2018	8	48	N	Calm	High tide	0.5m swell	Y - 144hr	N/A	4	8	N	Calm	High tide	0.5m swell	Y - 144hr	N/A	4	4	N	Calm	High tide	0.5m swell	Y - 144hr	N/A	4	4	N	Calm	High tide	0.5m swell	Y - 144hr	N/A
20 Oct 2018	4	340	N	Strong	Low tide	1m swell	N	Unknown	4	4	N	Strong	Low tide	1m swell	N	N/A	4	8	N	Strong	Low tide	1m swell	N	N/A	4	4	N	Strong	Low tide	1m swell	N	N/A
31 Oct 2018	8	36	SW	Calm	Half tide	Calm	Y - 24hr	N/A	16	36	SW	Calm	Half tide	Calm	Y - 24hr	N/A	4	12	SW	Calm	Half tide	Calm	Y - 24hr	N/A	4	4	SW	Calm	Half tide	Calm	Y - 24hr	N/A
01 Nov 2018	1300	690	S	Strong	Half tide	0.5m swell	Y - 48hr	WWTP	8	4	S	Strong	Half tide	0.5m swell	Y - 48hr	N/A	38	8	S	Strong	Half tide	0.5m swell	Y - 48hr	N/A	4	4	S	Strong	Half tide	0.5m swell	Y - 48hr	WWTP
02 Nov 2018	8	4	N	Calm	Low tide	Calm	Y - 72hr	N/A	44	32	N	Calm	Low tide	Calm	Y - 72hr	N/A	12	44	N	Calm	Low tide	Calm	Y - 72hr	N/A	4	4	N	Calm	Low tide	Calm	Y - 72hr	N/A
04 Nov 2018	440	410	E	Strong	High tide	1m swell	Y - 24hr & 144hr	WWTP	28	8	E	Strong	High tide	1m swell	Y - 24hr & 144hr	N/A	32	28	E	Strong	High tide	1m swell	Y - 24hr & 144hr	N/A	8	8	E	Strong	High tide	1m swell	Y - 24hr & 144hr	N/A
06 Nov 2018	8	4	N	Strong	High tide	1m swell	Y - 72hr	N/A	4	4	N	Strong	High tide	1m swell	Y - 72hr	N/A	4	4	N	Strong	High tide	1m swell	Y - 72hr	N/A	4	4	N	Strong	High tide	1m swell	Y - 72hr	N/A
09 Nov 2018	58	100	E	Strong	High tide	1m swell	Y - 144hr	N/A	180	230	E	Strong	High tide	1m swell	Y - 144hr	Unknown	100	130	E	Strong	High tide	1m swell	Y - 144hr	N/A	96	4	E	Strong	High tide	1m swell	Y - 144hr	N/A
20 Dec 2018	160	72	N	Calm	N/A	Calm	Y - 0hr	WWTP	210	150	N	Calm	N/A	Calm	Y - 0hr	WWTP	60	120	N	Calm	N/A	Calm	Y - 0hr	N/A	4	4	N	Calm	N/A	Calm	Y - 0hr	N/A
21 Dec 2018	160	620	N	Calm	Half tide	Calm	Y - 24hr	Unknown	16	32	N	Calm	Half tide	Calm	Y - 24hr	N/A	12	40	N	Calm	Half tide	Calm	Y - 24hr	N/A	4	4	N	Calm	Half tide	Calm	Y - 24hr	N/A
23 Dec 2018	250	150	W	Moderate	High tide	Calm	Y - 72hr	Unknown	28	48	W	Moderate	High tide	Calm	Y - 72hr	N/A	8	46	W	Moderate	High tide	Calm	Y - 72hr	N/A	4	4	W	Moderate	High tide	Calm	Y - 72hr	N/A
25 Dec 2018	950	590	S	Calm	Outgoing tide	Calm	Y - 144hr	Unknown	4	36	S	Calm	Outgoing tide	Calm	Y - 144hr	N/A	20	32	S	Calm	Outgoing tide	Calm	Y - 144hr	N/A	20	4	S	Calm	Outgoing tide	Calm	Y - 144hr	N/A
10 Jan 2019	12	16	NE	Calm	High tide	0.5m swell	N/A	N/A	290	1050	NE	Calm	High tide	0.5m swell	N/A	WWTP	420	1300	NE	Calm	High tide	0.5m swell	N/A	WWTP	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Gate Closed
11 Jan 2019	4	4	N	Calm	High tide	0.5m swell	N/A	N/A	12	20	N	Calm	High tide	0.5m swell	N/A	N/A	20	130	N	Calm	High tide	0.5m swell	N/A	N/A	4	4	N	Calm	High tide	0.5m swell	N/A	N/A
17 Jan 2019	740	40						WWTP	4	4							16	24							4	4						
18 Jan 2019	44	16							120	480						Unknown	610	2520						Unknown	4	4						
19 Jan 2019	16	27							20	65							15	92							32	48						
22 Feb 2019	19	4	W	Moderate	Half tide	0.5m swell	N/A	N/A	12	4	W	Moderate	Half tide	0.5m swell	N/A	N/A	220	370	W	Moderate	Half tide	0.5m swell	N/A	Unknown	4	4	W	Moderate	Half tide	0.5m swell	N/A	N/A
09 Mar 2019	88	73	S	Calm	High tide	Calm	Y - 24hr	N/A	16	40	S	Calm	High tide	Calm	Y - 24hr	N/A	31	20	S	Calm	High tide	Calm	Y - 24hr	N/A	140	60	S	Calm	High tide	Calm	Y - 24hr	Unknown
11 Mar 2019	4	4	NW	Calm	Incoming tide	Calm	Y - 72hr	N/A	4	8	NW	Calm	Incoming tide	Calm	Y - 72hr	N/A	4	12	NW	Calm	Incoming tide	Calm	Y - 72hr	N/A	4	4	NW	Calm	Incoming tide	Calm	Y - 72hr	N/A
13 Mar 2019	120	180	SE	Calm	High tide	0.5m swell	Y - 144hr	N/A	4	23	SE	Calm	High tide	0.5m swell	Y - 144hr	N/A	36	52	SE	Calm	High tide	0.5m swell	Y - 144hr	N/A	4	12	SE	Calm	High tide	0.5m swell	Y - 144hr	N/A

	Titahi Bay Beach								200m East of Outfall								200m South West of Outfall								Control							
Date	Enterococci	Faecal Coliforms	Wind Direction	Wind strength	Tide	Sea conditions	WWTP Bypass/ Overflow Event	Possible Source (if out of spec)	Enterococci	Faecal Coliforms	Wind Direction	Wind strength	Tide	Sea conditions	WWTP Bypass/ Overflow Event	Possible Sources (if out of spec)	Enterococci	Faecal Coliforms	Wind Direction	Wind strength	Tide	Sea conditions	WWTP Bypass/ Overflow Event	Possible Sources (if out of spec)	Enterococci	Faecal Coliforms	Wind Direction	Wind strength	Tide	Sea conditions	WWTP Bypass/ Overflow Event	Possible Sources (if out of spec)
dd/mm/yyyy	cfu/100 mL	cfu/100 mL	--	--	--	--	Y/N	--	cfu/100 mL	cfu/100 ml	--	--	--	--	Y/N	--	cfu/100 mL	cfu/100 ml	--	--	--	--	Y/N	--	cfu/100 mL	cfu/100 ml	--	--	--	--	Y/N	--
12 Apr 2019	4	12	Calm	Calm	Low tide	Calm	Y - 24hr	N/A	280	300	Calm	Calm	Low tide	Calm	Y - 24hr	WWTP	560	340	Calm	Calm	Low tide	Calm	Y - 24hr	WWTP	24	4	Calm	Calm	Low tide	Calm	Y - 24hr	N/A
14 Apr 2019	12	24	N	Calm	Low tide	Calm	Y - 72hr	N/A	8	16	N	Calm	Low tide	Calm	Y - 72hr	N/A	23	16	N	Calm	Low tide	Calm	Y - 72hr	N/A	4	8	N	Calm	Low tide	Calm	Y - 72hr	N/A
16 Apr 2019	590	420	S	Calm	Low tide	Calm	Y - 144hr	Unknown	4	24	S	Calm	Low tide	Calm	Y - 144hr	N/A	27	38	S	Calm	Low tide	Calm	Y - 144hr	N/A	4	4	S	Calm	Low tide	Calm	Y - 144hr	N/A
31 May 2019	36	40	Calm	Calm	High tide	1m swell	N/A	N/A	44	60	Calm	Calm	High tide	1m swell	N/A	N/A	85	46	Calm	Calm	High tide	1m swell	N/A	N/A	8	4	Calm	Calm	High tide	1m swell	N/A	N/A
02 Jun 2019	52	46	S	Moderate	Half tide	0.5m swell	Y - 24hr	N/A	52	36	S	Moderate	Half tide	0.5m swell	Y - 24hr	N/A	140	77	S	Moderate	Half tide	0.5m swell	Y - 24hr	Unknown	4	4	S	Moderate	Half tide	0.5m swell	Y - 24hr	N/A
04 Jun 2019	20	58	NW	Moderate	Low tide	Calm	Y - 72hr	N/A	72	130	NW	Moderate	Low tide	Calm	Y - 72hr	N/A	210	410	NW	Moderate	Low tide	Calm	Y - 72hr	Unknown	16	4	NW	Moderate	Low tide	Calm	Y - 72hr	N/A
06 Jun 2019	92	64	NW	Light	High tide	Calm	Y - 144hr	N/A	12	16	NW	Light	High tide	Calm	Y - 144hr	N/A	8	56	NW	Light	High tide	Calm	Y - 144hr	N/A	24	4	NW	Light	High tide	Calm	Y - 144hr	N/A

	South End Titahi Bay								Mount Cooper								Te Korohiwa Rocks								Control							
Date	Enterococci	Faecal Coliforms	Wind Direction	Wind strength	Tide	Sea conditions	WWTP Bypass/ Overflow Event	Possible Source (if out of spec)	Enterococci	Faecal Coliforms	Wind Direction	Wind strength	Tide	Sea conditions	WWTP Bypass/ Overflow Event	Possible Sources (if out of spec)	Enterococci	Faecal Coliforms	Wind Direction	Wind strength	Tide	Sea conditions	WWTP Bypass/ Overflow Event	Possible Sources (if out of spec)	Enterococci	Faecal Coliforms	Wind Direction	Wind strength	Tide	Sea conditions	WWTP Bypass/ Overflow Event	Possible Sources (if out of spec)
dd/mm/yyyy	cfu/100 mL	cfu/100 ml	--	--	--	--	Y/N	--	cfu/100 mL	cfu/100 ml	--	--	--	--	Y/N	--	cfu/100 mL	cfu/100 ml	--	--	--	--	Y/N	--	cfu/100 mL	cfu/100 ml	--	--	--	--	Y/N	--
10 Jul 2018	88	100	S	Moderate	Incoming tide	1m swell	Y - 24hr	N/A	4	12	S	Moderate	Incoming tide	1m swell	Y - 24hr	N/A	4	12	S	Moderate	Incoming tide	1m swell	Y - 24hr	N/A	24	48	S	Moderate	Incoming tide	1m swell	Y - 24hr	N/A
13 Jul 2018	68	38	N	Moderate	Half tide	1m swell	Y - 72hr	N/A	4	4	N	Moderate	Half tide	1m swell	Y - 72hr	N/A	4	4	N	Moderate	Half tide	1m swell	Y - 72hr	N/A	4	4	N	Moderate	Half tide	1m swell	Y - 72hr	N/A
16 Jul 2018	36	40	S	Moderate	High tide	0.5m swell	Y - 144hr	N/A	8	4	S	Moderate	High tide	0.5m swell	Y - 144hr	N/A	16	12	S	Moderate	High tide	0.5m swell	Y - 144hr	N/A	4	4	S	Moderate	High tide	0.5m swell	Y - 144hr	N/A
24 Jul 2018	4	4	S	Calm	Half tide	Calm	Y - 24hr	N/A	4	4	S	Calm	Half tide	Calm	Y - 24hr	N/A	4	8	S	Calm	Half tide	Calm	Y - 24hr	N/A	4	4	S	Calm	Half tide	Calm	Y - 24hr	N/A
27 Jul 2018	4	4	S	Strong	Half tide	0.5m swell	Y - 72hr	N/A	4	4	S	Strong	Half tide	0.5m swell	Y - 72hr	N/A	4	4	S	Strong	Half tide	0.5m swell	Y - 72hr	N/A	4	4	S	Strong	Half tide	0.5m swell	Y - 72hr	N/A
30 Jul 2018	28	36	NE	Calm	Low tide	0.5m swell	Y - 144hr	N/A	4	4	NE	Calm	Low tide	0.5m swell	Y - 144hr	N/A	4	4	NE	Calm	Low tide	0.5m swell	Y - 144hr	N/A	4	4	NE	Calm	Low tide	0.5m swell	Y - 144hr	N/A
21 Aug 2018	360	270	NW	Strong	High tide	1m swell	Y - 0 hr	N/A	96	100	NW	Strong	High tide	1m swell	Y - 0 hr	N/A	64	140	NW	Strong	High tide	1m swell	Y - 0 hr	N/A	36	40	NW	Strong	High tide	1m swell	Y - 0 hr	N/A
22 Aug 2018	8	24	W	Moderate	Outgoing tide	2m swell	Y - 24hr	N/A	4	4	W	Moderate	Outgoing tide	2m swell	Y - 24hr	N/A	12	24	W	Moderate	Outgoing tide	2m swell	Y - 24hr	N/A	4	16	W	Moderate	Outgoing tide	2m swell	Y - 24hr	N/A
25 Aug 2018	550	470	S	Moderate	High tide	0.5m swell	Y - 72hr	N/A	4	8	S	Moderate	High tide	0.5m swell	Y - 72hr	N/A	16	46	S	Moderate	High tide	0.5m swell	Y - 72hr	N/A	4	4	S	Moderate	High tide	0.5m swell	Y - 72hr	N/A
28 Aug 2018	69	680	NW	Calm	Low tide	0.5m swell	Y - 144hr	Unknown	4	4	NW	Calm	Low tide	0.5m swell	Y - 144hr	N/A	16	8	NW	Calm	Low tide	0.5m swell	Y - 144hr	N/A	4	4	NW	Calm	Low tide	0.5m swell	Y - 144hr	N/A
04 Sep 2018	430	3900	S	Moderate	Half tide	Calm	Y - 24hr	WWTP	52	52	S	Moderate	Half tide	Calm	Y - 24hr	N/A	4	4	S	Moderate	Half tide	Calm	Y - 24hr	N/A	4	4	S	Moderate	Half tide	Calm	Y - 24hr	N/A
05 Sep 2018	64	180	S	Light	Low tide	1m swell	Y - 0 hr	N/A	4	4	S	Light	Low tide	1m swell	Y - 0 hr	N/A	4	4	S	Light	Low tide	1m swell	Y - 0 hr	N/A	28	8	S	Light	Low tide	1m swell	Y - 0 hr	N/A
06 Sep 2018	4	4	N	Light	Low tide	Calm	Y - 0 hr	N/A	4	4	N	Light	Low tide	Calm	Y - 0 hr	N/A	4	4	N	Light	Low tide	Calm	Y - 0 hr	N/A	4	4	N	Light	Low tide	Calm	Y - 0 hr	N/A
09 Sep 2018	4	4	N	Calm	Half tide	Calm	Y - 72hr	N/A	4	4	N	Calm	Half tide	Calm	Y - 72hr	N/A	4	12	N	Calm	Half tide	Calm	Y - 72hr	N/A	4	4	N	Calm	Half tide	Calm	Y - 72hr	N/A
12 Sep 2018	28	32	N	Calm	Low tide	0.5m swell	Y - 144hr	N/A	4	4	N	Calm	Low tide	0.5m swell	Y - 144hr	N/A	32	28	N	Calm	Low tide	0.5m swell	Y - 144hr	N/A	12	4	N	Calm	Low tide	0.5m swell	Y - 144hr	N/A
07 Oct 2018	72	240	NW	Calm	Low tide	Calm	Y - 24hr	N/A	8	4	NW	Calm	Low tide	Calm	Y - 24hr	N/A	4	4	NW	Calm	Low tide	Calm	Y - 24hr	N/A	4	4	NW	Calm	Low tide	Calm	Y - 24hr	N/A
10 Oct 2018	52	48	NW	Strong	High tide	2m swell	Y - 72hr	N/A	8	31	NW	Strong	High tide	2m swell	Y - 72hr	N/A	8	4	NW	Strong	High tide	2m swell	Y - 72hr	N/A	4	4	NW	Strong	High tide	2m swell	Y - 72hr	N/A
13 Oct 2018	310	2000	S	Moderate	High tide	0.5m swell	Y - 24hr & 144hr	Unknown	16	4	S	Moderate	High tide	0.5m swell	Y - 24hr & 144hr	N/A	4	4	S	Moderate	High tide	0.5m swell	Y - 24hr & 144hr	N/A	8	4	S	Moderate	High tide	0.5m swell	Y - 24hr & 144hr	N/A
14 Oct 2018	4	4	N	Moderate	Low tide	Calm	Y - 72hr	N/A	4	4	N	Moderate	Low tide	Calm	Y - 72hr	N/A	4	4	N	Moderate	Low tide	Calm	Y - 72hr	N/A	4	4	N	Moderate	Low tide	Calm	Y - 72hr	N/A
17 Oct 2018	490	2900	N	Calm	High tide	0.5m swell	Y - 144hr	N/A	4	4	N	Calm	High tide	0.5m swell	Y - 144hr	N/A	4	4	N	Calm	High tide	0.5m swell	Y - 144hr	N/A	4	4	N	Calm	High tide	0.5m swell	Y - 144hr	N/A

	South End Titahi Bay								Mount Cooper								Te Korohiwa Rocks								Control							
Date	Enterococci	Faecal Coliforms	Wind Direction	Wind strength	Tide	Sea conditions	WWTP Bypass/ Overflow Event	Possible Source (if out of spec)	Enterococci	Faecal Coliforms	Wind Direction	Wind strength	Tide	Sea conditions	WWTP Bypass/ Overflow Event	Possible Sources (if out of spec)	Enterococci	Faecal Coliforms	Wind Direction	Wind strength	Tide	Sea conditions	WWTP Bypass/ Overflow Event	Possible Sources (if out of spec)	Enterococci	Faecal Coliforms	Wind Direction	Wind strength	Tide	Sea conditions	WWTP Bypass/ Overflow Event	Possible Sources (if out of spec)
dd/mm/yyyy	cfu/100 mL	cfu/100 ml	--	--	--	--	Y/N	--	cfu/100 mL	cfu/100 ml	--	--	--	--	Y/N	--	cfu/100 mL	cfu/100 ml	--	--	--	--	Y/N	--	cfu/100 mL	cfu/100 ml	--	--	--	--	Y/N	--
20 Oct 2018	4	4	N	Strong	Low tide	1m swell	N	N/A	4	4	N	Strong	Low tide	1m swell	N	N/A	4	4	N	Strong	Low tide	1m swell	N	N/A	4	4	N	Strong	Low tide	1m swell	N	N/A
31 Oct 2018	1200	1000	SW	Calm	Half tide	Calm	Y - 24hr	N/A	4	8	SW	Calm	Half tide	Calm	Y - 24hr	N/A	4	4	SW	Calm	Half tide	Calm	Y - 24hr	N/A	4	4	SW	Calm	Half tide	Calm	Y - 24hr	N/A
01 Nov 2018	3100	2700	S	Strong	Half tide	0.5m swell	Y - 48hr	Unknown	240	16	S	Strong	Half tide	0.5m swell	Y - 48hr	Unknown	4	4	S	Strong	Half tide	0.5m swell	Y - 48hr	WWTP	4	4	S	Strong	Half tide	0.5m swell	Y - 48hr	WWTP
02 Nov 2018	180	790	N	Calm	Low tide	Calm	Y - 72hr	Unknown	4	4	N	Calm	Low tide	Calm	Y - 72hr	N/A	4	4	N	Calm	Low tide	Calm	Y - 72hr	N/A	4	4	N	Calm	Low tide	Calm	Y - 72hr	N/A
04 Nov 2018	72	69	E	Strong	High tide	1m swell	Y - 24hr & 144hr	N/A	36	96	E	Strong	High tide	1m swell	Y - 24hr & 144hr	N/A	16	24	E	Strong	High tide	1m swell	Y - 24hr & 144hr	N/A	8	8	E	Strong	High tide	1m swell	Y - 24hr & 144hr	N/A
06 Nov 2018	12	4	N	Strong	High tide	1m swell	Y - 72hr	N/A	4	4	N	Strong	High tide	1m swell	Y - 72hr	N/A	4	8	N	Strong	High tide	1m swell	Y - 72hr	N/A	4	4	N	Strong	High tide	1m swell	Y - 72hr	N/A
09 Nov 2018	28	56	E	Strong	High tide	1m swell	Y - 144hr	N/A	320	510	E	Strong	High tide	1m swell	Y - 144hr	Unknown	38	20	E	Strong	High tide	1m swell	Y - 144hr	N/A	96	4	E	Strong	High tide	1m swell	Y - 144hr	N/A
20 Dec 2018	670	1140	N	Calm	N/A	Calm	Y - 0hr	Unknown	60	140	N	Calm	N/A	Calm	Y - 0hr	N/A	24	12	N	Calm	N/A	Calm	Y - 0hr	N/A	4	4	N	Calm	N/A	Calm	Y - 0hr	N/A
21 Dec 2018	92	65	N	Calm	Half tide	Calm	Y - 24hr	N/A	470	600	N	Calm	Half tide	Calm	Y - 24hr	Unknown	20	48	N	Calm	Half tide	Calm	Y - 24hr	N/A	4	4	N	Calm	Half tide	Calm	Y - 24hr	N/A
23 Dec 2018	350	5600	W	Moderate	High tide	Calm	Y - 72hr	Unknown	210	50	W	Moderate	High tide	Calm	Y - 72hr	Unknown	4	4	W	Moderate	High tide	Calm	Y - 72hr	N/A	4	4	W	Moderate	High tide	Calm	Y - 72hr	N/A
25 Dec 2018	940	680	S	Calm	Outgoing tide	Calm	Y - 144hr	Unknown	460	2300	S	Calm	Outgoing tide	Calm	Y - 144hr	Unknown	4	4	S	Calm	Outgoing tide	Calm	Y - 144hr	N/A	20	4	S	Calm	Outgoing tide	Calm	Y - 144hr	N/A
10 Jan 2019	24	4	NE	Calm	High tide	0.5m swell	N/A	N/A	8	12	NE	Calm	High tide	0.5m swell	N/A	N/A	28	8	NE	Calm	High tide	0.5m swell	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Gate Closed
11 Jan 2019	84	650	N	Calm	High tide	0.5m swell	N/A	Unknown	12	20	N	Calm	High tide	0.5m swell	N/A	N/A	4	16	N	Calm	High tide	0.5m swell	N/A	N/A	4	4	N	Calm	High tide	0.5m swell	N/A	N/A
17 Jan 2019	4	4							4	4							12	44							4	4						
18 Jan 2019	84	160							4	4							4	4							4	4						
19 Jan 2019	36	170							12	12							28	100							32	48						
22 Feb 2019	24	52	W	Moderate	Half tide	0.5m swell	N/A	N/A	4	4	W	Moderate	Half tide	0.5m swell	N/A	N/A	8	23	W	Moderate	Half tide	0.5m swell	N/A	N/A	4	4	W	Moderate	Half tide	0.5m swell	N/A	N/A
09 Mar 2019	5000	76000	S	Calm	High tide	Calm	Y - 24hr	Unknown	610	3400	S	Calm	High tide	Calm	Y - 24hr	Unknown	360	340	S	Calm	High tide	Calm	Y - 24hr	Unknown	140	60	S	Calm	High tide	Calm	Y - 24hr	Unknown
11 Mar 2019	16	12	NW	Calm	Incoming tide	Calm	Y - 72hr	N/A	4	4	NW	Calm	Incoming tide	Calm	Y - 72hr	N/A	4	4	NW	Calm	Incoming tide	Calm	Y - 72hr	N/A	4	4	NW	Calm	Incoming tide	Calm	Y - 72hr	N/A
13 Mar 2019	410	1230	SE	Calm	High tide	0.5m swell	Y - 144hr	Unknown	44	28	SE	Calm	High tide	0.5m swell	Y - 144hr	N/A	4	31	SE	Calm	High tide	0.5m swell	Y - 144hr	N/A	4	12	SE	Calm	High tide	0.5m swell	Y - 144hr	N/A
12 Apr 2019	270	200	Calm	Calm	Low tide	Calm	Y - 24hr	Unknown	4	4	Calm	Calm	Low tide	Calm	Y - 24hr	N/A	16	28	Calm	Calm	Low tide	Calm	Y - 24hr	N/A	24	4	Calm	Calm	Low tide	Calm	Y - 24hr	N/A
14 Apr 2019	28	40	N	Calm	Low tide	Calm	Y - 72hr	N/A	4	4	N	Calm	Low tide	Calm	Y - 72hr	N/A	12	4	N	Calm	Low tide	Calm	Y - 72hr	N/A	4	8	N	Calm	Low tide	Calm	Y - 72hr	N/A
16 Apr 2019	400	150	S	Calm	Low tide	Calm	Y - 144hr	Unknown	4	4	S	Calm	Low tide	Calm	Y - 144hr	N/A	4	4	S	Calm	Low tide	Calm	Y - 144hr	N/A	4	4	S	Calm	Low tide	Calm	Y - 144hr	N/A

	South End Titahi Bay								Mount Cooper								Te Korohiwa Rocks								Control							
Date	Enterococci	Faecal Coliforms	Wind Direction	Wind strength	Tide	Sea conditions	WWTP Bypass/ Overflow Event	Possible Source (if out of spec)	Enterococci	Faecal Coliforms	Wind Direction	Wind strength	Tide	Sea conditions	WWTP Bypass/ Overflow Event	Possible Sources (if out of spec)	Enterococci	Faecal Coliforms	Wind Direction	Wind strength	Tide	Sea conditions	WWTP Bypass/ Overflow Event	Possible Sources (if out of spec)	Enterococci	Faecal Coliforms	Wind Direction	Wind strength	Tide	Sea conditions	WWTP Bypass/ Overflow Event	Possible Sources (if out of spec)
dd/mm/yyyy	cfu/100 mL	cfu/100 ml	--	--	--	--	Y/N	--	cfu/100 mL	cfu/100 ml	--	--	--	--	Y/N	--	cfu/100 mL	cfu/100 ml	--	--	--	--	Y/N	--	cfu/100 mL	cfu/100 ml	--	--	--	--	Y/N	--
31 May 2019	310	65	Calm	Calm	High tide	1m swell	N/A	N/A	4	4	Calm	Calm	High tide	1m swell	N/A	N/A	4	4	Calm	Calm	High tide	1m swell	N/A	N/A	8	4	Calm	Calm	High tide	1m swell	N/A	N/A
02 Jun 2019	190	68	S	Moderate	Half tide	0.5m swell	Y - 24hr	Unknown	4	8	S	Moderate	Half tide	0.5m swell	Y - 24hr	N/A	8	16	S	Moderate	Half tide	0.5m swell	Y - 24hr	N/A	4	4	S	Moderate	Half tide	0.5m swell	Y - 24hr	N/A
04 Jun 2019	80	670	NW	Moderate	Low tide	Calm	Y - 72hr	Unknown	20	4	NW	Moderate	Low tide	Calm	Y - 72hr	N/A	28	40	NW	Moderate	Low tide	Calm	Y - 72hr	N/A	16	4	NW	Moderate	Low tide	Calm	Y - 72hr	N/A
06 Jun 2019	54	88	NW	Light	High tide	Calm	Y - 144hr	N/A	40	4	NW	Light	High tide	Calm	Y - 144hr	N/A	12	19	NW	Light	High tide	Calm	Y - 144hr	N/A	24	4	NW	Light	High tide	Calm	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:

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

Appendix ii

Heavy Metals and Specified Compounds Results

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Eurofins ELS Limited

Wellington Water Ltd - PCC
Shoreline Monitoring/Quarterly
Porirua City Council
P.O. Box 50-218
PORIRUA CITY 5240
Attention: Moe Dahlan

Analytical Report

Report Number: 18/35495
Issue: 1
06 August 2018

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
18/35495-01	Porirua Final Effluent - Quarterly		26/07/2018 08:30	26/07/2018 12:34	P1036148

Notes:

	Test	Result	Units	Comments	Signatory
0002	Suspended Solids - Total	7	g/m³	Complies	Marylou Cabral KTP
0056	Dissolved Oxygen	5.9	g O2/m³		Marylou Cabral KTP
0085	BOD5 - Total	9	g/m³	Complies	Marylou Cabral KTP
0725	Cyanide	< 0.005	g/m³	Complies	Divina Lagazon KTP
6603	Arsenic - Total	< 0.002	g/m³	Complies	Sharon van Soest KTP
6608	Cadmium - Total	< 0.001	g/m³	Complies	Sharon van Soest KTP
6611	Chromium - Total	0.001	g/m³	Complies	Sharon van Soest KTP
6613	Copper - Total	0.004	g/m³	Complies	Sharon van Soest KTP
6618	Lead - Total	< 0.001	g/m³	Complies	Sharon van Soest KTP
6622	Mercury - Total	< 0.001	g/m³	Complies	Sharon van Soest KTP
6624	Nickel - Total	0.001	g/m³	Complies	Sharon van Soest KTP
6638	Zinc - Total	0.026	g/m³	Complies	Sharon van Soest KTP
MO-5002	Total Halogenated Phenolics	< 0.05	g/m³		Rob Deacon (Transcribed)
P1855	Aqueous Total Metal Digestion	Completed			Anne Rodgers Analyst
VOC-001	1,2,4-Trimethylbenzene	<0.0005	mg/L		Alan Stanley KTP
VOC-002	1,3,5-Trimethylbenzene	<0.0005	mg/L		Alan Stanley KTP
VOC-003	Benzene	<0.0005	mg/L		Alan Stanley KTP
VOC-005	Isopropylbenzene	<0.0005	mg/L		Alan Stanley KTP
VOC-007	Naphthalene	<0.0005	mg/L		Alan Stanley KTP
VOC-008	n-Butylbenezene	<0.0005	mg/L		Alan Stanley KTP
VOC-009	n-Propylbenzene	<0.0005	mg/L		Alan Stanley KTP
VOC-010	o-Xylene	<0.0005	mg/L		Alan Stanley KTP
VOC-011	p-Isopropyltoluene	<0.0005	mg/L		Alan Stanley KTP
VOC-013	sec-Butylbenzene	<0.0005	mg/L		Alan Stanley KTP
VOC-014	Styrene	<0.0005	mg/L		Alan Stanley KTP
VOC-015	tert-Butylbenzene	<0.0005	mg/L		Alan Stanley KTP
VOC-016	Toluene	<0.0005	mg/L		Alan Stanley KTP
VOC-017	Total p,m Xylene, Ethylbenzene	<0.0015	mg/L		Alan Stanley KTP
VOC-018	1,1,1,2-Tetrachloroethane	<0.0005	mg/L		Alan Stanley KTP
VOC-019	1,1,1-Trichloroethane	<0.0005	mg/L		Alan Stanley KTP
VOC-020	1,1,2,2-Tetrachloroethane	<0.0005	mg/L		Alan Stanley KTP
VOC-021	1,1,2-Trichloroethane	<0.0005	mg/L		Alan Stanley KTP
VOC-022	1,1-Dichloroethane	<0.0005	mg/L		Alan Stanley KTP
VOC-023	1,1-Dichloroethene	<0.0005	mg/L		Alan Stanley KTP
VOC-024	1,1-Dichloropropene	<0.0005	mg/L		Alan Stanley KTP
VOC-025	1,2,3-Trichloropropane	<0.0005	mg/L		Alan Stanley KTP
VOC-026	1,2-Dibromo-3-chloropropane	<0.001	mg/L		Alan Stanley KTP

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Lower Hutt 5045 New Zealand
Phone: (04) 576 5016 Fax: (04) 576 5017
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Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
18/35495-01	Porirua Final Effluent - Quarterly		26/07/2018 08:30	26/07/2018 12:34	P1036148

Notes:

	Test	Result	Units	Comments	Signatory
VOC-027	1,2-Dibromoethane	<0.0002	mg/L		Alan Stanley KTP
VOC-028	1,2-Dichloroethane	<0.0005	mg/L		Alan Stanley KTP
VOC-029	1,2-Dichloropropane	<0.0005	mg/L		Alan Stanley KTP
VOC-030	1,3-Dichloropropane	<0.0005	mg/L		Alan Stanley KTP
VOC-031	2,2-Dichloropropane	<0.0005	mg/L		Alan Stanley KTP
VOC-032	Allyl chloride	<0.0005	mg/L		Alan Stanley KTP
VOC-033	Bromochloromethane	<0.0012	mg/L		Alan Stanley KTP
VOC-034	Bromomethane	<0.001	mg/L		Alan Stanley KTP
VOC-035	Carbon tetrachloride	<0.0005	mg/L		Alan Stanley KTP
VOC-036	Chloroethane	<0.001	mg/L		Alan Stanley KTP
VOC-037	Chloromethane	<0.006	mg/L		Alan Stanley KTP
VOC-038	cis-1,2-Dichloroethene	<0.0005	mg/L		Alan Stanley KTP
VOC-039	cis-1,3-Dichloropropene	<0.0005	mg/L		Alan Stanley KTP
VOC-040	Dibromomethane	<0.0005	mg/L		Alan Stanley KTP
VOC-041	Dichlorodifluoromethane	<0.001	mg/L		Alan Stanley KTP
VOC-042	Dichloromethane	<0.005	mg/L		Alan Stanley KTP
VOC-043	Hexachlorobutadiene	<0.0002	mg/L		Alan Stanley KTP
VOC-044	Tetrachloroethene	<0.0005	mg/L		Alan Stanley KTP
VOC-045	trans-1,2-Dichloroethene	<0.0005	mg/L		Alan Stanley KTP
VOC-046	trans-1,3-Dichloropropene	<0.0005	mg/L		Alan Stanley KTP
VOC-047	Trichloroethene	<0.0005	mg/L		Alan Stanley KTP
VOC-048	Trichlorofluoromethane	<0.0005	mg/L		Alan Stanley KTP
VOC-049	Vinyl Chloride	<0.0005	mg/L		Alan Stanley KTP
VOC-050	1,2,3-Trichlorobenzene	<0.0005	mg/L		Alan Stanley KTP
VOC-051	1,2,4-Trichlorobenzene	<0.0005	mg/L		Alan Stanley KTP
VOC-052	1,2-Dichlorobenzene	<0.0005	mg/L		Alan Stanley KTP
VOC-053	1,3-Dichlorobenzene	<0.0005	mg/L		Alan Stanley KTP
VOC-054	1,4-Dichlorobenzene	<0.0005	mg/L		Alan Stanley KTP
VOC-055	2-Chlorotoluene	<0.0005	mg/L		Alan Stanley KTP
VOC-056	4-Chlorotoluene	<0.0005	mg/L		Alan Stanley KTP
VOC-057	Bromobenzene	<0.0005	mg/L		Alan Stanley KTP
VOC-058	Chlorobenzene	<0.0005	mg/L		Alan Stanley KTP
VOC-059	1,3,5-Trichlorobenzene	<0.0005	mg/L		Alan Stanley KTP
VOC-060	4-Methyl-2-Pentanone	<0.0005	mg/L		Alan Stanley KTP
VOC-061	Carbon disulphide	<0.0005	mg/L		Alan Stanley KTP
VOC-062	Bromodichloromethane	< 0.0005	mg/L		Alan Stanley KTP
VOC-063	Bromoform	< 0.0005	mg/L		Alan Stanley KTP
VOC-064	Chloroform	< 0.0005	mg/L		Alan Stanley KTP
VOC-065	Dibromochloromethane	< 0.0005	mg/L		Alan Stanley KTP

Comments:

Sampled by ELS using approved containers and techniques.

All samples analysed as we receive them. Delivery was within the correct time and temperature conditions.

Test Methodology:

85 Port Road Seaview

Lower Hutt 5045 New Zealand

Phone: (04) 576 5016 Fax: (04) 576 5017

Email: mailto:reportselsnz@eurofins.com Website: http://www.eurofins.co.nz

Test	Methodology	Detection Limit
Suspended Solids - Total	APHA 22nd Edition Method 2540 D	3 g/m³
Dissolved Oxygen	APHA 22nd Edition Method 4500-O G	1 g O2/m³
BOD5 - Total	APHA 22nd Edition Method 5210 B.	1 g/m³
Cyanide	Discrete Analyser. In House method based on APHA 22nd Edition Method 4500-CN- C & E.	0.005 g/m³
Arsenic - Total	ICP-MS following APHA 22nd edition method 3125 (modified)	0.002 g/m³
Cadmium - Total	ICP-MS following APHA 22nd edition method 3125 (modified)	0.001 g/m³
Chromium - Total	ICP-MS following APHA 22nd edition method 3125 (modified)	0.001 g/m³
Copper - Total	ICP-MS following APHA 22nd edition method 3125 (modified)	0.002 g/m³
Lead - Total	ICP-MS following APHA 22nd edition method 3125 (modified)	0.001 g/m³
Mercury - Total	ICP-MS following APHA 22nd edition method 3125 (modified)	0.001 g/m³
Nickel - Total	ICP-MS following APHA 22nd edition method 3125 (modified)	0.001 g/m³
Zinc - Total	ICP-MS following APHA 22nd edition method 3125 (modified)	0.005 g/m³
Total Halogenated Phenolics	Analyses at Eurofins Melbourne following Method USEPA 8270 Phenols.	0.01 g/m³
Aqueous Total Metal Digestion	Follows APHA 22nd Edition Method 3030E (modified) using nitric acid.	n/a
1,2,4-Trimethylbenzene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,3,5-Trimethylbenzene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Benzene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Isopropylbenzene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Naphthalene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
n-Butylbenezene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
n-Propylbenzene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
o-Xylene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
p-Isopropyltoluene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
sec-Butylbenzene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Styrene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
tert-Butylbenzene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Toluene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Total p,m Xylene, Ethylbenzene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0015 mg/L
1,1,1,2-Tetrachloroethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,1,1-Trichloroethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,1,2,2-Tetrachloroethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,1,2-Trichloroethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,1-Dichloroethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,1-Dichloroethene	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,1-Dichloropropene	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,2,3-Trichloropropane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,2-Dibromo-3-chloropropane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.001 mg/L
1,2-Dibromoethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0002 mg/L
1,2-Dichloroethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L

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Lower Hutt 5045 New Zealand

Phone: (04) 576 5016 Fax: (04) 576 5017

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Test	Methodology	Detection Limit
1,2-Dichloropropane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,3-Dichloropropane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
2,2-Dichloropropane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Allyl chloride	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Bromochloromethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0012 mg/L
Bromomethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.001 mg/L
Carbon tetrachloride	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260. Also known as Tetrachloromethane.	0.0005 mg/L
Chloroethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.001 mg/L
Chloromethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.006 mg/L
cis-1,2-Dichloroethene	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
cis-1,3-Dichloropropene	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Dibromomethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Dichlorodifluoromethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.001 mg/L
Dichloromethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.005 mg/L
Hexachlorobutadiene	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0002 mg/L
Tetrachloroethene	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
trans-1,2-Dichloroethene	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
trans-1,3-Dichloropropene	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Trichloroethene	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Trichlorofluoromethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Vinyl Chloride	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,2,3-Trichlorobenzene	VOC Halogenated Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,2,4-Trichlorobenzene	VOC Halogenated Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,2-Dichlorobenzene	VOC Halogenated Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,3-Dichlorobenzene	VOC Halogenated Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,4-Dichlorobenzene	VOC Halogenated Aromatic Compound analysed by GCMS following an in house method based on USEPA	0.0005 mg/L

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Test	Methodology	Detection Limit
	Method 8260.	
2-Chlorotoluene	VOC Halogenated Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
4-Chlorotoluene	VOC Halogenated Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Bromobenzene	VOC Halogenated Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Chlorobenzene	VOC Halogenated Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,3,5-Trichlorobenzene	VOC Halogenated Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
4-Methyl-2-Pentanone	VOC Other Volatile Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Carbon disulphide	VOC Other Volatile Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Bromodichloromethane	VOC Trihalomethane analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Bromoform	VOC Trihalomethane analysed by GCMS following an in house method based on USEPA Method 8260. Also known as Tribromomethane.	0.0005 mg/L
Chloroform	VOC Trihalomethane analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Dibromochloromethane	VOC Trihalomethane analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L

"<" means that no analyte was found in the sample at the level of detection shown. "Not Recovered" indicates that the compound was not successfully extracted from the matrix when it was added, at a known concentration, during the test. Detection limits are based on a clean matrix and may vary according to individual sample.

g/m3 is the equivalent to mg/L and ppm.

Samples will be retained for a period of time, in suitable conditions appropriate to the analyses requested.

All test methods and confidence limits are available on request. This report must not be reproduced except in full, without the written consent of the laboratory.

Report Released By

Rob Deacon

This laboratory is accredited by International Accreditation New Zealand and its reports are recognised in all countries affiliated to the International Laboratory Accreditation Co-operation Mutual Recognition Arrangement (ILAC-MRA). The tests reported have been performed in accordance with our terms of accreditation, with the exception of tests marked "not IANZ", which are outside the scope of this laboratory's accreditation.

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Eurofins - ELS
85 Port Rd
Seaview
Lower Hutt Wellington 5045

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Site Number 1254

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The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Attention: **-ALL ASMs**

Report **609767-W**
Project name PORIRUA FINAL EFFLUENT QUARTERLY
Project ID 18/35495
Received Date Jul 30, 2018

Client Sample ID			**18/35495 01**
Sample Matrix			**Water**
Eurofins | mgt Sample No.			**Z18-Jl33018**
Date Sampled			**Jul 24, 2018**
Test/Reference	LOR	Unit	
Phenolics (total)	0.05	mg/L	< 0.05

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Phenolics (total)	Melbourne	Aug 01, 2018	7 Day

- Method: APHA 5530B & D Phenols

ABN– 50 005 085 521
e.mail : EnviroSales@eurofins.com
web : www.eurofins.com.au

Melbourne
2-5 Kingston Town Close
Oakleigh VIC 3166
Phone : +61 3 8564 5000
NATA # 1261
Site # 1254 & 14271

Sydney
Unit F3, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Perth
2/91 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261
Site # 23736

Company Name:	Eurofins | ELS Limited	**Order No.:**	
Address:	85 Port Rd Seaview Lower Hutt Wellington 5045	**Report #:** **Phone:** **Fax:**	609767 +644 576 5016
Project Name:	PORIRUA FINAL EFFLUENT QUARTERLY		
Project ID:	18/35495		

Received:	Jul 30, 2018 9:00 AM	
Due:	Aug 6, 2018	
Priority:	5 Day	
Contact Name:	-ALL ASMs	

Eurofins | mgt Analytical Services Manager : Swati Shahaney

Sample Detail						Phenolics (total)
Melbourne Laboratory - NATA Site # 1254 & 14271						X
Sydney Laboratory - NATA Site # 18217						
Brisbane Laboratory - NATA Site # 20794						
Perth Laboratory - NATA Site # 23736						
External Laboratory						
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**	
1	18/35495 01	Jul 24, 2018	10:28AM	Water	Z18-Jl33018	X
Test Counts						1

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	Quality Systems Manual ver 5.1 US Department of Defense
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 50-150%-Phenols & PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.1 where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Phenolics (total)	mg/L	< 0.05			0.05	Pass	
LCS - % Recovery							
Phenolics (total)	%	109			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
				Result 1					
Phenolics (total)	M18-Jl32262	NCP	%	110			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1	Result 2	RPD	Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Phenolics (total)	Z18-Jl33018	CP	mg/L	< 0.05	< 0.05	<1	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Authorised By

Swati Shahaney	Analytical Services Manager
Michael Brancati	Senior Analyst-Inorganic (VIC)

Glenn Jackson
National Operations Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

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Eurofins ELS Limited

Wellington Water Ltd - PCC
Shoreline Monitoring/Quarterly
Porirua City Council
P.O. Box 50-218
PORIRUA CITY 5240
Attention: Moe Dahlan

Analytical Report

Report Number: 18/50211
Issue: 1
09 November 2018

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
18/50211-01	Porirua Final Effluent - Quarterly		31/10/2018 11:25	31/10/2018 16:56	P1009909

Notes:

	Test	Result	Units	Comments	Signatory
0002	Suspended Solids - Total	< 6	g/m³	Complies	Marylou Cabral KTP
0056	Dissolved Oxygen	7.8	g O2/m³		Marylou Cabral KTP
0085	BOD5 - Total	< 6	g/m³	Complies	Marylou Cabral KTP
0725	Cyanide	< 0.005	g/m³	Complies	Divina Lagazon KTP
6603	Arsenic - Total	0.002	g/m³	Complies	Sharon van Soest KTP
6608	Cadmium - Total	< 0.001	g/m³	Complies	Sharon van Soest KTP
6611	Chromium - Total	0.002	g/m³	Complies	Sharon van Soest KTP
6613	Copper - Total	< 0.002	g/m³	Complies	Sharon van Soest KTP
6618	Lead - Total	< 0.001	g/m³	Complies	Sharon van Soest KTP
6622	Mercury - Total	< 0.001	g/m³	Complies	Shanel Kumar KTP
6624	Nickel - Total	0.001	g/m³	Complies	Sharon van Soest KTP
6638	Zinc - Total	0.013	g/m³	Complies	Sharon van Soest KTP
MO-5002	Total Halogenated Phenolics	< 0.05	g/m³		Prashilla Singh (Transcribed)
P1855	Aqueous Total Metal Digestion	Completed			Freddie Badraun Analyst
VOC-001	1,2,4-Trimethylbenzene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-002	1,3,5-Trimethylbenzene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-003	Benzene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-005	Isopropylbenzene	< 0.0010	mg/L		Dr Alan Stanley KTP
VOC-007	Naphthalene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-008	n-Butylbenezene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-009	n-Propylbenzene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-010	o-Xylene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-011	p-Isopropyltoluene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-013	sec-Butylbenzene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-014	Styrene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-015	tert-Butylbenzene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-016	Toluene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-017	Total p,m Xylene, Ethylbenzene	<0.0015	mg/L		Dr Alan Stanley KTP
VOC-018	1,1,1,2-Tetrachloroethane	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-019	1,1,1-Trichloroethane	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-020	1,1,2,2-Tetrachloroethane	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-021	1,1,2-Trichloroethane	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-022	1,1-Dichloroethane	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-023	1,1-Dichloroethene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-024	1,1-Dichloropropene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-025	1,2,3-Trichloropropane	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-026	1,2-Dibromo-3-chloropropane	<0.001	mg/L		Dr Alan Stanley KTP
VOC-027	1,2-Dibromoethane	<0.0002	mg/L		Dr Alan Stanley KTP
VOC-028	1,2-Dichloroethane	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-029	1,2-Dichloropropane	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-030	1,3-Dichloropropane	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-031	2,2-Dichloropropane	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-032	Allyl chloride	<0.0005	mg/L		Dr Alan Stanley KTP

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
18/50211-01	Porirua Final Effluent - Quarterly		31/10/2018 11:25	31/10/2018 16:56	P1009909

Notes:

	Test	Result	Units	Comments	Signatory
VOC-033	Bromochloromethane	<0.0012	mg/L		Dr Alan Stanley KTP
VOC-034	Bromomethane	<0.001	mg/L		Dr Alan Stanley KTP
VOC-035	Carbon tetrachloride	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-036	Chloroethane	<0.001	mg/L		Dr Alan Stanley KTP
VOC-037	Chloromethane	<0.006	mg/L		Dr Alan Stanley KTP
VOC-038	cis-1,2-Dichloroethene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-039	cis-1,3-Dichloropropene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-040	Dibromomethane	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-041	Dichlorodifluoromethane	<0.001	mg/L		Dr Alan Stanley KTP
VOC-043	Hexachlorobutadiene	<0.0002	mg/L		Dr Alan Stanley KTP
VOC-044	Tetrachloroethene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-045	trans-1,2-Dichloroethene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-046	trans-1,3-Dichloropropene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-047	Trichloroethene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-048	Trichlorofluoromethane	< 0.0010	mg/L		Dr Alan Stanley KTP
VOC-049	Vinyl Chloride	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-050	1,2,3-Trichlorobenzene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-051	1,2,4-Trichlorobenzene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-052	1,2-Dichlorobenzene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-053	1,3-Dichlorobenzene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-054	1,4-Dichlorobenzene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-055	2-Chlorotoluene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-056	4-Chlorotoluene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-057	Bromobenzene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-058	Chlorobenzene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-059	1,3,5-Trichlorobenzene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-060	4-Methyl-2-Pentanone	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-061	Carbon disulphide	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-062	Bromodichloromethane	< 0.0005	mg/L		Dr Alan Stanley KTP
VOC-063	Bromoform	< 0.0005	mg/L		Dr Alan Stanley KTP
VOC-064	Chloroform	< 0.0005	mg/L		Dr Alan Stanley KTP
VOC-065	Dibromochloromethane	< 0.0005	mg/L		Dr Alan Stanley KTP

Comments:

Sampled by ELS using approved containers and techniques.

All samples analysed as we receive them. Delivery was within the correct time and temperature conditions.

Test Methodology:

Test	Methodology	Detection Limit
Suspended Solids - Total	APHA Online Edition Method 2540 D	3 g/m³
Dissolved Oxygen	APHA Online Edition Method 4500-O G	1 g O2/m³
BOD5 - Total	APHA Online Edition Method 5210 B.	1 g/m³
Cyanide	Discrete Analyser. In House method based on APHA Online Edition Method 4500-CN- C & E.	0.005 g/m³
Arsenic - Total	ICP-MS following APHA Online Edition method 3125 (modified)	0.002 g/m³
Cadmium - Total	ICP-MS following APHA Online Edition method 3125 (modified)	0.001 g/m³
Chromium - Total	ICP-MS following APHA Online Edition method 3125 (modified)	0.001 g/m³
Copper - Total	ICP-MS following APHA Online Edition method 3125 (modified)	0.002 g/m³
Lead - Total	ICP-MS following APHA Online Edition method 3125 (modified)	0.001 g/m³
Mercury - Total	ICP-MS following APHA Online Edition method 3125 (modified)	0.001 g/m³
Nickel - Total	ICP-MS following APHA Online Edition method 3125 (modified)	0.001 g/m³
Zinc - Total	ICP-MS following APHA Online Edition method 3125 (modified)	0.005 g/m³

Test	Methodology	Detection Limit
Total Halogenated Phenolics	Analyses at Eurofins Melbourne following Method USEPA 8270 Phenols.	0.01 g/m³
Aqueous Total Metal Digestion	Follows APHA Online Edition Method 3030E (modified) using nitric acid.	n/a
1,2,4-Trimethylbenzene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,3,5-Trimethylbenzene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Benzene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Isopropylbenzene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Naphthalene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
n-Butylbenezene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
n-Propylbenzene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
o-Xylene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
p-Isopropyltoluene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
sec-Butylbenzene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Styrene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
tert-Butylbenzene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Toluene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Total p,m Xylene, Ethylbenzene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0015 mg/L
1,1,1,2-Tetrachloroethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,1,1-Trichloroethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,1,2,2-Tetrachloroethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,1,2-Trichloroethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,1-Dichloroethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,1-Dichloroethene	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,1-Dichloropropene	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,2,3-Trichloropropane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,2-Dibromo-3-chloropropane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.001 mg/L
1,2-Dibromoethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0002 mg/L
1,2-Dichloroethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,2-Dichloropropane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,3-Dichloropropane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
2,2-Dichloropropane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Allyl chloride	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Bromochloromethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0012 mg/L
Bromomethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.001 mg/L
Carbon tetrachloride	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260. Also known as Tetrachloromethane.	0.0005 mg/L
Chloroethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on	0.001 mg/L

Test	Methodology	Detection Limit
	USEPA Method 8260.	
Chloromethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.006 mg/L
cis-1,2-Dichloroethene	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
cis-1,3-Dichloropropene	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Dibromomethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Dichlorodifluoromethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.001 mg/L
Dichloromethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.005 mg/L
Hexachlorobutadiene	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0002 mg/L
Tetrachloroethene	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
trans-1,2-Dichloroethene	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
trans-1,3-Dichloropropene	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Trichloroethene	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Trichlorofluoromethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Vinyl Chloride	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,2,3-Trichlorobenzene	VOC Halogenated Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,2,4-Trichlorobenzene	VOC Halogenated Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,2-Dichlorobenzene	VOC Halogenated Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,3-Dichlorobenzene	VOC Halogenated Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,4-Dichlorobenzene	VOC Halogenated Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
2-Chlorotoluene	VOC Halogenated Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
4-Chlorotoluene	VOC Halogenated Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Bromobenzene	VOC Halogenated Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Chlorobenzene	VOC Halogenated Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,3,5-Trichlorobenzene	VOC Halogenated Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
4-Methyl-2-Pentanone	VOC Other Volatile Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Carbon disulphide	VOC Other Volatile Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Bromodichloromethane	VOC Trihalomethane analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Bromoform	VOC Trihalomethane analysed by GCMS following an in house method based on USEPA Method 8260. Also known as Tribromomethane.	0.0005 mg/L
Chloroform	VOC Trihalomethane analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L

Test	Methodology	Detection Limit
Dibromochloromethane	VOC Trihalomethane analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L

Unless otherwise stated, all tests are performed in Wellington.

"<" means that no analyte was found in the sample at the level of detection shown. Detection limits are based on a clean matrix and may vary according to individual sample.

g/m3 is the equivalent to mg/L and ppm.

Samples will be retained for a period of time, in suitable conditions appropriate to the analyses requested.

Report Released By
Rob Deacon

This laboratory is accredited by International Accreditation New Zealand and its reports are recognised in all countries affiliated to the International Laboratory Accreditation Co-operation Mutual Recognition Arrangement (ILAC-MRA). The tests reported have been performed in accordance with our terms of accreditation, with the exception of tests marked "not IANZ", which are outside the scope of this laboratory's accreditation.

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Eurofins ELS Limited

Wellington Water Ltd - PCC
Shoreline Monitoring/Quarterly
Porirua City Council
P.O. Box 50-218
PORIRUA CITY 5240
Attention: Moe Dahlan

Analytical Report

Report Number: 19/3636

Issue: 1
08 February 2019

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
19/3636-01	Porirua Final Effluent - Quarterly		25/01/2019 11:29	25/01/2019 14:42	P1036148

Notes:

	Test	Result	Units	Comments	Signatory
0002	Suspended Solids - Total	< 6	g/m³	Complies	Gordon McArthur KTP
0056	Dissolved Oxygen	6.4	g O2/m³		Gordon McArthur KTP
0085	BOD5 - Total	< 6	g/m³	Complies	Gordon McArthur KTP
0725	Cyanide	< 0.005	g/m³	Complies	Divina Lagazon KTP
6603	Arsenic - Total	< 0.002	g/m³	Complies	Shanel Kumar KTP
6608	Cadmium - Total	< 0.001	g/m³	Complies	Shanel Kumar KTP
6611	Chromium - Total	0.001	g/m³	Complies	Shanel Kumar KTP
6613	Copper - Total	0.003	g/m³	Complies	Shanel Kumar KTP
6618	Lead - Total	< 0.001	g/m³	Complies	Shanel Kumar KTP
6622	Mercury - Total	< 0.001	g/m³	Complies	Shanel Kumar KTP
6624	Nickel - Total	< 0.001	g/m³	Complies	Shanel Kumar KTP
6638	Zinc - Total	0.022	g/m³	Complies	Shanel Kumar KTP
MO-5002	Total Halogenated Phenolics	< 0.05	g/m³		Lizzie Addis (Transcription)
P1855	Aqueous Total Metal Digestion	Completed			Freddie Badraun Analyst
VOC-001	1,2,4-Trimethylbenzene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-002	1,3,5-Trimethylbenzene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-003	Benzene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-005	Isopropylbenzene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-007	Naphthalene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-008	n-Butylbenezene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-009	n-Propylbenzene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-010	o-Xylene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-011	p-Isopropyltoluene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-013	sec-Butylbenzene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-014	Styrene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-015	tert-Butylbenzene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-016	Toluene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-017	Total p,m Xylene, Ethylbenzene	<0.0015	mg/L		Dr Alan Stanley KTP
VOC-018	1,1,1,2-Tetrachloroethane	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-019	1,1,1-Trichloroethane	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-020	1,1,2,2-Tetrachloroethane	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-021	1,1,2-Trichloroethane	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-022	1,1-Dichloroethane	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-023	1,1-Dichloroethene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-024	1,1-Dichloropropene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-025	1,2,3-Trichloropropane	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-026	1,2-Dibromo-3-chloropropane	<0.001	mg/L		Dr Alan Stanley KTP
VOC-027	1,2-Dibromoethane	<0.0002	mg/L		Dr Alan Stanley KTP
VOC-028	1,2-Dichloroethane	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-029	1,2-Dichloropropane	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-030	1,3-Dichloropropane	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-031	2,2-Dichloropropane	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-032	Allyl chloride	<0.0005	mg/L		Dr Alan Stanley KTP

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
19/3636-01	Porirua Final Effluent - Quarterly		25/01/2019 11:29	25/01/2019 14:42	P1036148

Notes:

	Test	Result	Units	Comments	Signatory
VOC-033	Bromochloromethane	<0.0012	mg/L		Dr Alan Stanley KTP
VOC-034	Bromomethane	<0.001	mg/L		Dr Alan Stanley KTP
VOC-035	Carbon tetrachloride	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-036	Chloroethane	<0.001	mg/L		Dr Alan Stanley KTP
VOC-037	Chloromethane	<0.006	mg/L		Dr Alan Stanley KTP
VOC-038	cis-1,2-Dichloroethene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-039	cis-1,3-Dichloropropene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-040	Dibromomethane	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-041	Dichlorodifluoromethane	<0.001	mg/L		Dr Alan Stanley KTP
VOC-042	Dichloromethane	<0.005	mg/L		Dr Alan Stanley KTP
VOC-043	Hexachlorobutadiene	<0.0002	mg/L		Dr Alan Stanley KTP
VOC-044	Tetrachloroethene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-045	trans-1,2-Dichloroethene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-046	trans-1,3-Dichloropropene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-047	Trichloroethene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-048	Trichlorofluoromethane	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-049	Vinyl Chloride	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-050	1,2,3-Trichlorobenzene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-051	1,2,4-Trichlorobenzene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-052	1,2-Dichlorobenzene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-053	1,3-Dichlorobenzene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-054	1,4-Dichlorobenzene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-055	2-Chlorotoluene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-056	4-Chlorotoluene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-057	Bromobenzene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-058	Chlorobenzene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-059	1,3,5-Trichlorobenzene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-060	4-Methyl-2-Pentanone	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-061	Carbon disulphide	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-062	Bromodichloromethane	< 0.0005	mg/L		Dr Alan Stanley KTP
VOC-063	Bromoform	< 0.0005	mg/L		Dr Alan Stanley KTP
VOC-064	Chloroform	< 0.0005	mg/L		Dr Alan Stanley KTP
VOC-065	Dibromochloromethane	< 0.0005	mg/L		Dr Alan Stanley KTP

Comments:

Sampled by ELS using approved containers and techniques.

All samples analysed as we receive them. Delivery was within the correct time and temperature conditions.

Test Methodology:

Test	Methodology	Detection Limit
Suspended Solids - Total	APHA Online Edition Method 2540 D	3 g/m³
Dissolved Oxygen	APHA Online Edition Method 4500-O G	1 g O2/m³
BOD5 - Total	APHA Online Edition Method 5210 B.	1 g/m³
Cyanide	Discrete Analyser. In House method based on APHA Online Edition Method 4500-CN- C & E.	0.005 g/m³
Arsenic - Total	ICP-MS following APHA Online Edition method 3125 (modified)	0.002 g/m³
Cadmium - Total	ICP-MS following APHA Online Edition method 3125 (modified)	0.001 g/m³
Chromium - Total	ICP-MS following APHA Online Edition method 3125 (modified)	0.001 g/m³
Copper - Total	ICP-MS following APHA Online Edition method 3125 (modified)	0.002 g/m³
Lead - Total	ICP-MS following APHA Online Edition method 3125 (modified)	0.001 g/m³
Mercury - Total	ICP-MS following APHA Online Edition method 3125 (modified)	0.001 g/m³
Nickel - Total	ICP-MS following APHA Online Edition method 3125 (modified)	0.001 g/m³

Test	Methodology	Detection Limit
Zinc - Total	ICP-MS following APHA Online Edition method 3125 (modified)	0.005 g/m³
Total Halogenated Phenolics	Analyses at Eurofins Melbourne following Method USEPA 8270 Phenols.	0.01 g/m³
Aqueous Total Metal Digestion	Follows APHA Online Edition Method 3030E (modified) using nitric acid.	n/a
1,2,4-Trimethylbenzene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,3,5-Trimethylbenzene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Benzene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Isopropylbenzene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Naphthalene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
n-Butylbenezene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
n-Propylbenzene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
o-Xylene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
p-Isopropyltoluene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
sec-Butylbenzene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Styrene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
tert-Butylbenzene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Toluene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Total p,m Xylene, Ethylbenzene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0015 mg/L
1,1,1,2-Tetrachloroethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,1,1-Trichloroethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,1,2,2-Tetrachloroethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,1,2-Trichloroethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,1-Dichloroethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,1-Dichloroethene	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,1-Dichloropropene	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,2,3-Trichloropropane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,2-Dibromo-3-chloropropane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.001 mg/L
1,2-Dibromoethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0002 mg/L
1,2-Dichloroethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,2-Dichloropropane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,3-Dichloropropane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
2,2-Dichloropropane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Allyl chloride	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Bromochloromethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0012 mg/L
Bromomethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.001 mg/L
Carbon tetrachloride	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260. Also known as Tetrachloromethane.	0.0005 mg/L

Test	Methodology	Detection Limit
Chloroethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.001 mg/L
Chloromethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.006 mg/L
cis-1,2-Dichloroethene	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
cis-1,3-Dichloropropene	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Dibromomethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Dichlorodifluoromethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.001 mg/L
Dichloromethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.005 mg/L
Hexachlorobutadiene	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0002 mg/L
Tetrachloroethene	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
trans-1,2-Dichloroethene	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
trans-1,3-Dichloropropene	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Trichloroethene	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Trichlorofluoromethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Vinyl Chloride	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,2,3-Trichlorobenzene	VOC Halogenated Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,2,4-Trichlorobenzene	VOC Halogenated Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,2-Dichlorobenzene	VOC Halogenated Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,3-Dichlorobenzene	VOC Halogenated Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,4-Dichlorobenzene	VOC Halogenated Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
2-Chlorotoluene	VOC Halogenated Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
4-Chlorotoluene	VOC Halogenated Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Bromobenzene	VOC Halogenated Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Chlorobenzene	VOC Halogenated Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,3,5-Trichlorobenzene	VOC Halogenated Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
4-Methyl-2-Pentanone	VOC Other Volatile Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Carbon disulphide	VOC Other Volatile Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Bromodichloromethane	VOC Trihalomethane analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Bromoform	VOC Trihalomethane analysed by GCMS following an in house method based on USEPA Method 8260. Also known as Tribromomethane.	0.0005 mg/L

Test	Methodology	Detection Limit
Chloroform	VOC Trihalomethane analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Dibromochloromethane	VOC Trihalomethane analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L

Unless otherwise stated, all tests are performed in Wellington.

"<" means that no analyte was found in the sample at the level of detection shown. Detection limits are based on a clean matrix and may vary according to individual sample.

g/m3 is the equivalent to mg/L and ppm.

Samples will be retained for a period of time, in suitable conditions appropriate to the analyses requested.

Report Released By

Rob Deacon

This laboratory is accredited by International Accreditation New Zealand and its reports are recognised in all countries affiliated to the International Laboratory Accreditation Co-operation Mutual Recognition Arrangement (ILAC-MRA). The tests reported have been performed in accordance with our terms of accreditation, with the exception of tests marked "not IANZ", which are outside the scope of this laboratory's accreditation.

eurofins | ELS

Eurofins ELS Limited

Wellington Water Ltd - PCC
Shoreline Monitoring/Quarterly
Porirua City Council
P.O. Box 50-218
PORIRUA CITY 5240
Attention: Moe Dahlan

Analytical Report

Report Number: 19/20381
Issue: 1
08 May 2019

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
19/20381-01	Porirua Final Effluent - Quarterly		29/04/2019 11:34	29/04/2019 14:29	P1036148

Notes:

	Test	Result	Units	Comments	Signatory
0002	Suspended Solids - Total	< 6	g/m³	Complies	Marylou Cabral KTP
0056	Dissolved Oxygen	6.6	g O2/m³		Marylou Cabral KTP
0085	BOD5 - Total	< 6	g/m³	Complies	Gordon McArthur KTP
0725	Cyanide	< 0.005	g/m³	Complies	Divina Lagazon KTP
6603	Arsenic - Total	< 0.002	g/m³	Complies	Shanel Kumar KTP
6608	Cadmium - Total	< 0.001	g/m³	Complies	Shanel Kumar KTP
6611	Chromium - Total	0.002	g/m³	Complies	Shanel Kumar KTP
6613	Copper - Total	< 0.002	g/m³	Complies	Shanel Kumar KTP
6618	Lead - Total	< 0.001	g/m³	Complies	Shanel Kumar KTP
6622	Mercury - Total	< 0.001	g/m³	Complies	Shanel Kumar KTP
6624	Nickel - Total	< 0.001	g/m³	Complies	Shanel Kumar KTP
6638	Zinc - Total	0.019	g/m³	Complies	Shanel Kumar KTP
MO-5002	Total Halogenated Phenolics	< 0.05	g/m³		Prashilla Singh (Transcribed)
P1855	Aqueous Total Metal Digestion	Completed			stephen hutton Analyst
VOC-001	1,2,4-Trimethylbenzene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-002	1,3,5-Trimethylbenzene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-003	Benzene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-005	Isopropylbenzene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-007	Naphthalene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-008	n-Butylbenezene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-009	n-Propylbenzene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-010	o-Xylene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-011	p-Isopropyltoluene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-013	sec-Butylbenzene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-014	Styrene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-015	tert-Butylbenzene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-016	Toluene	0.0018	mg/L		Dr Alan Stanley KTP
VOC-017	Total p,m Xylene, Ethylbenzene	<0.0015	mg/L		Dr Alan Stanley KTP
VOC-018	1,1,1,2-Tetrachloroethane	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-019	1,1,1-Trichloroethane	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-020	1,1,2,2-Tetrachloroethane	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-021	1,1,2-Trichloroethane	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-022	1,1-Dichloroethane	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-023	1,1-Dichloroethene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-024	1,1-Dichloropropene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-025	1,2,3-Trichloropropane	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-026	1,2-Dibromo-3-chloropropane	<0.001	mg/L		Dr Alan Stanley KTP
VOC-027	1,2-Dibromoethane	<0.0002	mg/L		Dr Alan Stanley KTP
VOC-028	1,2-Dichloroethane	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-029	1,2-Dichloropropane	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-030	1,3-Dichloropropane	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-031	2,2-Dichloropropane	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-032	Allyl chloride	<0.0005	mg/L		Dr Alan Stanley KTP

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
19/20381-01	Porirua Final Effluent - Quarterly		29/04/2019 11:34	29/04/2019 14:29	P1036148

Notes:

	Test	Result	Units	Comments	Signatory
VOC-033	Bromochloromethane	<0.0012	mg/L		Dr Alan Stanley KTP
VOC-034	Bromomethane	<0.001	mg/L		Dr Alan Stanley KTP
VOC-035	Carbon tetrachloride	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-036	Chloroethane	<0.001	mg/L		Dr Alan Stanley KTP
VOC-037	Chloromethane	<0.006	mg/L		Dr Alan Stanley KTP
VOC-038	cis-1,2-Dichloroethene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-039	cis-1,3-Dichloropropene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-040	Dibromomethane	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-041	Dichlorodifluoromethane	<0.001	mg/L		Dr Alan Stanley KTP
VOC-042	Dichloromethane	<0.005	mg/L		Dr Alan Stanley KTP
VOC-043	Hexachlorobutadiene	<0.0002	mg/L		Dr Alan Stanley KTP
VOC-044	Tetrachloroethene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-045	trans-1,2-Dichloroethene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-046	trans-1,3-Dichloropropene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-047	Trichloroethene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-048	Trichlorofluoromethane	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-049	Vinyl Chloride	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-050	1,2,3-Trichlorobenzene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-051	1,2,4-Trichlorobenzene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-052	1,2-Dichlorobenzene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-053	1,3-Dichlorobenzene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-054	1,4-Dichlorobenzene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-055	2-Chlorotoluene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-056	4-Chlorotoluene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-057	Bromobenzene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-058	Chlorobenzene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-059	1,3,5-Trichlorobenzene	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-060	4-Methyl-2-Pentanone	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-061	Carbon disulphide	<0.0005	mg/L		Dr Alan Stanley KTP
VOC-062	Bromodichloromethane	< 0.0005	mg/L		Dr Alan Stanley KTP
VOC-063	Bromoform	< 0.0005	mg/L		Dr Alan Stanley KTP
VOC-064	Chloroform	< 0.0005	mg/L		Dr Alan Stanley KTP
VOC-065	Dibromochloromethane	< 0.0005	mg/L		Dr Alan Stanley KTP

Comments:

Sampled by ELS using approved containers and techniques.

All samples analysed as we receive them. Delivery was within the correct time and temperature conditions.

Test Methodology:

Test	Methodology	Detection Limit
Suspended Solids - Total	APHA Online Edition Method 2540 D	3 g/m³
Dissolved Oxygen	APHA Online Edition Method 4500-O G	1 g O2/m³
BOD5 - Total	APHA Online Edition Method 5210 B.	1 g/m³
Cyanide	Discrete Analyser. In House method based on APHA Online Edition Method 4500-CN- C & E.	0.005 g/m³
Arsenic - Total	ICP-MS following APHA Online Edition method 3125 (modified)	0.002 g/m³
Cadmium - Total	ICP-MS following APHA Online Edition method 3125 (modified)	0.001 g/m³
Chromium - Total	ICP-MS following APHA Online Edition method 3125 (modified)	0.001 g/m³
Copper - Total	ICP-MS following APHA Online Edition method 3125 (modified)	0.002 g/m³
Lead - Total	ICP-MS following APHA Online Edition method 3125 (modified)	0.001 g/m³
Mercury - Total	ICP-MS following APHA Online Edition method 3125 (modified)	0.001 g/m³
Nickel - Total	ICP-MS following APHA Online Edition method 3125 (modified)	0.001 g/m³

Test	Methodology	Detection Limit
Zinc - Total	ICP-MS following APHA Online Edition method 3125 (modified)	0.005 g/m³
Total Halogenated Phenolics	Analyses at Eurofins Melbourne following Method USEPA 8270 Phenols.	0.01 g/m³
Aqueous Total Metal Digestion	Follows APHA Online Edition Method 3030E (modified) using nitric acid.	n/a
1,2,4-Trimethylbenzene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,3,5-Trimethylbenzene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Benzene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Isopropylbenzene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Naphthalene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
n-Butylbenezene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
n-Propylbenzene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
o-Xylene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
p-Isopropyltoluene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
sec-Butylbenzene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Styrene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
tert-Butylbenzene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Toluene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Total p,m Xylene, Ethylbenzene	VOC Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0015 mg/L
1,1,1,2-Tetrachloroethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,1,1-Trichloroethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,1,2,2-Tetrachloroethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,1,2-Trichloroethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,1-Dichloroethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,1-Dichloroethene	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,1-Dichloropropene	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,2,3-Trichloropropane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,2-Dibromo-3-chloropropane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.001 mg/L
1,2-Dibromoethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0002 mg/L
1,2-Dichloroethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,2-Dichloropropane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,3-Dichloropropane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
2,2-Dichloropropane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Allyl chloride	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Bromochloromethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0012 mg/L
Bromomethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.001 mg/L
Carbon tetrachloride	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260. Also known as Tetrachloromethane.	0.0005 mg/L

Test	Methodology	Detection Limit
Chloroethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.001 mg/L
Chloromethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.006 mg/L
cis-1,2-Dichloroethene	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
cis-1,3-Dichloropropene	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Dibromomethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Dichlorodifluoromethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.001 mg/L
Dichloromethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.005 mg/L
Hexachlorobutadiene	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0002 mg/L
Tetrachloroethene	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
trans-1,2-Dichloroethene	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
trans-1,3-Dichloropropene	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Trichloroethene	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Trichlorofluoromethane	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Vinyl Chloride	VOC Halogenated Alkanes and Alkenes Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,2,3-Trichlorobenzene	VOC Halogenated Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,2,4-Trichlorobenzene	VOC Halogenated Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,2-Dichlorobenzene	VOC Halogenated Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,3-Dichlorobenzene	VOC Halogenated Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,4-Dichlorobenzene	VOC Halogenated Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
2-Chlorotoluene	VOC Halogenated Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
4-Chlorotoluene	VOC Halogenated Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Bromobenzene	VOC Halogenated Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Chlorobenzene	VOC Halogenated Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
1,3,5-Trichlorobenzene	VOC Halogenated Aromatic Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
4-Methyl-2-Pentanone	VOC Other Volatile Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Carbon disulphide	VOC Other Volatile Compound analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Bromodichloromethane	VOC Trihalomethane analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Bromoform	VOC Trihalomethane analysed by GCMS following an in house method based on USEPA Method 8260. Also known as Tribromomethane.	0.0005 mg/L

Test	Methodology	Detection Limit
Chloroform	VOC Trihalomethane analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L
Dibromochloromethane	VOC Trihalomethane analysed by GCMS following an in house method based on USEPA Method 8260.	0.0005 mg/L

Unless otherwise stated, all tests are performed in Wellington.

"<" means that no analyte was found in the sample at the level of detection shown. Detection limits are based on a clean matrix and may vary according to individual sample.

g/m3 is the equivalent to mg/L and ppm.

Samples will be retained for a period of time, in suitable conditions appropriate to the analyses requested.

Report Released By

Rob Deacon

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