

Annual Water Quality Report

July 2022 – June 2023

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Introduction

This report provides an overview of the drinking water compliance monitoring data collected from the Water Treatment Plants (**WTPs**) and Distribution Network Zones managed and operated by Watercare Services Limited (**Watercare**).

This data is collected to ensure that Watercare remains compliant with the Drinking-water Regulations and duties under the Water Services Act 2021.

The Drinking Water Standards for New Zealand 2005 (revised 2018) (**DWSNZ**) was replaced with new DWSNZ 2022, the Drinking Water Quality Assurance Rules 2022 (**DWQAR**), and the Aesthetic Values 2022 (**AV**). The new Regulations came into effect on 14 November 2022, with compliance reporting to Taumata Arowai (**TA**), the water services regulator, from 1 January 2023.

This report is a summary of Watercare Auckland's performance for the following periods:

- July – December 2022: DWSNZ 2005
- January – June 2023: DWSNZ 2022 and DWQAR 2022

A Maximum Acceptable Value (**MAV**) is the concentration of a microbial or chemical constituent below which the presence of that constituent does not pose any significant risk to the health of the consumer over a lifetime consumption of that water.

Where the **MAV** for a determinand was exceeded, Watercare responded in accordance with the DWSNZ, including notifying **TA** of any event and conducting a full investigation. In all cases for Watercare, the investigation findings confirmed that the water supplied to consumers was compliant with the old and new DWSNZ.

An **AV** is the concentration of specific water quality parameters which have no effect on human health but may affect the aesthetic qualities of a drinking water. Exceeding **AVs** may contribute to consumer complaints regarding the aesthetic qualities of a drinking water supply.

Where the **AV** for a determinand was exceeded, Watercare responded in accordance with DWQAR.

The report consists of two parts. The first part summarises WTP data, and the second part data related to the Distribution Networks.

Water Treatment Plant Data

The MAVs for monitored determinands at Watercare's WTPs are included with the analysis data itself. These compliance data summary tables include confirmation of the WTPs compliance with the applicable MAVs set out in the DWSNZ2022. This indication is only given for those determinands that have an assigned MAV.

If a determinand was not detected in the monitoring period, 'ND' ("not detected") is noted.

The MAVs can be found in the Drinking Water Standards for New Zealand 2022 which is available on the TA website:

<https://www.legislation.govt.nz/regulation/public/2022/0168/latest/whole.html>.

Distribution Network Data

The Aesthetic Values for parameters in drinking water can be found on TA website:

<https://www.taumataarowai.govt.nz/assets/Uploads/Rules-and-standards/Taumata-Arowai-Aesthetic-Values-for-Drinking-Water-2022.pdf>

The AVs and MAVs for the monitored determinands in the Distribution Network are summarised below:

Drinking-water Standards for New Zealand 2022 MAVs and AVs

Determinand	AV	MAV	Unit
Chlorine Residual	0.3 - 1.0	5.0	mg/L
pH	7.0 - 8.5	-	pH unit
Turbidity	≤ 5	-	NTU
<i>E. coli</i> (<i>Escherichia coli</i>)	N/A	<1.0/100mL	MPN/100mL
Total coliforms	N/A	N/A	MPN/100mL

List of Water Treatment Plants and the Distribution Network Zones Supplied

Water Treatment Plant	Distribution Network Zones Supplied
Ardmore	Auckland Airport, Auckland, Anzac, Buckland, Central Business District, Clarks / Waiau Beach, East Tamaki / Botany, Glenbrook Beach, Glen Eden / New Lynn, Henderson, High Head, Hillsborough, Howick / Pakuranga, Hilltop, HBC / Waiwera, Kitchener, Maungawhau, Mangere, Mt Hobson, Manurewa, Otara / Papatoetoe / Manukau Central, Oratia, Otahuhu, Patumahoe, North Shore South, North Shore West, Swanson, Te Henga, Whenuapai
Bombay	Bombay
Cornwall Road	Waiuku
11 Cornwall Road	Waiuku
Helensville	Helensville / Parakai
Huia	Auckland, Central Business District, Glen Eden / New Lynn, Henderson, Hillsborough, HBC / Waiwera, Laingholm, Maungawhau, Montana, Oratia, Swanson, Te Henga, North Shore West, Whenuapai
Huia Village	Huia Village
Muriwai	Muriwai
Onehunga (Local)	Onehunga
Onehunga (Metro)	Auckland, Hillsborough

Water Treatment Plant	Distribution Network Zones Supplied
Pukekohe	Anzac, Buckland, Clarks / Waiau Beach, Glenbrook Beach, Hilltop, Kitchener, Patumahoe
Snells / Algies	Snells / Algies
Victoria Avenue	Waiuku
Waikato	Auckland Airport, Auckland, Anzac, Buckland, Central Business District, Clarks / Waiau Beach, East Tamaki / Botany, Glenbrook Beach, Glen Eden / New Lynn, Henderson, High Head, Hillsborough, Howick / Pakuranga, Hilltop, HBC / Waiwera, Kitchener, Maungawhau, Mangere, Mt Hobson, Manurewa, Otara / Papatoetoe / Manukau Central, Oratia, Otahuhu, Patumahoe, North Shore South, North Shore West, Swanson, Te Henga, Whenuapai
Waikato 50	Auckland Airport, Auckland, Anzac, Buckland, Central Business District, Clarks / Waiau Beach, East Tamaki / Botany, Glenbrook Beach, Glen Eden / New Lynn, Henderson, High Head, Hillsborough, Howick / Pakuranga, Hilltop, HBC / Waiwera, Kitchener, Maungawhau, Mangere, Mt Hobson, Manurewa, Otara / Papatoetoe / Manukau Central, Oratia, Otahuhu, Patumahoe, North Shore South, North Shore West, Swanson, Te Henga, Whenuapai
Waitakere	Glen Eden / New Lynn, HBC / Waiwera, Oratia, Swanson, Te Henga, Whenuapai
Waiuku Road	Waiuku
Warkworth Wells	Warkworth
Wellsford	Wellsford / Te Hana

Water Quality Compliance Data for the Water Treatment Plants

Ardmore WTP A Block Treated Water

Acid Herbicides									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
1080 (Sodium fluoroacetate)	mg/L	1	ND	ND	ND	0.0001	0.035 ¹		✓
2,4,5- trichlorophenoxyacetic acid (2,4,5-T)	mg/L	4	ND	ND	ND	0.0001	0.01		✓
2,4-Dichlorophenoxyacetic acid (2,4-D)	mg/L	4	ND	ND	ND	0.0001	0.04		✓
4-(2,4-dichlorophenoxy) butanoic acid (2,4-DB)	mg/L	4	ND	ND	ND	0.0001	0.1		✓
Bentazone	mg/L	4	ND	ND	ND	0.0001			
Dichlorprop	mg/L	4	ND	ND	ND	0.0001	0.1		✓
MCPA	mg/L	4	ND	ND	ND	0.0001	0.8		✓
Mecoprop	mg/L	4	ND	ND	ND	0.0001	0.01		✓
Picloram	mg/L	4	ND	ND	ND	0.0001	0.2		✓
Triclopyr	mg/L	4	ND	ND	ND	0.0001	0.1		✓

1 – The DWSNZ2022 sets out two MAVs for 1080: for short-term effect the MAV is 0.035mg/L, for long-term effect the MAV is 0.0035mg/L.

Chemical and Physical									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
UV absorbance at 254nm	Abs units	52	0.019	0.007	0.013	0.002			
Alkalinity (Total) as CaCO ₃	mg/L	52	93	13	17	1			
Aluminium	mg/L	52	0.034	0.018	0.025	0.005	1	0.1	✓
Bromate	mg/L	13	ND	ND	ND	0.005	0.01		✓
Bromide	mg/L	13	0.03	0.01	0.02	0.005			
Calcium	mg/L	16	9.8	6.6	7.8	0.01			

Chemical and Physical cont.									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Calcium Hardness	mg/L	16	25	17	20	0.025			
Chlorate	mg/L	13	ND	ND	ND	0.01	0.8		✓
Chloride	mg/L	13	13.70	11.00	12.72	0.02		250	
Chlorine Residual	mg/L	365	1.74	0.8	1.42	0.02	5	0.3-1.0	✓
Chlorite	mg/L	13	ND	ND	ND	0.005	0.8		✓
Colour	Hazen Units	13	5	ND	0.38	5		15	
Conductivity	mS/m	13	11.2	10	10.64	0.5			
Cyanide	mg/L	4	ND	ND	ND	0.02	0.6		✓
Fluoride	mg/L	52	0.9	0.6	0.8	0.02	1.5		✓
Iodide	mg/L	4	0.0035	ND	0.002	0.001			
Iron	mg/L	52	0.021	0.0085	0.012	0.001		0.3	
Magnesium	mg/L	16	1.60	1.20	1.37	0.001			
Magnesium Hardness	mg/L	16	6.600	4.900	5.625	0.0041			
Manganese	mg/L	52	0.0075	0.0014	0.0029	0.0005	0.4	0.04	✓
pH	pH Units	365	7.9	7	7.6	0.1		7.0-8.5	
Potassium	mg/L	4	1.1	1.0	1.1	0.05			
Silicon	mg/L	4	14	11	12.8	0.1			
Sodium	mg/L	4	8.6	7.3	7.9	0.1		200	
Sulphate	mg/L	4	12.1	8.6	10.1	0.02		250	
Suspended Solids	mg/L	13	0.6	ND	0.2	0.2			
Total Hardness	mg/L	16	30	22	25.13	0.029		200	
Total Organic Carbon TOC	mg/L	13	1.3	0.4	0.8	0.1			
Turbidity	NTU	365	0.35	0.1	0.1	0.05		5	

Microbiology									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limits	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Confirmed Cryptosporidium per 100L	cysts/100 L	5	ND	ND	ND	1	<1		✓
Confirmed Giardia per 100L	cysts/100 L	5	ND	ND	ND	1	<1		✓
<i>E. coli</i>	MPN/100mL	365	ND	ND	ND	1	<1		✓

Nutrients									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Ammonia	mg/L	4	0.005	ND	0.001	0.005		1.5	
Dissolved Reactive Phosphorus	mg/L	4	0.006	0.004	0.005	0.005			
Nitrate (as NO ₃)	mg/L	4	0.342	0.146	0.247	0.009	50		✓
Nitrite (as NO ₂)	mg/L	4	ND	ND	ND	0.007	3		✓
TKN (Total Kjeldahl Nitrogen)	mg/L	4	0.283	ND	0.071	0.1			
Total Phosphorus	mg/L	4	0.005	0.004	0.005	0.005			

Plasticizers									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
bis (2-ethylhexyl) adipate	mg/L	4	ND	ND	ND	2			
bis (2-ethylhexyl) phthalate	mg/L	4	ND	ND	ND	2	0.009		✓

Polycyclic Aromatic Hydrocarbons									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Benzo(a)pyrene	mg/L	4	ND	ND	ND	0.1	0.0007		✓

Semi Volatile Organic Compounds									
Organochlorine Pesticides									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Aldrin + Dieldrin	mg/L	4	ND	ND	ND	0.01	0.00004		✓
Chlordane	mg/L	4	ND	ND	ND	0.01	0.0002		✓
Lindane	mg/L	4	ND	ND	ND	0.01	0.002		✓
Heptachlor	mg/L	4	ND	ND	ND	0.01			
Heptachlor epoxide	mg/L	4	ND	ND	ND	0.01			
Hexachlorobenzene	mg/L	4	ND	ND	ND	0.1			
Methoxychlor	mg/L	4	ND	ND	ND	0.2	0.02		✓
Permethrin (cis + trans)	mg/L	4	ND	ND	ND	0.2			
DDT + isomers	mg/L	4	ND	ND	ND	0.2	0.001		✓
Procymidone	mg/L	4	ND	ND	ND	0.2	0.7		✓
Organonitrogen Herbicides									
Alachlor	mg/L	4	ND	ND	ND	0.2	0.02		✓
Atrazine	mg/L	4	ND	ND	ND	0.1	0.1		✓
Metolachlor	mg/L	4	ND	ND	ND	0.1	0.01		✓
Molinate	mg/L	4	ND	ND	ND	0.1	0.007		✓
Pendimethalin	mg/L	4	ND	ND	ND	0.2	0.02		✓
Propanil	mg/L	4	ND	ND	ND	0.1			
Simazine	mg/L	4	ND	ND	ND	0.1	0.002		✓
Terbuthylazine	mg/L	4	ND	ND	ND	0.2	0.008		✓
Trifluralin	mg/L	4	ND	ND	ND	0.2	0.03		✓
Organophosphorus Pesticides									
Chlorpyrifos	mg/L	4	ND	ND	ND	0.2	0.04		✓
Diazinon	mg/L	4	ND	ND	ND	0.1			
Pirimiphos methyl	mg/L	4	ND	ND	ND	0.2	0.1		✓

Trace Elements									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Antimony	mg/L	4	ND	ND	ND	0.001	0.02		✓
Arsenic	mg/L	4	0.0002	0.0002	0.0002	0.0001	0.01		✓
Barium	mg/L	4	0.0072	0.0047	0.0058	0.0002	1.5		✓
Boron	mg/L	16	0.016	ND	0.007	0.005	2.4		✓
Cadmium	mg/L	4	ND	ND	ND	0.00005	0.004		✓
Chromium	mg/L	4	0.0006	ND	0.0001	0.0001	0.05		✓
Copper	mg/L	4	0.0003	0.0002	0.0003	0.0002	2	1	✓
Lead	mg/L	4	ND	ND	ND	0.0001	0.01		✓
Lithium	mg/L	4	0.0006	0.0003	0.0004	0.0001			
Mercury	mg/L	4	ND	ND	ND	0.00005	0.007		✓
Molybdenum	mg/L	4	ND	ND	ND	0.0003			
Nickel	mg/L	4	0.0002	ND	ND	0.0001	0.08		✓
Selenium	mg/L	4	ND	ND	ND	0.0005	0.04		✓
Zinc	mg/L	4	ND	ND	ND	0.001		1.5	

Trihalomethanes									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Bromodichloromethane	mg/L	52	0.023	0.0027	0.0044	0.0001	0.06		✓
Bromoform	mg/L	52	0.0019	ND	0.0002	0.0001	0.1		✓
Chloroform	mg/L	52	0.0073	0.0013	0.0044	0.0001	0.4		✓
Dibromochloromethane	mg/L	52	0.0056	0.0024	0.0038	0.0001	0.15		✓
THM Sum Ratio		52	0.42	0.07	0.11		1		✓

Volatile Organic Compounds									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
1,1,1-trichloroethane	mg/L	4	ND	ND	ND	0.0001			
1,2,3-trichlorobenzene	mg/L	4	ND	ND	ND	0.0001		0.01	
1,2,4-trichlorobenzene	mg/L	4	ND	ND	ND	0.0001		0.005	
1,2-dichlorobenzene	mg/L	4	ND	ND	ND	0.0001	1.5	0.001	✓
1,2-dichloroethane	mg/L	4	ND	ND	ND	0.0001	0.03		✓
1,4-dichlorobenzene	mg/L	4	ND	ND	ND	0.0001	0.4	0.0003	✓
Benzene	mg/L	4	ND	ND	ND	0.0001	0.01		✓
Carbon tetrachloride	mg/L	4	ND	ND	ND	0.0001	0.005		✓
Ethylbenzene	mg/L	4	ND	ND	ND	0.0001	0.3	0.002	✓
Xylenes (total)	mg/L	4	ND	ND	ND	0.0001	0.6	0.02	✓
Styrene	mg/L	4	ND	ND	ND	0.0001	0.03	0.004	✓
Tetrachloroethene	mg/L	4	ND	ND	ND	0.0001	0.05		✓
Toluene	mg/L	4	ND	ND	ND	0.0001	0.8	0.03	✓
1,2-dichloroethene (cis + trans)	mg/L	4	ND	ND	ND	0.0001	0.06		✓
Trichloroethene	mg/L	4	ND	ND	ND	0.0001	0.02		✓

Halo Acetic Acids (HAAs)									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Bromoacetic Acid	mg/L	11	0.001	0.001	0.001	0.0005			
Bromochloroacetic Acid	mg/L	11	0.005	0.001	0.002	0.0005			
Monochloroacetic Acid	mg/L	11	0.007	0.001	0.001	0.0005	0.02		✓
Dibromoacetic Acid	mg/L	11	0.002	0.001	0.001	0.0005			
Dichloroacetic Acid	mg/L	11	0.005	0.001	0.003	0.0005	0.05		✓
Trichloroacetic Acid	mg/L	11	0.002	0.001	0.002	0.0005	0.2		✓
HAA Sum Ratio		11	0.471	0.050	0.128				

Ardmore WTP B1 Block Treated Water

Acid Herbicides									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
1080 (Sodium fluoroacetate)	mg/L	1	ND	ND	ND	0.0001	0.035 ¹		✓
2,4,5- trichlorophenoxyacetic acid (2,4,5-T)	mg/L	4	ND	ND	ND	0.0001	0.01		✓
2,4-Dichlorophenoxyacetic acid (2,4-D)	mg/L	4	ND	ND	ND	0.0001	0.04		✓
4-(2,4-dichlorophenoxy) butanoic acid (2,4-DB)	mg/L	4	ND	ND	ND	0.0001	0.1		✓
Bentazone	mg/L	4	ND	ND	ND	0.0001			
Dichlorprop	mg/L	4	ND	ND	ND	0.0001	0.1		✓
MCPA	mg/L	4	ND	ND	ND	0.0001	0.8		✓
Mecoprop	mg/L	4	ND	ND	ND	0.0001	0.01		✓
Picloram	mg/L	4	ND	ND	ND	0.0001	0.2		✓
Triclopyr	mg/L	4	ND	ND	ND	0.0001	0.1		✓

1 – The DWSNZ2022 sets out two MAVs for 1080: for short-term effect the MAV is 0.035mg/L, for long-term effect the MAV is 0.0035mg/L.

Chemical and Physical									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
UV absorbance at 254nm	Abs units	52	0.019	0.006	0.013	0.002			
Alkalinity (Total) as CaCO ₃	mg/L	52	17	11	14	1			
Aluminium	mg/L	52	0.032	0.018	0.024	0.005	1	0.1	✓
Bromate	mg/L	13	ND	ND	ND	0.005	0.01		✓
Bromide	mg/L	13	0.028	0.01	0.02	0.005			
Calcium	mg/L	16	9.1	6.5	7.5	0.01			
Calcium Hardness	mg/L	16	23	16	19	0.025			
Chlorate	mg/L	13	ND	ND	ND	0.01	0.8		✓

Chemical and Physical cont.									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAV	Compliance DWSNZ2022
Chloride	Mg/L	13	13.80	11.00	12.78	0.02		250	
Chlorine Residual	mg/L	365	1.73	0.84	1.42	0.02	5	0.3-1.0	✓
Chlorite	mg/L	13	ND	ND	ND	0.005	0.8		✓
Colour	Hazen Units	13	7.5	ND	0.58	5		15	
Conductivity	mS/m	13	10.9	9.5	10.4	0.5			
Cyanide	mg/L	4	ND	ND	ND	0.005	0.6		✓
Fluoride	mg/L	52	0.92	0.61	0.81	0.02	1.5		✓
Iodide	mg/L	4	0.003	ND	0.002	0.001			
Iron	mg/L	52	0.15	0.007	0.014	0.002		0.3	
Magnesium	mg/L	16	1.60	1.20	1.36	0.001			
Magnesium Hardness	mg/L	16	6.600	4.900	5.600	0.0041			
Manganese	mg/L	52	0.0072	0.0016	0.0031	0.0005	0.4	0.04	✓
pH	pH unit	365	7.9	6.9	7.4	0.1		7.0-8.5	
Potassium	mg/L	4	1.1	1.0	1.1	0.05			
Silicon	mg/L	4	15.0	11	12.8	0.1			
Sodium	mg/L	4	8.6	7.4	7.9	0.1		200	
Sulphate	mg/L	4	12	8.7	10.2	0.02		250	
Suspended Solids	mg/L	13	0.3	ND	0.1	0.2			
Total Hardness	mg/L	16	28	22	24.44	0.029		200	
Total Organic Carbon	mg/L	13	1.3	0.6	0.8	0.1			
Turbidity	NTU	365	12	0.05	0.2	0.05		5	

Microbiology									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Confirmed Cryptosporidium per 100L	cysts/100 L	6	ND	ND	ND	1	<1		✓
Confirmed Giardia per 100L	cysts/100 L	6	ND	ND	ND	1	<1		✓
<i>E. coli</i>	MPN/100mL	365	ND	ND	ND	1	<1		✓

Nutrients									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Ammonia	mg/L	4	ND	ND	ND	0.005		1.5	
Dissolved Reactive Phosphorus	mg/L	4	0.006	0.004	0.005	0.005			
Nitrate (as NO ₃)	mg/L	4	0.344	0.239	0.274	0.009	50		✓
Nitrite (as NO ₂)	mg/L	4	ND	ND	ND	0.007	3		✓
TKN (Total Kjeldahl Nitrogen)	mg/L	4	0.142	ND	0.0355	0.1			
Total Phosphorus	mg/L	4	0.006	0.004	0.005	0.005			

Plasticizers									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
bis (2-ethylhexyl) adipate	mg/L	4	ND	ND	ND	2			
bis (2-ethylhexyl) phthalate	mg/L	4	ND	ND	ND	2	0.009		✓

Polycyclic Aromatic Hydrocarbons									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Benzo(a)pyrene	mg/L	4	ND	ND	ND	0.1	0.0007		✓

Semi Volatile Organic Compounds									
Organochlorine Pesticides									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWSNZ	Compliance DWSNZ2022
Aldrin + Dieldrin	mg/L	4	ND	ND	ND	0.01	0.00004		✓
Chlordane	mg/L	4	ND	ND	ND	0.01	0.0002		✓
Lindane	mg/L	4	ND	ND	ND	0.01	0.002		✓
Heptachlor	mg/L	4	ND	ND	ND	0.01			
Heptachlor epoxide	mg/L	4	ND	ND	ND	0.01			
Hexachlorobenzene	mg/L	4	ND	ND	ND	0.1			
Methoxychlor	mg/L	4	ND	ND	ND	0.2	0.02		✓
Permethrin (cis + trans)	mg/L	4	ND	ND	ND	0.2			
DDT + isomers	mg/L	4	ND	ND	ND	0.2	0.001		✓
Procymidone	mg/L	4	ND	ND	ND	0.2	0.7		✓
Organonitrogen Herbicides									
Alachlor	mg/L	4	ND	ND	ND	0.2	0.02		✓
Atrazine	mg/L	4	ND	ND	ND	0.1	0.1		✓
Metolachlor	mg/L	4	ND	ND	ND	0.1	0.01		✓
Molinate	mg/L	4	ND	ND	ND	0.1	0.007		✓
Pendimethalin	mg/L	4	ND	ND	ND	0.2	0.02		✓
Propanil	mg/L	4	ND	ND	ND	0.1			
Simazine	mg/L	4	ND	ND	ND	0.1	0.002		✓
Terbutylazine	mg/L	4	ND	ND	ND	0.2	0.008		✓
Trifluralin	mg/L	4	ND	ND	ND	0.2	0.03		✓

Organophosphorus Pesticides									
Chlorpyrifos	mg/L	4	ND	ND	ND	0.2	0.04		✓
Diazinon	mg/L	4	ND	ND	ND	0.1			
Pirimiphos methyl	mg/L	4	ND	ND	ND	0.2	0.1		✓

Trace Elements									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Antimony	mg/L	9	ND	ND	ND	0.001	0.02		✓
Arsenic	mg/L	4	0.0002	0.0001	0.0002	0.0001	0.01		✓
Barium	mg/L	4	0.0073	0.0063	0.0067	0.0002	1.5		✓
Boron	mg/L	16	0.014	ND	0.006	0.005	2.4		✓
Cadmium	mg/L	9	ND	ND	ND	0.00005	0.004		✓
Chromium	mg/L	9	ND	ND	ND	0.0001	0.05		✓
Copper	mg/L	9	0.0003	0.0002	0.0002	0.0002	2	1	✓
Lead	mg/L	9	ND	ND	ND	0.0001	0.01		✓
Lithium	mg/L	4	0.0006	ND	0.0004	0.0001			
Mercury	mg/L	9	ND	ND	ND	0.00005	0.007		✓
Molybdenum	mg/L	4	ND	ND	ND	0.0003			
Nickel	mg/L	9	0.0005	ND	0.0001	0.0001	0.08		✓
Selenium	mg/L	4	ND	ND	ND	0.0005	0.04		✓
Zinc	mg/L	4	0.0013	ND	0.0003	0.001		1.5	

Trihalomethanes									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Bromodichloromethane	mg/L	52	0.0055	ND	0.0035	0.0001	0.06		✓
Bromoform	mg/L	52	0.0019	ND	0.0001	0.0001	0.1		✓
Chloroform	mg/L	52	0.0066	ND	0.0039	0.0001	0.4		✓
Dibromochloromethane	mg/L	52	0.0050	ND	0.0033	0.0001	0.15		✓
THM Sum Ratio		52	0.14	ND	0.09		1		✓

Volatile Organic Compounds									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
1,1,1-trichloroethane	mg/L	4	ND	ND	ND	0.0001			

Volatile Organic Compounds cont.									
1,2,3-trichlorobenzene	mg/L	4	ND	ND	ND	0.0001		0.01	
1,2,4-trichlorobenzene	mg/L	4	ND	ND	ND	0.0001		0.005	
1,2-dichlorobenzene	mg/L	4	ND	ND	ND	0.0001	1.5	0.001	✓
1,2-dichloroethane	mg/L	4	ND	ND	ND	0.0001	0.03		✓
1,4-dichlorobenzene	mg/L	4	ND	ND	ND	0.0001	0.4	0.0003	✓
Benzene	mg/L	4	ND	ND	ND	0.0001	0.01		✓
Carbon tetrachloride	mg/L	4	ND	ND	ND	0.0001	0.005		✓
Ethylbenzene	mg/L	4	ND	ND	ND	0.0001	0.3	0.002	✓
Xylenes (total)	mg/L	4	ND	ND	ND	0.0001	0.6	0.02	✓
Styrene	mg/L	4	ND	ND	ND	0.0001	0.03	0.004	✓
Tetrachloroethene	mg/L	4	ND	ND	ND	0.0001	0.05		✓
Toluene	mg/L	4	ND	ND	ND	0.0001	0.8	0.03	✓
1,2-dichloroethene (cis + trans)	mg/L	4	ND	ND	ND	0.0001	0.06		✓
Trichloroethene	mg/L	4	ND	ND	ND	0.0001	0.02		✓

Halo Acetic Acids (HAAs)									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Bromoacetic Acid	mg/L	11	0.001	0.001	0.001	0.0005			
Bromochloroacetic Acid	mg/L	11	0.003	0.001	0.001	0.0005			
Monochloroacetic Acid	mg/L	11	0.001	0.001	0.001	0.0005	0.02		✓
Dibromoacetic Acid	mg/L	11	0.001	0.001	0.001	0.0005			
Dichloroacetic Acid	mg/L	11	0.001	0.001	0.001	0.0005	0.05		✓
Trichloroacetic Acid	mg/L	11	0.001	0.001	0.001	0.0005	0.2		✓
HAA Sum Ratio		11	0.08	0.08	0.08				

Ardmore WTP B2 Block Treated Water

* The Ardmore WTP B2 Block was isolated for upgrades on 22 June 2020. This treated water tank remained isolated until the end of the reporting period specified in the report. Compliance monitoring sampling was not undertaken while the treated water tank was isolated.

Bombay WTP Treated Water

Acid Herbicides									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
2,4,5- trichlorophenoxyacetic acid (2,4,5-T)	mg/L	13	ND	ND	ND	0.0001	0.01		✓
2,4-Dichlorophenoxyacetic acid (2,4-D)	mg/L	13	ND	ND	ND	0.0001	0.04		✓
4-(2,4-dichlorophenoxy) butanoic acid (2,4-DB)	mg/L	13	ND	ND	ND	0.0001	0.1		✓
Bentazone	mg/L	13	ND	ND	ND	0.0001			
Dichlorprop	mg/L	13	ND	ND	ND	0.0001	0.1		✓
MCPA	mg/L	13	ND	ND	ND	0.0001	0.002		✓
Mecoprop	mg/L	13	ND	ND	ND	0.0001	0.01		✓
Picloram	mg/L	13	ND	ND	ND	0.0001	0.2		✓
Triclopyr	mg/L	13	ND	ND	ND	0.0001	0.1		✓

Chemical and Physical									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
UV absorbance at 254nm	Abs units	13	0.013	ND	0.003	0.002			
Alkalinity (Total) as CaCO ₃	mg/L	4	65	48	58	1			
Aluminium	mg/L	4	0.008	ND	0.002	0.005	1	0.1	✓
Bromate	mg/L	4	ND	ND	ND	0.01	0.01		✓
Bromide	mg/L	4	0.042	0.03	0.03	0.005			
Calcium	mg/L	4	14	16	11	0.01			
Calcium Hardness	mg/L	4	41	28	36	0.025			
Chlorate	mg/L	4	ND	ND	ND	0.01	0.8		✓
Chloride	mg/L	4	110	70.60	84.35	0.02		250	
Chlorine Residual	mg/L	112	1.37	0.52	1.01	0.02	5	0.3-1.0	✓
Chlorite	mg/L	4	ND	ND	ND	0.005	0.8		✓

Chemical and Physical cont.									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Colour	Hazen Units	1	5	5	5	5		15	
Conductivity	mS/m	1	40	40	40.0	0.5			
Cyanide	mg/L	1	ND	ND	ND	0.005	0.6		✓
Fluoride	mg/L	4	0.03	0.02	0.02	0.02	1.5		✓
Iodide	mg/L	1	0.009	0.009	0.009	0.001			
Iron	mg/L	4	0.053	0.004	0.017	0.002		0.3	
Magnesium	mg/L	4	15	11	13.5	0.001			
Magnesium Hardness	mg/L	4	60	46	56	0.0041			
Manganese	mg/L	4	ND	ND	ND	0.0005	0.4	0.04	✓
pH	pH Units	112	8	6.7	7.6	0.1		7.0-8.5	
Potassium	mg/L	1	1.4	1.4	1.4	0.05			
Silicon	mg/L	1	38	38	38	0.1			
Sodium	mg/L	1	42	42	42	0.1		200	
Sulphate	mg/L	1	ND	ND	ND	0.02		250	
Suspended Solids	mg/L	1	ND	ND	ND	0.2			
Total Dissolved Solids	mg/L	1	210	210	210	15		1000	
Total Hardness	mg/L	4	100	73	91.25	0.029		200	
Total Organic Carbon TOC	mg/L	13	0.5	ND	0.2	0.1			
Turbidity	NTU	112	0.8	ND	0.1	0.05		5	

Microbiology									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
<i>E. coli</i>	MPN/100mL	111	ND	ND	ND	1	<1		✓

Nutrients									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Ammonia	mg/L	4	ND	ND	ND	0.005		1.5	
Dissolved Reactive Phosphorus	mg/L	1	0.006	0.006	0.006	0.005			
Nitrate (as NO ₃)	mg/L	53	20.37	1.60	8.29	0.009	50		√
Nitrite (as NO ₂)	mg/L	4	ND	ND	ND	0.007	3		√
TKN (Total Kjeldahl Nitrogen)	mg/L	1	ND	ND	ND	0.1			
Total Phosphorus	mg/L	1	0.006	0.006	0.006	0.005			

Plasticizers									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
bis (2-ethylhexyl) adipate	mg/L	4	ND	ND	ND	2			
bis (2-ethylhexyl) phthalate	mg/L	4	ND	ND	ND	2	0.009		√

Polycyclic Aromatic Hydrocarbons									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Benzo(a)pyrene	mg/L	4	ND	ND	ND	0.1	0.0007		√

Semi Volatile Organic Compounds									
Organochlorine Pesticides									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Aldrin + Dieldrin	mg/L	17	ND	ND	ND	0.01	0.00004		√
Chlordane	mg/L	4	ND	ND	ND	0.01	0.0002		√
Lindane	mg/L	4	ND	ND	ND	0.01	0.002		√
Heptachlor	mg/L	17	ND	ND	ND	0.01			
Heptachlor epoxide	mg/L	17	ND	ND	ND	0.01			

Organochlorine Pesticides cont.									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Hexachlorobenzene	mg/L	4	ND	ND	ND	0.1			
Methoxychlor	mg/L	4	ND	ND	ND	0.2	0.02		✓
Permethrin (cis + trans)	mg/L	4	ND	ND	ND	0.2			
DDT + isomers	mg/L	4	ND	ND	ND	0.2	0.001		✓
Procymidone	mg/L	4	ND	ND	ND	0.2	0.7		✓
Organonitrogen Herbicides									
Alachlor	mg/L	4	ND	ND	ND	0.2	0.02		✓
Atrazine	mg/L	4	ND	ND	ND	0.1	0.1		✓
Metolachlor	mg/L	4	ND	ND	ND	0.1	0.01		✓
Molinate	mg/L	4	ND	ND	ND	0.1	0.007		✓
Pendimethalin	mg/L	4	ND	ND	ND	0.2	0.02		✓
Propanil	mg/L	4	ND	ND	ND	0.1			
Simazine	mg/L	4	ND	ND	ND	0.1	0.002		✓
Terbutylazine	mg/L	4	ND	ND	ND	0.2	0.008		✓
Trifluralin	mg/L	4	ND	ND	ND	0.2	0.03		✓
Organophosphorus Pesticides									
Chlorpyrifos	mg/L	4	ND	ND	ND	0.2	0.04		✓
Diazinon	mg/L	4	ND	ND	ND	0.1			
Pirimiphos methyl	mg/L	4	ND	ND	ND	0.2	0.1		✓

Trace Elements									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Antimony	mg/L	1	ND	ND	ND	0.001	0.02		✓
Arsenic	mg/L	1	ND	ND	ND	0.0001	0.01		✓
Barium	mg/L	1	0.0015	0.0015	0.0015	0.0002	1.5		✓
Boron	mg/L	1	0.014	0.014	0.014	0.005	2.4		✓
Cadmium	mg/L	4	ND	ND	ND	0.00005	0.004		✓

Trace Elements cont.									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Chromium	mg/L	1	ND	ND	ND	0.0001	0.05		✓
Copper	mg/L	4	0.012	0.007	0.010	0.0002	2	1	✓
Lead	mg/L	1	ND	ND	ND	0.0001	0.01		✓
Lithium	mg/L	1	0.0006	0.0006	0.0006	0.0001			
Mercury	mg/L	1	ND	ND	ND	0.00005	0.007		✓
Molybdenum	mg/L	2	ND	ND	ND	0.0003			
Nickel	mg/L	1	0.00014	0.00014	0.00014	0.0001	0.08		✓
Selenium	mg/L	1	ND	ND	ND	0.0005	0.04		✓
Zinc	mg/L	1	0.007	0.007	0.007	0.001		1.5	

Trihalomethanes									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Bromodichloromethane	mg/L	14	0.001	ND	0.0001	0.0001	0.06		✓
Bromoform	mg/L	14	ND	ND	ND	0.0001	0.1		✓
Chloroform	mg/L	14	0.0007	ND	0.0001	0.0001	0.4		✓
Dibromochloromethane	mg/L	14	ND	ND	ND	0.0001	0.15		✓
THM Sum Ratio		14	0.02	ND	0.001		1		✓

Volatile Organic Compounds									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
1,1,1-trichloroethane	mg/L	1	ND	ND	ND	0.0001			
1,2,3-trichlorobenzene	mg/L	1	ND	ND	ND	0.0001		0.01	
1,2,4-trichlorobenzene	mg/L	1	ND	ND	ND	0.0001		0.005	
1,2-dichlorobenzene	mg/L	1	ND	ND	ND	0.0001	1.5	0.001	✓
1,2-dichloroethane	mg/L	1	ND	ND	ND	0.0001	0.03		✓

Volatile Organic Compounds cont.									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
1,4-dichlorobenzene	mg/L	1	ND	ND	ND	0.0001	0.4	0.0003	✓
Benzene	mg/L	1	ND	ND	ND	0.0001	0.01		✓
Carbon tetrachloride	mg/L	1	ND	ND	ND	0.0001	0.005		✓
Ethylbenzene	mg/L	1	ND	ND	ND	0.0001	0.3	0.002	✓
Xylenes (total)	mg/L	1	ND	ND	ND	0.0001	0.6	0.02	✓
Styrene	mg/L	1	ND	ND	ND	0.0001	0.03	0.004	✓
Tetrachloroethene	mg/L	1	ND	ND	ND	0.0001	0.05		✓
Toluene	mg/L	1	ND	ND	ND	0.0001	0.8	0.03	✓
Trichloroethene	mg/L	1	ND	ND	ND	0.0001	0.02		✓

Halo Acetic Acids (HAAs)									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Bromoacetic Acid	mg/L	4	0.001	0.001	0.001	0.0005			
Bromochloroacetic Acid	mg/L	4	0.001	0.001	0.001	0.0005			
Monochloroacetic Acid	mg/L	4	0.001	0.001	0.001	0.0005	0.02		✓
Dibromoacetic Acid	mg/L	4	0.001	0.001	0.001	0.0005			
Dichloroacetic Acid	mg/L	4	0.001	0.001	0.001	0.0005	0.05		✓
Trichloroacetic Acid	mg/L	4	0.001	0.001	0.001	0.0005	0.2		✓
HAA Sum Ratio		4	0.08	0.08	0.08				

Cornwall Road WTP Treated Water

Chemical and Physical									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
UV absorbance at 254nm	Abs units	1	ND	ND	ND	0.002			
Alkalinity (Total) as CaCO ₃	mg/L	4	130	130	130	1			
Aluminium	mg/L	1	ND	ND	ND	0.005	1	0.1	✓
Bromate	mg/L	111	0.0052	ND	0.00005	0.005	0.01		✓
Bromide	mg/L	111	0.12	0.02	0.09	0.005			
Calcium	mg/L	14	34	31	32	0.010			
Calcium Hardness	mg/L	14	86	77	80	0.025			
Chlorate	mg/L	111	0.027	ND	0.000892	0.010	0.8		✓
Chloride	mg/L	1	32.8	32.8	32.8	0.020		250	
Chlorine Residual	mg/L	112	1.5	0.64	1.13	0.020	5	0.3-1.0	✓
Chlorite	mg/L	111	ND	ND	ND	0.005	0.8		✓
Colour	Hazen Units	1	ND	ND	ND	5		15	
Conductivity	mS/m	1	36.6	36.6	36.6	0.500			
Cyanide	mg/L	1	ND	ND	ND	0.005	0.6		✓
Fluoride	mg/L	1	0.03	0.03	0.03	0.020	1.5		✓
Iodide	mg/L	1	0.0048	0.0048	0.0048	0.001			
Iron	mg/L	14	0.0034	ND	0.0002	0.002		0.3	
Magnesium	mg/L	14	11.00	8.80	9.72	0.001			
Magnesium Hardness	mg/L	14	44	36	40	0.004			
Manganese	mg/L	14	ND	ND	ND	0.0005	0.4	0.04	✓
pH	pH Units	112	8.1	7.4	8.0	0.100		7.0-8.5	
Potassium	mg/L	1	3.5	3.5	3.5	0.05			
Silicon	mg/L	1	58	58	58	0.100			
Sodium	mg/L	1	21	21	21	0.100		200	
Sulphate	mg/L	1	5.02	5.02	5.02	0.020		250	

Chemical and Physical cont.									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Suspended Solids	Mg/L	1	ND	ND	ND				
Total Dissolved Solids	mg/L	1	220	220	220	15.000		1000	
Total Hardness	mg/L	14	130	110	121.43	0.029		200	
Turbidity	NTU	114	0.30	ND	0.09	0.05		5	

Microbiology									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
<i>E. coli</i>	MPN/100mL	111	ND	ND	ND	1	<1		✓

Nutrients									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Ammonia	mg/L	1	ND	ND	ND	0.005		1.5	
Dissolved Reactive Phosphorus	mg/L	1	0.044	0.044	0.044	0.005			
Nitrate (as NO ₃)	mg/L	1	0.146	0.146	0.146	0.009	50		✓
Nitrite (as NO ₂)	mg/L	1	ND	ND	ND	0.007	3		✓
TKN (Total Kjeldahl Nitrogen)	mg/L	1	ND	ND	ND	0.1			
Total Phosphorus	mg/L	1	0.05	0.05	0.05	0.005			

Plasticizers									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
bis (2-ethylhexyl) adipate	mg/L	1	ND	ND	ND	2			
bis (2-ethylhexyl) phthalate	mg/L	1	ND	ND	ND	2	0.009		✓

Polycyclic Aromatic Hydrocarbons									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Benzo(a)pyrene	mg/L	1	ND	ND	ND	0.1	0.0007		✓

Semi Volatile Organic Compounds									
Organochlorine Pesticides									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Aldrin + Dieldrin	mg/L	1	ND	ND	ND	0.01	0.00004		✓
Chlordane	mg/L	1	ND	ND	ND	0.01	0.0002		✓
Lindane	mg/L	1	ND	ND	ND	0.01	0.002		✓
Heptachlor	mg/L	1	ND	ND	ND	0.01			
Heptachlor epoxide	mg/L	1	ND	ND	ND	0.01			
Hexachlorobenzene	mg/L	1	ND	ND	ND	0.1			
Methoxychlor	mg/L	1	ND	ND	ND	0.2	0.02		✓
Permethrin (cis + trans)	mg/L	1	ND	ND	ND	0.2			
pp-DDT	mg/L	1	ND	ND	ND	0.2	1		✓
Procymidone	mg/L	1	ND	ND	ND	0.2	0.7		✓

Organonitrogen Herbicides									
Alachlor	mg/L	1	ND	ND	ND	0.2	0.02		✓
Atrazine	mg/L	1	ND	ND	ND	0.1	0.1		✓
Metolachlor	mg/L	1	ND	ND	ND	0.1	0.01		✓
Molinate	mg/L	1	ND	ND	ND	0.1	0.007		✓
Pendimethalin	mg/L	1	ND	ND	ND	0.2	0.02		✓
Propanil	mg/L	1	ND	ND	ND	0.1			
Simazine	mg/L	1	ND	ND	ND	0.1	0.002		✓
Terbutylazine	mg/L	1	ND	ND	ND	0.2	0.008		✓
Trifluralin	mg/L	1	ND	ND	ND	0.2	0.03		✓

Semi Volatile Organic Compounds cont.									
Organophosphorus pesticides									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Chlorpyrifos	mg/L	1	ND	ND	ND	0.2	0.04		✓
Diazinon	mg/L	1	ND	ND	ND	0.1			
Pirimiphos methyl	mg/L	1	ND	ND	ND	0.2	0.1		✓

Trace Elements									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Antimony	mg/L	1	ND	ND	ND	0.001	0.02		✓
Arsenic	mg/L	14	0.0047	0.0037	0.0044	0.0001	0.01		✓
Barium	mg/L	1	0.0004	0.0004	0.0004	0.0002	1.5		✓
Boron	mg/L	1	0.026	0.026	0.026	0.005	2.4		✓
Cadmium	mg/L	1	ND	ND	ND	0.00005	0.004		✓
Chromium	mg/L	1	ND	ND	ND	0.0001	0.05		✓
Copper	mg/L	1	0.0024	0.0024	0.0024	0.0002	2	1	✓
Lead	mg/L	1	ND	ND	ND	0.0001	0.01		✓
Lithium	mg/L	1	0.01	0.01	0.01	0.0001			
Mercury	mg/L	1	ND	ND	ND	0.00005	0.007		✓
Molybdenum	mg/L	1	ND	ND	ND	0.0003			
Nickel	mg/L	1	ND	ND	ND	0.0001	0.08		✓
Selenium	mg/L	1	ND	ND	ND	0.0005	0.04		✓
Zinc	mg/L	1	0.0018	0.0018	0.0018	0.001		1.5	

Trihalomethanes									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Bromodichloromethane	mg/L	14	0.0017	ND	0.0003	0.0001	0.06		✓
Bromoform	mg/L	14	0.0021	ND	0.0002	0.0001	0.1		✓

Trihalomethanes cont.									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Chloroform	mg/L	14	0.0007	ND	0.0001	0.0001	0.4		✓
Dibromochloromethane	mg/L	14	0.0021	ND	0.0003	0.0001	0.15		✓
THM Sum Ratio		14	0.06	ND	0.01		1		✓

Volatile Organic Compounds									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
1,1,1-trichloroethane	mg/L	1	ND	ND	ND	0.0001			
1,2,3-trichlorobenzene	mg/L	1	ND	ND	ND	0.0001		0.01	
1,2,4-trichlorobenzene	mg/L	1	ND	ND	ND	0.0001		0.005	
1,2-dichlorobenzene	mg/L	1	ND	ND	ND	0.0001	1.5	0.001	✓
1,2-dichloroethane	mg/L	1	ND	ND	ND	0.0001	0.03		✓
1,4-dichlorobenzene	mg/L	1	ND	ND	ND	0.0001	0.4	0.0003	✓
Benzene	mg/L	1	ND	ND	ND	0.0001	0.01		✓
Carbon tetrachloride	mg/L	1	ND	ND	ND	0.0001	0.005		✓
Ethylbenzene	mg/L	1	ND	ND	ND	0.0001	0.3	0.002	✓
m- & p-Xylene	mg/L	1	ND	ND	ND	0.0001	0.6		✓
Styrene	mg/L	1	ND	ND	ND	0.0001	0.03	0.004	✓
Tetrachloroethene	mg/L	1	ND	ND	ND	0.0001	0.05		✓
Toluene	mg/L	1	ND	ND	ND	0.0001	0.8	0.03	✓
1,2-dichloroethene (cis + trans)	mg/L	1	ND	ND	ND	0.0001	0.06		✓
Trichloroethene	mg/L	1	ND	ND	ND	0.0001	0.02		✓

11 Cornwall Road WTP Treated Water (Interim Waiuku)

Chemical and Physical									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Calcium	mg/L	2	37	34	36	0.010			
Calcium Hardness	mg/L	2	92	85	89	0.025			
Chlorine Residual	mg/L	9	1.03	0.64	0.93	0.020	5	0.3-1.0	√
Chlorate	mg/L	21	6.11	0	0.44	0.10	0.8		x *
Iron	mg/L	2	0.003	0.002	0.003	0.002		0.3	
Magnesium	mg/L	2	11	10	11	0.001			
Magnesium Hardness	mg/L	2	44	42	43	0.004			
Manganese	mg/L	2	ND	ND	ND	0.0005	0.4	0.04	√
pH	pH Units	9	8.3	8	8.1	0.100		7.0-8.5	
Total Organic Carbon		2	0.2	0.1	0.15				
Total Hardness	mg/L	2	130	130	130	0.029		200	
Turbidity	NTU	9	0.25	0.10	0.14	0.05		5	

Microbiology									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
<i>E. coli</i>	MPN/100mL	9	ND	ND	ND	1	<1		√

Trace Elements									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Arsenic	mg/L	2	0.003	0.003	0.003	0.0001	0.01		√

Trihalomethanes									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Bromodichloromethane	mg/L	2	ND	ND	ND	0.0001	0.06		✓
Bromoform	mg/L	2	0.0014	ND	0.0007	0.0001	0.1		✓
Chloroform	mg/L	2	ND	ND	ND	0.0001	0.4		✓
Dibromochloromethane	mg/L	2	0.0014	ND	0.0007	0.0001	0.15		✓
THM Sum Ratio		2	0.02	ND	0.01		1		✓

* It has been determined during investigation that this sample was not representative of the water which was supplied to the public and the Taumata Arowai and Medical Officer of Health were notified.

Helensville WTP Treated Water*

*The Helensville WTP was shutdown from 14th February to 16th February 2023 due to the challenging raw water conditions caused by Cyclone Gabrielle weather event. Daily compliance samples were not collected on the dates that the plant was not producing water. Samples were collected on the day the plant was put out of service and on the day the plant was restarted.

Acid Herbicides									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
2,4,5- trichlorophenoxyacetic acid (2,4,5-T)	mg/L	12	ND	ND	ND	0.0001	0.01		✓
2,4-Dichlorophenoxyacetic acid (2,4-D)	mg/L	12	ND	ND	ND	0.0001	0.04		✓
4-(2,4-dichlorophenoxy) butanoic acid (2,4-DB)	mg/L	12	ND	ND	ND	0.0001	0.1		✓
Bentazone	mg/L	12	ND	ND	ND	0.0001			
Dichlorprop	mg/L	12	ND	ND	ND	0.0001	0.1		✓
MCPA	mg/L	12	ND	ND	ND	0.0001	0.8		✓
Mecoprop	mg/L	12	ND	ND	ND	0.0001	0.01		✓
Picloram	mg/L	12	ND	ND	ND	0.0001	0.2		✓
Triclopyr	mg/L	12	ND	ND	ND	0.0001	0.1		✓

Chemical and Physical									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
UV absorbance at 254nm	Abs units	50	0.041	0.006	0.021	0.002			
Alkalinity (Total) as CaCO ₃	mg/L	50	110	30	61	1			
Aluminium	mg/L	50	0.078	0.009	0.018	0.005	1	0.1	✓
Bromate	mg/L	4	ND	ND	ND	0.005	0.01		✓
Bromide	mg/L	4	0.14	0.05	0.10	0.005			
Calcium	mg/L	15	16.0	5.2	12.0	0.01			
Calcium Hardness	mg/L	15	40	13	30	0.025			
Chlorate	mg/L	4	ND	ND	ND	0.01	0.8		✓
Chloride	mg/L	4	58.50	40.00	51.20	0.02		250	
Chlorine Residual	mg/L	110	2.0	0.7	1.3	0.02	5	0.3-1.0	✓

Chemical and Physical cont.									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Chlorite	mg/L	4	ND	ND	ND	0.005	0.8		✓
Colour	Hazen Units	4	ND	ND	ND	5		15	
Conductivity	mS/m	15	44.7	25.6	38.6	0.5			
Cyanide	mg/L	4	ND	ND	ND	0.005	0.6		✓
Fluoride	mg/L	12	0.05	ND	0.03	0.02	1.5		✓
Iodide	mg/L	4	0.007	ND	0.003	0.001			
Iron	mg/L	15	0.017	ND	0.003	0.002		0.3	
Magnesium	mg/L	15	15.00	2.90	10.29	0.001			
Magnesium Hardness	mg/L	15	40.000	12.000	42.000	0.0041			
Manganese	mg/L	15	0.072	0.003	0.0110	0.0005	0.4	0.04	✓
pH	pH Units	110	8.4	6.8	7.2	0.1		7.0-8.5	
Potassium	mg/L	4	3.8	2.5	3.1	0.05			
Silicon	mg/L	4	23.0	18.0	21.5	0.1			
Sodium	mg/L	4	50.0	37.0	44.0	0.1		200	
Sulphate	mg/L	4	54.0	46.1	50.3	0.02		250	
Suspended Solids	mg/L	12	0.3	ND	0.1	0.2			
Total Dissolved Solids	mg/L	12	300	190	238	15		1000	
Total Hardness	mg/L	12	100.00	26.00	72.67	0.029		200	
Total Organic Carbon TOC	mg/L	50	4.4	0.4	1.5	0.1			
Turbidity	NTU	110	3.7	ND	0.2	0.05		5	

Microbiology									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
<i>E. coli</i>	MPN/100mL	110	ND	ND	ND	1	<1		✓

Nutrients									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Ammonia	mg/L	4	0.005	ND	0.001	0.005		1.5	
Dissolved Reactive Phosphorus	mg/L	12	0.005	0.002	0.003	0.005			
Nitrate (as NO ₃)	mg/L	15	0.558	0.031	0.217	0.009	50		√
Nitrite (as NO ₂)	mg/L	15	ND	ND	ND	0.007	3		√
TKN (Total Kjeldahl Nitrogen)	mg/L	4	0.133	ND	0.033	0.1			
Total Phosphorus	mg/L	12	0.007	ND	0.002	0.005			

Plasticizers									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
bis (2-ethylhexyl) adipate	mg/L	12	ND	ND	ND	2			
bis (2-ethylhexyl) phthalate	mg/L	12	ND	ND	ND	2	0.009		√

Polycyclic Aromatic Hydrocarbons									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Benzo(a)pyrene	mg/L	12	ND	ND	ND	0.1	0.0007		√

Semi Volatile Organic Compounds									
Organochlorine Pesticides									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Aldrin + Dieldrin	mg/L	12	ND	ND	ND	0.01	0.00004		√
Chlordane	mg/L	12	ND	ND	ND	0.01	0.0002		√
Lindane	mg/L	12	ND	ND	ND	0.01	0.002		√
Heptachlor	mg/L	12	ND	ND	ND	0.01			
Heptachlor epoxide	mg/L	12	ND	ND	ND	0.01			

Organochlorine Pesticides cont.									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Hexachlorobenzene	mg/L	12	ND	ND	ND	0.1			
Methoxychlor	mg/L	12	ND	ND	ND	0.2	0.02		✓
Permethrin (cis + trans)	mg/L	12	ND	ND	ND	0.2			
DDT + isomers	mg/L	12	ND	ND	ND	0.2	0.001		✓
Procymidone	mg/L	12	ND	ND	ND	0.2	0.7		✓
Organonitrogen Herbicides									
Alachlor	mg/L	12	ND	ND	ND	0.2	0.02		✓
Atrazine	mg/L	12	ND	ND	ND	0.1	0.1		✓
Metolachlor	mg/L	12	ND	ND	ND	0.1	0.01		✓
Molinate	mg/L	12	ND	ND	ND	0.1	0.007		✓
Pendimethalin	mg/L	12	ND	ND	ND	0.2	0.02		✓
Propanil	mg/L	12	ND	ND	ND	0.1			
Simazine	mg/L	12	ND	ND	ND	0.1	0.002		✓
Terbutylazine	mg/L	12	ND	ND	ND	0.2	0.008		✓
Trifluralin	mg/L	12	ND	ND	ND	0.2	0.03		✓
Organophosphorus Pesticides									
Chlorpyrifos	mg/L	12	ND	ND	ND	0.2	0.04		✓
Diazinon	mg/L	12	ND	ND	ND	0.1			
Pirimiphos methyl	mg/L	12	ND	ND	ND	0.2	0.1		✓
Trace Elements									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Antimony	mg/L	9	ND	ND	ND	0.001	0.02		✓
Arsenic	mg/L	15	0.0004	0.0001	0.0002	0.0001	0.01		✓
Barium	mg/L	4	0.025	0.017	0.022	0.0002	1.5		✓

Trace Elements cont.									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Boron	mg/L	4	0.029	0.016	0.021	0.005	2.4		✓
Cadmium	mg/L	9	ND	ND	ND	0.00005	0.004		✓
Chromium	mg/L	9	0.0006	ND	0.0001	0.0001	0.05		✓
Copper	mg/L	9	0.0004	ND	ND	0.0002	2	1	✓
Lead	mg/L	9	0.0001	ND	ND	0.0001	0.01		✓
Lithium	mg/L	4	0.0025	0.0018	0.0022	0.0001			
Mercury	mg/L	9	ND	ND	ND	0.00005	0.007		✓
Molybdenum	mg/L	4	ND	ND	ND	0.0003			
Nickel	mg/L	9	0.0010	0.0003	0.0005	0.0001	0.08		✓
Selenium	mg/L	4	ND	ND	ND	0.0005	0.04		✓
Zinc	mg/L	4	0.002	ND	0.001	0.001		1.5	

Trihalomethanes									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Bromodichloromethane	mg/L	50	0.008	ND	0.004	0.0001	0.06		✓
Bromoform	mg/L	50	0.013	0.006	0.001	0.0001	0.1		✓
Chloroform	mg/L	50	0.009	ND	0.0020	0.0001	0.4		✓
Dibromochloromethane	mg/L	50	0.019	0.002	0.008	0.0001	0.15		✓
THM Sum Ratio		50	0.37	0.03	0.18		1		✓

Volatile Organic Compounds									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
1,1,1-trichloroethane	mg/L	12	ND	ND	ND	0.0001			
1,2,3-trichlorobenzene	mg/L	12	ND	ND	ND	0.0001		0.01	
1,2,4-trichlorobenzene	mg/L	12	ND	ND	ND	0.0001		0.005	
1,2-dichlorobenzene	mg/L	12	ND	ND	ND	0.0001	1.5	0.001	✓

Volatile Organic Compounds cont.									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
1,2-dichloroethane	mg/L	12	ND	ND	ND	0.0001	0.03		✓
1,4-dichlorobenzene	mg/L	12	ND	ND	ND	0.0001	0.4	0.0003	✓
Benzene	mg/L	12	ND	ND	ND	0.0001	0.01		✓
Carbon tetrachloride	mg/L	12	ND	ND	ND	0.0001	0.005		✓
Ethylbenzene	mg/L	12	ND	ND	ND	0.0001	0.3	0.002	✓
Xylenes (total)	mg/L	12	ND	ND	ND	0.0001	0.6	0.02	✓
Styrene	mg/L	12	ND	ND	ND	0.0001	0.03	0.004	✓
Tetrachloroethene	mg/L	12	ND	ND	ND	0.0001	0.05		✓
Toluene	mg/L	12	ND	ND	ND	0.0001	0.8	0.03	✓
1,2-dichloroethene (cis + trans)	mg/L	12	ND	ND	ND	0.0001	0.06		✓
Trichloroethene	mg/L	12	ND	ND	ND	0.0001	0.02		✓

Halo Acetic Acids (HAAs)									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit*	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Bromoacetic Acid	mg/L	4	0.0010	0.0005	0.0008	0.001			
Bromochloroacetic Acid	mg/L	4	0.0038	0.0010	0.0026	0.001			
Monochloroacetic Acid	mg/L	4	0.0010	0.0005	0.0008	0.001	0.02		✓
Dibromoacetic Acid	mg/L	4	0.0074	0.0032	0.0049	0.001			
Dichloroacetic Acid	mg/L	4	0.0024	0.0005	0.0012	0.001	0.05		✓
Trichloroacetic Acid	mg/L	4	0.0010	0.0005	0.0008	0.001	0.2		✓
HAA Sum Ratio		4	0.10	0.04	0.07				

*From January 2023, the test method for Halo Acetic Acids has changed, hence the detection limit has changed from 0.0005 to 0.001.

Huia Village WTP Treated Water

Acid Herbicides									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
2,4,5- trichlorophenoxyacetic acid (2,4,5-T)	mg/L	4	ND	ND	ND	0.0001	0.01		✓
2,4-Dichlorophenoxyacetic acid (2,4-D)	mg/L	4	ND	ND	ND	0.0001	0.04		✓
4-(2,4-dichlorophenoxy) butanoic acid (2,4-DB)	mg/L	4	ND	ND	ND	0.0001	0.1		✓
Bentazone	mg/L	4	ND	ND	ND	0.0001			
Dichlorprop	mg/L	4	ND	ND	ND	0.0001	0.1		✓
MCPA	mg/L	4	ND	ND	ND	0.0001	0.8		✓
Mecoprop (MCP)	mg/L	4	ND	ND	ND	0.0001	0.01		✓
Picloram	mg/L	4	ND	ND	ND	0.0001	0.2		✓
Triclopyr	mg/L	4	ND	ND	ND	0.0001	0.1		✓

Chemical and Physical									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
UV absorbance at 254nm	Abs units	53	0.051	ND	0.017	0.002			
Alkalinity (Total) as CaCO ₃	mg/L	53	22	11	16	1			
Aluminium	mg/L	54	0.091	ND	0.050	0.005	1	0.1	✓
Bromate	mg/L	53	ND	ND	ND	0.005	0.01		✓
Bromide	mg/L	53	0.06	0.02	0.04	0.005			
Calcium	mg/L	15	5.9	2.5	4.0	0.01			
Calcium Hardness	mg/L	15	15	6.4	10	0.025			
Chlorate	mg/L	53	0.48	0.06	0.17	0.01	0.8		✓
Chloride	mg/L	4	30.10	28.10	28.90	0.02		250	
Chlorine Residual	mg/L	113	2.70	0.04	1.30	0.02	5	0.3-1.0	✓

Chemical and Physical cont.									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Chlorite	mg/L	53	ND	ND	ND	0.005	0.8		✓
Colour	Hazen Units	13	5	ND	0.4	5		15	
Conductivity	mS/m	13	15.8	10.5	14.2	0.5			
Cyanide	mg/L	4	ND	ND	ND	0.005	0.6		✓
Fluoride	mg/L	13	0.03	ND	ND	0.02	1.5		✓
Iodide	mg/L	4	0.004	0.002	0.003	0.001			
Iron	mg/L	15	0.094	nD	0.014	0.001		0.3	
Magnesium	mg/L	15	2.90	1.50	2.37	0.001			
Magnesium Hardness	mg/L	15	12.000	6.199	9.740	0.0041			
Manganese	mg/L	15	0.0820	ND	0.0097	0.0005	0.4	0.04	✓
pH	pH Units	113	8.2	7.1	7.5	0.1		7.0-8.5	
Potassium	mg/L	4	1.00	0.96	0.99	0.05			
Silicon	mg/L	4	14.0	12.0	13.0	0.1			
Sodium	mg/L	4	19.0	17.0	18.0	0.1		200	
Sulphate	mg/L	4	5.2	4.0	4.8	0.02		250	
Suspended Solids	mg/L	13	3.0	ND	0.3	0.2			
Total Hardness	mg/L	15	26.00	13.00	19.66	0.1		200	
Total Organic Carbon TOC	mg/L	13	1.9	0.2	0.9	0.1			
Turbidity	NTU	113	2.5	ND	0.2	0.05		5	

Microbiology									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
<i>E. coli</i>	MPN/100mL	113	ND	ND	ND	1	<1		✓

Nutrients									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Ammonia	mg/L	4	0.007	ND	0.002	0.005		1.5	
Dissolved Reactive Phosphorus	mg/L	4	0.003	0.002	0.003	0.005			
Nitrate (as NO ₃)	mg/L	4	0.31	0.075	0.168	0.009	50		√
Nitrite (as NO ₂)	mg/L	4	ND	ND	ND	0.007	3		√
TKN (Total Kjeldahl Nitrogen)	mg/L	4	0.634	ND	0.219	0.1			
Total Phosphorus	mg/L	4	ND	ND	ND	0.005			

Plasticizers									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
bis (2-ethylhexyl) adipate	mg/L	4	ND	ND	ND	2			
bis (2-ethylhexyl) phthalate	mg/L	4	ND	ND	ND	2	0.009		√

Polycyclic Aromatic Hydrocarbons									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Benzo(a)pyrene	mg/L	4	ND	ND	ND	0.1	0.0007		√

Semi Volatile Organic Compounds									
Organochlorine Pesticides									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Aldrin + Dieldrin	mg/L	4	ND	ND	ND	0.01	0.00004		√
Chlordane	mg/L	4	ND	ND	ND	0.01	0.0002		√
Heptachlor	mg/L	4	ND	ND	ND	0.01			
Heptachlor epoxide	mg/L	4	ND	ND	ND	0.01			
Hexachlorobenzene	mg/L	4	ND	ND	ND	0.1			
Methoxychlor	mg/L	4	ND	ND	ND	0.2	0.02		√

Organochlorine Pesticides cont.									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Permethrin (cis + trans)	mg/L	4	ND	ND	ND	0.2			
DDT + isomers	mg/L	4	ND	ND	ND	0.2	0.001		✓
Procymidone	mg/L	4	ND	ND	ND	0.2	0.7		✓
Organonitrogen Herbicides									
Alachlor	mg/L	4	ND	ND	ND	0.2	0.02		✓
Atrazine	mg/L	4	ND	ND	ND	0.1	0.1		✓
Metolachlor	mg/L	4	ND	ND	ND	0.1	0.01		✓
Molinate	mg/L	4	ND	ND	ND	0.1	0.007		✓
Pendimethalin	mg/L	4	ND	ND	ND	0.2	0.02		✓
Propanil	mg/L	4	ND	ND	ND	0.1			
Simazine	mg/L	4	ND	ND	ND	0.1	0.002		✓
Terbuthylazine	mg/L	4	ND	ND	ND	0.2	0.008		✓
Trifluralin	mg/L	4	ND	ND	ND	0.2	0.03		✓
Organophosphorus Pesticides									
Chlorpyrifos	mg/L	4	ND	ND	ND	0.2	0.04		✓
Diazinon	mg/L	4	ND	ND	ND	0.1			
Pirimiphos methyl	mg/L	4	ND	ND	ND	0.2	0.1		✓
Trace Elements									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Antimony	mg/L	9	0.002	ND	ND	0.001	0.02		✓
Arsenic	mg/L	4	ND	ND	ND	0.0001	0.01		✓
Barium	mg/L	4	0.0060	0.003	0.004	0.0002	1.5		✓
Boron	mg/L	4	0.022	ND	0.012	0.005	2.4		✓
Cadmium	mg/L	9	ND	ND	ND	0.00005	0.004		✓
Chromium	mg/L	9	0.0007	ND	0.0001	0.0001	0.05		✓

Trace Elements cont.									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Copper	mg/L	9	0.001	ND	0.0003	0.0002	2	1	✓
Lead	mg/L	9	ND	ND	ND	0.0001	0.01		✓
Lithium	mg/L	4	0.0005	ND	0.0002	0.0001			
Molybdenum	mg/L	5	ND	ND	ND	0.0003			
Nickel	mg/L	4	0.0017	ND	0.0004	0.0001	0.08		✓
Selenium	mg/L	9	0.0005	ND	0.0003	0.0005	0.04		✓
Zinc	mg/L	4	ND	ND	ND	0.001		1.5	

Trihalomethanes									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Bromodichloromethane	mg/L	15	0.0270	ND	0.0056	0.0001	0.06		✓
Bromoform	mg/L	15	0.0031	ND	0.0012	0.0001	0.1		✓
Chloroform	mg/L	15	0.0740	ND	0.0096	0.0001	0.4		✓
Dibromochloromethane	mg/L	15	0.0084	ND	0.0048	0.0001	0.15		✓
THM Sum Ratio		15	0.69	ND	0.16		1		✓

Volatile Organic Compounds									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
1,1,1-trichloroethane	mg/L	15	ND	ND	ND	0.0001			
1,2,3-trichlorobenzene	mg/L	15	ND	ND	ND	0.0001		0.01	
1,2,4-trichlorobenzene	mg/L	15	ND	ND	ND	0.0001		0.005	
1,2-dichlorobenzene	mg/L	15	ND	ND	ND	0.0001	1.5	0.001	✓
1,2-dichloroethane	mg/L	15	ND	ND	ND	0.0001	0.03		✓
1,4-dichlorobenzene	mg/L	15	ND	ND	ND	0.0001	0.4	0.0003	✓
Benzene	mg/L	15	ND	ND	ND	0.0001	0.01		✓
Carbon tetrachloride	mg/L	15	ND	ND	ND	0.0001	0.005		✓

Volatile Organic Compounds cont.									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Ethylbenzene	mg/L	15	ND	ND	ND	0.0001	0.3	0.002	✓
Xylenes (total)	mg/L	15	ND	ND	ND	0.0001	0.6	0.02	✓
Styrene	mg/L	15	ND	ND	ND	0.0001	0.03	0.004	✓
Tetrachloroethene	mg/L	15	ND	ND	ND	0.0001	0.05		✓
Toluene	mg/L	15	ND	ND	ND	0.0001	0.8	0.03	✓
1,2-dichloroethene (cis + trans)	mg/L	15	ND	ND	ND	0.0001	0.06		✓
Trichloroethene	mg/L	15	ND	ND	ND	0.0001	0.02		✓

Halo Acetic Acids (HAAs)									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit*	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Bromoacetic Acid	mg/L	4	0.0010	0.0005	0.0008	0.0005			
Bromochloroacetic Acid	mg/L	4	0.0018	0.0005	0.0011	0.0005			
Monochloroacetic Acid	mg/L	4	0.0010	0.0005	0.0008	0.0005	0.02		✓
Dibromoacetic Acid	mg/L	4	0.0026	0.0010	0.0017	0.0005			
Dichloroacetic Acid	mg/L	4	0.0018	0.0005	0.0011	0.0005	0.05		✓
Trichloroacetic Acid	mg/L	4	0.0010	0.0005	0.0008	0.0005	0.2		✓
HAA Sum Ratio		4	0.09	0.04	0.07				

*From January 2023, the test method for Haloacetic Acids has changed, hence the detection limit has changed from 0.0005 to 0.001.

Huia WTP Treated Water

Acid Herbicides									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
2,4,5- trichlorophenoxyacetic acid (2,4,5-T)	mg/L	4	ND	ND	ND	0.0001	0.01		✓
2,4-Dichlorophenoxyacetic acid (2,4-D)	mg/L	4	ND	ND	ND	0.0001	0.04		✓
4-(2,4-dichlorophenoxy) butanoic acid (2,4-DB)	mg/L	4	ND	ND	ND	0.0001	0.1		✓
Bentazone	mg/L	4	ND	ND	ND	0.0001			
Dichlorprop	mg/L	4	ND	ND	ND	0.0001	0.1		✓
MCPA	mg/L	4	ND	ND	ND	0.0001	0.8		✓
Mecoprop	mg/L	4	ND	ND	ND	0.0001	0.01		✓
Picloram	mg/L	4	ND	ND	ND	0.0001	0.2		✓
Triclopyr	mg/L	4	ND	ND	ND	0.0001	0.1		✓

Chemical and Physical									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
UV absorbance at 254nm	Abs units	52	0.027	0.011	0.019	0.002			
Alkalinity (Total) as CaCO ₃	mg/L	52	18	7	12	1			
Aluminium	mg/L	52	0.37	0.02	0.05	0.005	1	0.1	✓
Bromate	mg/L	4	ND	ND	ND	0.005	0.01		✓
Bromide	mg/L	4	0.04	0.03	0.04	0.005			
Calcium	mg/L	13	13.0	7.4	9.6	0.01			
Calcium Hardness	mg/L	16	32.00	18.00	24.00	0.025			
Chlorate	mg/L	4	ND	ND	ND	0.01	0.8		✓
Chloride	mg/L	4	21.40	16.70	19.6	0.02		250	
Chlorine Residual	mg/L	364	2.00	0.62	1.17	0.02	5	0.3-1.0	✓

Chemical and Physical cont.									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Chlorite	mg/L	4	ND	ND	ND	0.005	0.8		√
Colour	Hazen Units	13	10.0	ND	1.2	5		15	
Conductivity	mS/m	13	15.8	13.3	14.4	0.5			
Cyanide	mg/L	4	ND	ND	ND	0.005	0.6		√
Fluoride	mg/L	52	0.9	ND	0.7	0.02	1.5		√
Iodide	mg/L	4	0.003	ND	0.002	0.001			
Iron	mg/L	52	0.20	0.01	0.02	0.001		0.3	
Magnesium	mg/L	16	2.80	1.60	2.10	0.001			
Magnesium Hardness	mg/L	16	11.000	6.600	8.644	0.0041			
Manganese	mg/L	52	0.016	0.002	0.006	0.0005	0.4	0.04	√
pH	pH Units	364	7.9	6.5	7.4	0.1		7.0-8.5	
Potassium	mg/L	4	1.0	0.8	0.9	0.05			
Silicon	mg/L	4	13.0	11.0	12.2	0.1			
Sodium	mg/L	4	13.0	10.0	11.5	0.1		200	
Sulphate	mg/L	4	23.6	13.3	16.6	0.02		250	
Suspended Solids	mg/L	13	0.8	ND	0.2	0.2			
Total Hardness	mg/L	16	39.00	27.00	32.56	0.029		200	
Total Organic Carbon TOC	mg/L	13	1.6	0.8	1.1	0.1			
Turbidity	NTU	364	0.6	0.1	0.2	0.05		5	

Microbiology									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
<i>E. coli</i>	MPN/100mL	364	ND	ND	ND	1	<1		√

Nutrients									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Ammonia	mg/L	4	ND	ND	ND	0.005		1.5	
Dissolved Reactive Phosphorus	mg/L	4	0.004	0.003	0.004	0.005			
Nitrate (as NO ₃)	mg/L	4	0.323	0.120	0.217	0.009	50		✓
Nitrite (as NO ₂)	mg/L	4	ND	ND	ND	0.007	3		✓
TKN (Total Kjeldahl Nitrogen)	mg/L	4	0.105	ND	0.026	0.1			
Total Phosphorus	mg/L	4	0.006	0.004	0.005	0.005			

Plasticisers									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
bis (2-ethylhexyl) adipate	mg/L	4	ND	ND	ND	2			
bis (2-ethylhexyl) phthalate	mg/L	4	ND	ND	ND	2	0.009		✓

Polycyclic Aromatic Hydrocarbons									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Benzo[a]pyrene	mg/L	4	ND	ND	ND	0.1	0.7		

Semi Volatile Organic Compounds									
Organochlorine Pesticides									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Aldrin + Dieldrin	mg/L	4	ND	ND	ND	0.01	0.00004		✓
Chlordane Total	mg/L	4	ND	ND	ND	0.01	0.0002		✓
Lindane	mg/L	4	ND	ND	ND	0.01	0.002		✓
Heptachlor	mg/L	4	ND	ND	ND	0.01			
Heptachlor epoxide	mg/L	4	ND	ND	ND	0.01			
Hexachlorobenzene	mg/L	4	ND	ND	ND	0.1			
Methoxychlor	mg/L	4	ND	ND	ND	0.2	0.02		✓
Permethrin (cis + trans)	mg/L	4	ND	ND	ND	0.2			

Semi Volatile Organic Compounds cont									
Organochlorine Pesticides cont.									
DDT + isomers	mg/L	4	ND	ND	ND	0.2	0.001		✓
Procymidone	mg/L	4	ND	ND	ND	0.2	0.7		✓
Organonitrogen Herbicides									
Alachlor	mg/L	4	ND	ND	ND	0.2	0.02		✓
Atrazine	mg/L	4	ND	ND	ND	0.1	0.1		✓
Metolachlor	mg/L	4	ND	ND	ND	0.1	0.01		✓
Molinate	mg/L	4	ND	ND	ND	0.1	0.007		✓
Pendimethalin	mg/L	4	ND	ND	ND	0.2	0.02		✓
Propanil	mg/L	4	ND	ND	ND	0.1			
Simazine	mg/L	4	ND	ND	ND	0.1	0.002		✓
Terbuthylazine	mg/L	4	ND	ND	ND	0.2	0.008		✓
Trifluralin	mg/L	4	ND	ND	ND	0.2	0.03		✓
Organophosphorus Pesticides									
Chlorpyrifos	mg/L	4	ND	ND	ND	0.2	0.04		✓
Diazinon	mg/L	4	ND	ND	ND	0.1			
Pirimiphos-methyl	mg/L	4	ND	ND	ND	0.2	100		✓

Trace Elements									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Antimony	mg/L	9	ND	ND	ND	0.001	0.02		✓
Arsenic	mg/L	4	0.0002	ND	0.0001	0.0001	0.01		✓
Barium	mg/L	4	0.0045	0.0036	0.0041	0.0002	1.5		✓
Boron	mg/L	4	0.017	ND	0.006	0.005	2.4		✓
Cadmium	mg/L	9	ND	ND	ND	0.00005	0.004		✓
Chromium	mg/L	9	0.0007	ND	0.0001	0.0001	0.05		✓
Copper	mg/L	9	0.0005	0.0002	0.0004	0.0002	2	1	✓
Lead	mg/L	9	ND	ND	ND	0.0001	0.01		✓
Lithium	mg/L	4	0.0008	ND	0.0003	0.0001			

Trace Elements cont.									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Mercury	mg/L	5	ND	ND	ND	0.00005	0.007		✓
Molybdenum	mg/L	4	ND	ND	ND	0.0003	0.07		✓
Nickel	mg/L	9	0.0024	0.0002	0.0006	0.0001	0.08		✓
Selenium	mg/L	4	ND	ND	ND	0.0005	0.04		✓
Zinc	mg/L	4	ND	ND	ND	0.001		1.5	

Trihalomethanes									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Bromodichloromethane	mg/L	52	0.009	0.003	0.005	0.0001	0.06		✓
Bromoform	mg/L	52	0.004	ND	0.001	0.0001	0.1		✓
Chloroform	mg/L	52	0.009	0.001	0.004	0.0001	0.4		✓
Dibromochloromethane	mg/L	52	0.011	0.003	0.005	0.0001	0.15		✓
THM Sum Ratio		52	0.22	0.08	0.13		1		✓

Volatile Organic Compounds									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
1,1,1-trichloroethane	mg/L	4	ND	ND	ND	0.0001			
1,2,3-trichlorobenzene	mg/L	4	ND	ND	ND	0.0001		0.01	
1,2,4-trichlorobenzene	mg/L	4	ND	ND	ND	0.0001		0.005	
1,2-dichlorobenzene	mg/L	4	ND	ND	ND	0.0001	1.5	0.001	✓
1,2-dichloroethane	mg/L	4	ND	ND	ND	0.0001	0.03		✓
1,4-dichlorobenzene	mg/L	4	ND	ND	ND	0.0001	0.4	0.0003	✓
Benzene	mg/L	4	ND	ND	ND	0.0001	0.01		✓
Carbon tetrachloride	mg/L	4	ND	ND	ND	0.0001	0.005		✓
Ethylbenzene	mg/L	4	ND	ND	ND	0.0001	0.3	0.002	✓
Xylenes (total)	mg/L	4	ND	ND	ND	0.0001	0.6	0.02	✓
Styrene	mg/L	4	ND	ND	ND	0.0001	0.03	0.004	✓

Volatile Organic Compounds cont.									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Tetrachloroethene	mg/	4	ND	ND	ND	0.0001	0.05		✓
Toluene	mg/L	4	ND	ND	ND	0.0001	0.8	0.03	✓
1,2-dichloroethene (cis + trans)	mg/L	4	ND	ND	ND	0.0001	0.06		✓
Trichloroethene	mg/L	4	ND	ND	ND	0.0001	0.02		✓

Halo Acetic Acids (HAAs)									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit*	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Bromoacetic Acid	mg/L	7	0.0100	0.0005	0.0034	0.0005			
Bromochloroacetic Acid	mg/L	7	0.0100	0.0010	0.0043	0.0005			
Monochloroacetic Acid	mg/L	7	0.0100	0.0005	0.0034	0.0005	0.02		✓
Dibromoacetic Acid	mg/L	7	0.0100	0.0010	0.0040	0.0005			
Dichloroacetic Acid	mg/L	7	0.0100	0.0010	0.0043	0.0005	0.05		✓
Trichloroacetic Acid	mg/L	7	0.0100	0.0005	0.0034	0.0005	0.2		✓
HAA Sum Ratio		7	0.75	0.05	0.27				

*From January 2023, the test method for Haloacetic Acids has changed, hence the detection limit has changed from 0.0005 to 0.001.

Muriwai WTP Treated Water

Acid Herbicides									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
2,4,5- trichlorophenoxyacetic acid (2,4,5-T)	mg/L	3	ND	ND	ND	0.0001	0.01		✓
2,4-Dichlorophenoxyacetic acid (2,4-BD)	mg/L	3	ND	ND	ND	0.0001	0.04		✓
4-(2,4-dichlorophenoxy) butanoic acid (2,4-DB)	mg/L	3	ND	ND	ND	0.0001	0.1		✓
Bentazone	mg/L	3	ND	ND	ND	0.0001			
Dichlorprop	mg/L	3	ND	ND	ND	0.0001	0.1		✓
MCPA	mg/L	3	ND	ND	ND	0.0001	0.8		✓
Mecoprop (MCP)	mg/L	3	ND	ND	ND	0.0001	0.01		✓
Picloram	mg/L	3	ND	ND	ND	0.0001	0.2		✓
Triclopyr	mg/L	3	ND	ND	ND	0.0001	0.1		✓

Chemical and Physical									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
UV absorbance at 254nm	Abs units	8	0.015	ND	0.003	0.002			
Alkalinity (Total) as CaCO ₃	mg/L	3	80	70	76	1			
Aluminium	mg/L	1	0.016	0.016	0.016	0.005	1	0.1	✓
Bromate	mg/L	32	ND	ND	ND	0.005	0.01		✓
Bromide	mg/L	32	0.29	0.14	0.21	0.005			
Calcium	mg/L	4	8.1	7.3	7.7	0.01			
Calcium Hardness	mg/L	4	20	18	19	0.025			
Chlorate	mg/L	32	0.23	0.07	0.12	0.01	0.8		✓
Chloride	mg/L	1	66.09	66.09	66.09	0.02		250	
Chlorine Residual	mg/L	72	1.59	0.55	1.03	0.02	5	0.3-1.0	✓

Chemical and Physical cont.									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Chlorite	mg/L	32	0.01	ND	ND	0.005	0.8		✓
Colour	Hazen Units	1	ND	ND	ND	5		15	
Conductivity	mS/m	1	40.5	40.5	40.5	0.5			
Cyanide	mg/L	1	ND	ND	ND	0.005	0.6		✓
Fluoride	mg/L	1	0.04	0.04	0.04	0.020	1.5		✓
Iodide	mg/L	1	ND	ND	ND	0.001			
Iron	mg/L	4	0.012	0.004	0.009	0.002		0.3	
Magnesium	mg/L	4	6.70	6.20	6.45	0.001			
Magnesium Hardness	mg/L	4	28.000	25.000	26.500	0.0041			
Manganese	mg/L	4	0.0006	ND	0.0003	0.0005	0.4	0.04	✓
pH	pH Units	72	8.1	7.0	7.3	0.1		7.0-8.5	
Potassium	mg/L	1	2.0	2.0	2.0	0.05			
Silicon	mg/L	1	62.0	62.0	62.0	0.1			
Sodium	mg/L	1	60.0	60.0	60.0	0.1		200	
Sulphate	mg/L	1	15.0	15.0	15.0	0.02		250	
Suspended Solids	mg/L	3	ND	ND	ND	0.2			
Total Dissolved Solids	mg/L	3	280	230	163	15		1000	
Total Hardness	mg/L	4	48.00	44.00	45.75	0.029		200	
Total Organic Carbon TOC	mg/L	8	5.9	ND	0.9	0.1			
Dissolved Organic Carbon DOC	mg/L	8	5.7	ND	0.9	0.1			
Turbidity	NTU	72	0.5	ND	0.1	0.05		5	

Microbiology									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
<i>E. coli</i>	MPN/100mL	72	ND	ND	ND	1	<1		✓

Nutrients									
Component Name	Units	Number of Samples	Max	Min	Average	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022	MAV DWSNZ2022
Ammonia	mg/L	3	ND	ND	ND	0.005		1.5	
Dissolved Reactive Phosphorus	mg/L	3	0.043	0.041	0.043	0.005			
Nitrate (as NO ₃)	mg/L	3	3.534	3.034	3.306	0.009	50		√
Nitrite (as NO ₂)	mg/L	3	ND	ND	ND	0.007	3		√
TKN (Total Kjeldahl Nitrogen)	mg/L	3	ND	ND	ND	0.1			
Total Phosphorus	mg/L	3	0.043	0.039	0.042	0.005			

Plasticizers									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
bis (2-ethylhexyl) adipate	mg/L	1	ND	ND	ND	2			
bis (2-ethylhexyl) phthalate	mg/L	1	ND	ND	ND	2	0.009		√

Polycyclic Aromatic Hydrocarbons									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Benzo(a)pyrene	mg/L	1	ND	ND	ND	0.1	0.0007		√

Semi Volatile Organic Compounds									
Organochlorine Pesticides									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Aldrin + Dieldrin	mg/L	1	ND	ND	ND	0.01	0.00004		√
Chlordane	mg/L	1	ND	ND	ND	0.01	0.0002		√
Heptachlor	mg/L	1	ND	ND	ND	0.01			
Heptachlor epoxide	mg/L	1	ND	ND	ND	0.01			
Hexachlorobenzene	mg/L	1	ND	ND	ND	0.1			

Organochlorine Pesticides cont.									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Methoxychlor	mg/L	1	ND	ND	ND	0.2	0.02		✓
Permethrin (cis + trans)	mg/L	1	ND	ND	ND	0.2			
DDT + isomers	mg/L	1	ND	ND	ND	0.2	0.001		✓
Procymidone	mg/L	1	ND	ND	ND	0.2	0.7		✓
Organonitrogen Herbicides									
Alachlor	mg/L	1	ND	ND	ND	0.2	0.02		✓
Atrazine	mg/L	1	ND	ND	ND	0.1	0.1		✓
Metolachlor	mg/L	1	ND	ND	ND	0.1	0.01		✓
Molinate	mg/L	1	ND	ND	ND	0.1	0.007		✓
Pendimethalin	mg/L	1	ND	ND	ND	0.2	0.02		✓
Propanil	mg/L	1	ND	ND	ND	0.1			
Simazine	mg/L	1	ND	ND	ND	0.1	0.002		✓
Terbuthylazine	mg/L	1	ND	ND	ND	0.2	0.008		✓
Trifluralin	mg/L	1	ND	ND	ND	0.2	0.03		✓
Organophosphorus Pesticides									
Chlorpyrifos	mg/L	1	ND	ND	ND	0.2	0.04		✓
Diazinon	mg/L	1	ND	ND	ND	0.1			
Pirimiphos methyl	mg/L	1	ND	ND	ND	0.2	0.1		✓
Trace Elements									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Antimony	mg/L	1	ND	ND	ND	0.001	0.02		✓
Arsenic	mg/L	4	ND	ND	ND	0.0001	0.01		✓
Barium	mg/L	1	0.019	0.019	0.019	0.0002	1.5		✓
Boron	mg/L	1	0.037	0.037	0.037	0.005	2.4		✓
Cadmium	mg/L	4	ND	ND	ND	0.00005	0.004		✓
Chromium	mg/L	1	0.0009	0.0009	0.0009	0.0001	0.05		✓

Trace Elements cont.									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Copper	mg/L	4	0.0011	0.0009	0.0010	0.0002	2	1	✓
Lead	mg/L	4	ND	ND	ND	0.0001	0.01		✓
Lithium	mg/L	1	0.0044	0.0044	0.0044	0.0001			
Mercury	mg/L	1	ND	ND	ND	0.00005	0.007		✓
Molybdenum	mg/L	1	ND	ND	ND	0.0003			
Nickel	mg/L	4	0.0003	ND	0.0002	0.0001	0.08		✓
Selenium	mg/L	1	ND	ND	ND	0.0005	0.04		✓
Zinc	mg/L	4	0.003	0.003	0.003	0.001		1.5	

Trihalomethanes									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Bromodichloromethane	mg/L	9	0.0042	ND	0.0006	0.0001	0.06		✓
Bromoform	mg/L	9	0.0094	0.0017	0.0037	0.0001	0.1		✓
Chloroform	mg/L	9	0.0053	ND	0.0007	0.0001	0.4		✓
Dibromochloromethane	mg/L	9	0.0063	ND	0.0019	0.0001	0.15		✓
THM Sum Ratio		9	0.22	0.02	0.06		1		✓

Volatile Organic Compounds									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
1,1,1-trichloroethane	mg/L	1	ND	ND	ND	0.0001			
1,2,3-trichlorobenzene	mg/L	1	ND	ND	ND	0.0001		0.01	
1,2,4-trichlorobenzene	mg/L	1	ND	ND	ND	0.0001		0.005	
1,2-dichlorobenzene	mg/L	1	ND	ND	ND	0.0001	1.5	0.001	✓
1,2-dichloroethane	mg/L	1	ND	ND	ND	0.0001	0.03		✓
1,4-dichlorobenzene	mg/L	1	ND	ND	ND	0.0001	0.4	0.0003	✓
Benzene	mg/L	1	ND	ND	ND	0.0001	0.01		✓

Volatile Organic Compounds cont.									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Carbon tetrachloride	mg/L	1	ND	ND	ND	0.0001	0.005		✓
Ethylbenzene	mg/L	1	ND	ND	ND	0.0001	0.3	0.002	✓
Xylene	mg/L	1	ND	ND	ND	0.0001	0.6	0.02	✓
Styrene	mg/L	1	ND	ND	ND	0.0001	0.03	0.004	✓
Tetrachloroethene	mg/L	1	ND	ND	ND	0.0001	0.05		✓
Toluene	mg/L	1	ND	ND	ND	0.0001	0.8	0.03	✓
1,2-dichloroethene (cis + trans)	mg/L	1	ND	ND	ND	0.0001	0.06		✓
Trichloroethene	mg/L	1	ND	ND	ND	0.0001	0.02		✓

Halo Acetic Acids (HAAs)									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Bromoacetic Acid	mg/L	3	0.0010	0.0005	0.0007	0.0005			
Bromochloroacetic Acid	mg/L	3	0.0010	0.0005	0.0007	0.0005			
Monochloroacetic Acid	mg/L	3	0.0010	0.0005	0.0007	0.0005	0.02		✓
Dibromoacetic Acid	mg/L	3	0.0038	0.0017	0.0022	0.0005			
Dichloroacetic Acid	mg/L	3	0.0010	0.0005	0.0007	0.0005	0.05		✓
Trichloroacetic Acid	mg/L	3	0.0010	0.0005	0.0007	0.0005	0.2		✓
HAA Sum Ratio		3	0.08	0.04	0.05				

Onehunga WTP Treated Water (Local and Metropolitan)*

*The Onehunga WTP Treated was taken out of service from 11/10/2022. Compliance sampling was not undertaken on the dates that the plant was not producing water.

Acid Herbicides									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
2,4,5- trichlorophenoxyacetic acid (2,4,5-T)	mg/L	1	ND	ND	ND	0.0001	0.01		✓
2,4-Dichlorophenoxyacetic acid (2,4-D)	mg/L	1	ND	ND	ND	0.0001	0.04		✓
4-(2,4-dichlorophenoxy) butanoic acid (2,4-DB)	mg/L	1	ND	ND	ND	0.0001	0.1		✓
Bentazone	mg/L	1	ND	ND	ND	0.0001			
Dichlorprop	mg/L	1	ND	ND	ND	0.0001	0.1		✓
MCPA	mg/L	1	ND	ND	ND	0.0001	0.8		✓
Mecoprop	mg/L	1	ND	ND	ND	0.0001	0.01		✓
Picloram	mg/L	1	ND	ND	ND	0.0001	0.2		✓
Triclopyr	mg/L	1	ND	ND	ND	0.0001	0.1		✓

Chemical and Physical									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
UV absorbance at 254nm	Abs units	4	0.012	0.009	0.011	0.002			
Alkalinity (Total) as CaCO ₃	mg/L	1	60	60	60	1			
Aluminium	mg/L	15	0.042	0.031	0.037	0.005	1	0.1	✓
Bromate	mg/L	4	ND	ND	ND	0.005	0.01		✓
Bromide	mg/L	7	0.06	0.01	0.04	0.005			
Calcium	mg/L	1	8.9	8.9	8.9	0.01			
Calcium Hardness	mg/L	1	22	22	22	0.025			
Chlorate	mg/L	4	0.07	0.05	0.06	0.01	0.8		✓
Chloride	mg/L	7	21.80	18.40	20.40	0.02		250	
Chlorine Residual	mg/L	102	1.72	0.9	1.28	0.02	5	0.3-1.0	✓

Chemical and Physical cont.									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Chlorite	mg/L	4	ND	ND	ND	0.005	0.8		✓
Colour	Hazen Units	1	ND	ND	ND	5		15	
Conductivity	mS/m	7	25.0	23.1	24.2	0.5			
Cyanide	mg/L	1	ND	ND	ND	0.005	0.6		✓
Fluoride (Onehunga zone)	mg/L	4	0.15	0.13	0.14	0.02	1.5		✓
Fluoride (Metropolitan zones)	mg/L					0.02	1.5		✓
Iodide	mg/L	1	0.005	0.005	0.005	0.001			
Iron	mg/L	15	0.004	ND	0.001	0.002		0.3	
Magnesium	mg/L	1	7.80	7.80	7.80	0.001			
Magnesium Hardness	mg/L	1	32.000	32.000	32.000	0.0041			
Manganese	mg/L	1	ND	ND	ND	0.0005	0.4	0.04	✓
pH	pH Units	102	8.1	7.5	7.9	0.1		7.0-8.5	
Potassium	mg/L	1	3.4	3.4	3.4	0.05			
Silicon	mg/L	1	38.0	38.0	38.0	0.1			
Sulphate	mg/L	7	12.1	11.1	11.8	0.02		250	
Suspended Solids	mg/L	1	ND	ND	ND	0.2			
Total Dissolved Solids	mg/L	1	160	160	160	15.0		1000	
Total Hardness	mg/L	1	55.00	55.00	55.00	0.029		200	
Total Organic Carbon TOC	mg/L	15	0.9	ND	0.3	0.1			
Turbidity	NTU	102	0.4	ND	0.1	0.05		5	

Microbiology									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
<i>E. coli</i>	MPN/100mL	102	ND	ND	ND	1	<1		✓

Nutrients									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Ammonia	mg/L	1	ND	ND	ND	0.005		1.5	
Dissolved Reactive Phosphorus	mg/L	1	0.117	0.117	0.117	0.005			
Nitrate (as NO ₃)	mg/L	1	12.400	12.400	12.400	0.009	50		✓
Nitrite (as NO ₂)	mg/L	1	ND	ND	ND	0.007	3		✓
TKN (Total Kjeldahl Nitrogen)	mg/L	1	ND	ND	ND	0.1			
Total Phosphorus	mg/L	1	0.125	0.125	0.125	0.005			

Plasticizers									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
bis (2-ethylhexyl) adipate	mg/L	1	ND	ND	ND	2			
bis (2-ethylhexyl) phthalate	mg/L	1	ND	ND	ND	2	0.009		✓

Polycyclic Aromatic Hydrocarbons									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Benzo(a)pyrene	mg/L	1	ND	ND	ND	0.1	0.0007		✓

Semi Volatile Organic Compounds									
Organochlorine Pesticides									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Aldrin + Dieldrin	mg/L	1	ND	ND	ND	0.01	0.00004		✓
Chlordane	mg/L	1	ND	ND	ND	0.01	0.0002		✓
Lindane	mg/L	1	ND	ND	ND	0.01	0.002		✓

Organochlorine Pesticides cont.									
Heptachlor	mg/L	1	ND	ND	ND	0.01			
Heptachlor epoxide	mg/L	1	ND	ND	ND	0.01			
Hexachlorobenzene	mg/L	1	ND	ND	ND	0.1			
Methoxychlor	mg/L	1	ND	ND	ND	0.2	0.02		✓
Permethrin (cis + trans)	mg/L	1	ND	ND	ND	0.2			
DDT + isomers	mg/L	1	ND	ND	ND	0.2	0.001		✓
Procymidone	mg/L	1	ND	ND	ND	0.2	0.7		✓
Organonitrogen Herbicides									
Alachlor	mg/L	1	ND	ND	ND	0.2	0.02		✓
Atrazine	mg/L	1	ND	ND	ND	0.1	0.1		✓
Metolachlor	mg/L	1	ND	ND	ND	0.1	0.01		✓
Molinate	mg/L	1	ND	ND	ND	0.1	0.007		✓
Pendimethalin	mg/L	1	ND	ND	ND	0.2	0.02		✓
Propanil	mg/L	1	ND	ND	ND	0.1			
Simazine	mg/L	1	ND	ND	ND	0.1	0.002		✓
Terbuthylazine	mg/L	1	ND	ND	ND	0.2	0.008		✓
Trifluralin	mg/L	1	ND	ND	ND	0.2	0.03		✓
Organophosphorus Pesticides									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Chlorpyrifos	mg/L	1	ND	ND	ND	0.2	0.04		✓
Diazinon	mg/L	1	ND	ND	ND	0.1			
Pirimiphos methyl	mg/L	1	ND	ND	ND	0.2	0.1		✓
Trace Elements									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Antimony	mg/L	1	ND	ND	ND	0.001	0.02		✓
Arsenic	mg/L	1	0.0003	0.0003	0.0003	0.0001	0.01		✓
Barium	mg/L	1	0.0011	0.0011	0.0011	0.0002	1.5		✓

Trace Elements cont.									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Boron	mg/L	1	0.058	0.058	0.058	0.005	2.4		✓
Cadmium	mg/L	1	ND	ND	ND	0.00005	0.004		✓
Chromium	mg/L	1	0.0005	0.0005	0.0005	0.0001	0.05		✓
Copper	mg/L	1	0.0004	0.0004	0.0004	0.0002	2	1	✓
Lead	mg/L	1	ND	ND	ND	0.0001	0.01		✓
Lithium	mg/L	1	0.0005	0.0005	0.0005	0.0001			
Mercury	mg/L	1	ND	ND	ND	0.00005	0.007		✓
Molybdenum	mg/L	1	0.0011	0.0011	0.0011	0.0003			
Nickel	mg/L	1	ND	ND	ND	0.0001	0.08		✓
Selenium	mg/L	1	ND	ND	ND	0.0005	0.04		✓
Zinc	mg/L	1	ND	ND	ND	0.001		1.5	

Trihalomethanes									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Bromodichloromethane	mg/L	4	0.0009	ND	0.0002	0.0001	0.06		✓
Bromoform	mg/L	4	0.0029	0.0016	0.0024	0.0001	0.1		✓
Chloroform	mg/L	4	ND	ND	ND	0.0001	0.4		✓
Dibromochloromethane	mg/L	4	0.0320	0.0020	0.0028	0.0001	0.15		✓
THM Sum Ratio		4	0.06	0.03	0.05		1		✓

Volatile Organic Compounds									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
1,1,1-trichloroethane	mg/L	1	ND	ND	ND	0.0001			
1,2,3-trichlorobenzene	mg/L	1	ND	ND	ND	0.0001		0.01	
1,2,4-trichlorobenzene	mg/L	1	ND	ND	ND	0.0001		0.005	
1,2-dichlorobenzene	mg/L	1	ND	ND	ND	0.0001	1.5	0.001	✓
1,2-dichloroethane	mg/L	1	ND	ND	ND	0.0001	0.03		✓

Volatile Organic Compounds cont.									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
1,4-dichlorobenzene	mg/L	1	ND	ND	ND	0.0001	0.4	0.0003	✓
Benzene	mg/L	1	ND	ND	ND	0.0001	0.01		✓
Carbon tetrachloride	mg/L	1	ND	ND	ND	0.0001	0.005		✓
Ethylbenzene	mg/L	1	ND	ND	ND	0.0001	0.3	0.002	✓
Xylenes (total)	mg/L	1	ND	ND	ND	0.0001	0.6	0.02	✓
Styrene	mg/L	1	ND	ND	ND	0.0001	0.03	0.004	✓
Tetrachloroethene	mg/L	1	ND	ND	ND	0.0001	0.05		✓
Toluene	mg/L	1	ND	ND	ND	0.0001	0.8	0.03	✓
1,2-dichloroethene (cis + trans)	mg/L	1	ND	ND	ND	0.0001	0.06		✓
Trichloroethene	mg/L	1	ND	ND	ND	0.0001	0.02		✓

Halo Acetic Acids (HAAs)									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Bromoacetic Acid	mg/L	1	0.0005	0.0005	0.0005	0.0005			
Bromochloroacetic Acid	mg/L	1	0.0006	0.0006	0.0006	0.0005			
Monochloroacetic Acid	mg/L	1	0.0005	0.0005	0.0005	0.0005	0.02		✓
Dibromoacetic Acid	mg/L	1	0.0019	0.0019	0.0019	0.0005			
Dichloroacetic Acid	mg/L	1	0.0005	0.0005	0.0005	0.0005	0.05		✓
Trichloroacetic Acid	mg/L	1	0.0005	0.0005	0.0005	0.0005	0.2		✓
HAA Sum Ratio		1	0.04	0.04	0.04				

Pukekohe WTP Treated Water

Acid Herbicides									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
2,4,5- trichlorophenoxyacetic acid (2,4,5-T)	mg/L	8	ND	ND	ND	0.0001	0.01		✓
2,4-Dichlorophenoxyacetic acid (2,4-BD)	mg/L	8	ND	ND	ND	0.0001	0.04		✓
4-(2,4-dichlorophenoxy) butanoic acid (2,4-DB)	mg/L	8	ND	ND	ND	0.0001	0.1		✓
Bentazone	mg/L	8	ND	ND	ND	0.0001			
Dichlorprop	mg/L	8	ND	ND	ND	0.0001	0.1		✓
MCPA	mg/L	8	ND	ND	ND	0.0001	0.8		✓
Mecoprop	mg/L	8	ND	ND	ND	0.0001	0.01		✓
Picloram	mg/L	8	ND	ND	ND	0.0001	0.2		✓
Triclopyr	mg/L	8	ND	ND	ND	0.0001	0.1		✓

Chemical and Physical									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
UV absorbance at 254nm	Abs units	8	0.007	0.0054	0.007	0.002			
Alkalinity (Total) as CaCO ₃	mg/L	8	130	120	122.5	1			
Aluminium	mg/L	3	0.005	ND	0.002	0.005	1	0.1	✓
Bromate	mg/L	31	ND	ND	ND	0.005	0.01		✓
Bromide	mg/L	31	0.06	0.01	0.05	0.02			
Calcium	mg/L	11	28	24	25.9	0.1			
Calcium Hardness	mg/L	11	70	59	65	0.025			
Chlorate	mg/L	31	0.55	0.015	0.21	0.01	0.8		Exceeded MAV**
Chloride	mg/L	8	30.8	25.4	27.6			250	
Chlorine Residual	mg/L	176	1.48	0.72	1.17	0.02	5	0.3-1.0	✓
Chlorite	mg/L	31	0.06	0.01	0.05	0.02	0.8		✓

Chemical and Physical cont.									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Colour	Hazen Units	8	ND	ND	ND	5		15	
Conductivity	mS/m	8	33.9	29.8	33	0.5			
Fluoride	mg/L	30	0.8	0.56	0.7	0.02	1.5		√
Iron	mg/L	40	0.0053	ND	0.000385	0.002		0.3	
Magnesium	mg/L	11	7.30	6.20	6.75	0.001			
Magnesium Hardness	mg/L	11	30	26	28	0.0041			
Manganese	mg/L	40	ND	ND	ND	0.0005	0.4	0.04	√
pH	pH unit	176	8.1	7.6	8.0	0.1		7.0 - 8.5	
Potassium	mg/L	11	32	29	30.5	0.1			
Silicon	mg/L	8	6.67	3.4	4.13	0.02			
Sodium	mg/L	8	0.45	ND	0.08	0.2		200	
Sulphate	mg/L	8	220	190	205	15		250	
Suspended Solids	mg/L	8	0.5	0.1	0.26	0.1			
Total Dissolved Solids	mg/L	11	97	84	92.36	0.029		1000	
Total Organic Carbon TOC	mg/L	175	0.3	ND	0.070	0.05			
Total Hardness	mg/L	8	ND	ND	ND	5		200	
Turbidity	NTU	8	33.9	29.8	33	0.5		5	

Microbiology									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limits	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
<i>E. coli</i>	MPN/100mL	176	ND	ND	ND	1	<1		√

Nutrients									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Ammonia	mg/L	8	ND	ND	ND	0.005		1.5	
Dissolved Reactive Phosphorus	mg/L	8	0.078	0.066	0.072	0.005			

Nutrients cont.									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Nitrate (as NO ₃)	mg/L	8	0.155	0.106	0.120	0.009	50		✓
Nitrite (as NO ₂)	mg/L	8	ND	ND	ND	0.007	3		✓
TKN (Total Kjeldahl Nitrogen)	mg/L	8	0.226	ND	0.108	0.1			

Polycyclic Aromatic Hydrocarbons									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Benzo(a)pyrene	mg/L	3	ND	ND	ND	0.1	0.0007		✓

Plasticizers									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
bis (2-ethylhexyl) adipate	mg/L	3	ND	ND	ND	2			
bis (2-ethylhexyl) phthalate	mg/L	3	ND	ND	ND	2	0.009		✓

Semi Volatile Organic Compounds									
Organochlorine Pesticides									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Aldrin + Dieldrin	mg/L	11	ND	ND	ND	0.01	0.00004		✓
Chlordane	mg/L	3	ND	ND	ND	0.01	0.0002		✓
Lindane	mg/L	3	ND	ND	ND	0.01	0.002		✓
Heptachlor	mg/L	11	ND	ND	ND	0.01			
Heptachlor epoxide	mg/L	11	ND	ND	ND	0.01			
Methoxychlor	mg/L	3	ND	ND	ND	0.2	0.02		✓
Permethrin (cis + trans)	mg/L	3	ND	ND	ND	0.2			

Organonitrogen Herbicides									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Alachlor	mg/L	3	ND	ND	ND	0.2	0.02		✓
Atrazine	mg/L	3	ND	ND	ND	0.1	0.1		✓
Metolachlor	mg/L	3	ND	ND	ND	0.1	0.01		✓
Molinate	mg/L	3	ND	ND	ND	0.1	0.007		✓
Pendimethalin	mg/L	3	ND	ND	ND	0.2	0.02		✓
Propanil	mg/L	3	ND	ND	ND	0.1			
Simazine	mg/L	3	ND	ND	ND	0.1	0.002		✓
Terbuthylazine	mg/L	3	ND	ND	ND	0.2	0.008		✓
Trifluralin	mg/L	3	ND	ND	ND	0.2	0.03		✓
Organophosphorus Pesticides									
Chlorpyrifos	mg/L	3	ND	ND	ND	0.2	0.04		✓
Diazinon	mg/L	3	ND	ND	ND	0.1			
Pirimiphos methyl	mg/L	3	ND	ND	ND	0.2	0.1		✓
Trace Elements									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Antimony	mg/L	3	ND	ND	ND	0.001	0.02		✓
Arsenic	mg/L	3	0.0001	ND	0.00004	0.0001	0.01		✓
Barium	mg/L	3	0.0013	0.0011	0.0012	0.0002	1.5		✓
Boron	mg/L	3	0.022	0.013	0.017	0.005	2.4		✓
Cadmium	mg/L	3	ND	ND	ND	0.00005	0.004		✓
Chromium	mg/L	3	ND	ND	ND	0.0001	0.05		✓
Copper	mg/L	3	ND	ND	ND	0.0002	2	1	✓
Lead	mg/L	3	ND	ND	ND	0.0001	0.01		✓
Lithium	mg/L	3	0.009	0.009	0.009	0.0001			
Mercury	mg/L	3	ND	ND	ND	0.00005	0.007		✓
Molybdenum	mg/L	3	0.001	0.001	0.001	0.0003			

Nickel	mg/L	3	ND	ND	ND	0.0001	0.08		✓
Trace Elements cont.									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Selenium	mg/L	3	ND	ND	ND	0.0005	0.04		✓
Zinc	mg/L	11	ND	ND	ND	0.001		1.5	

Trihalomethanes									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Bromodichloromethane	mg/L	8	0.003	0.0014	0.0021	0.0001	0.06		✓
Bromoform	mg/L	8	0.0026	ND	0.0005	0.0001	0.1		✓
Chloroform	mg/L	8	0.0024	ND	0.0015	0.0001	0.4		✓
Dibromochloromethane	mg/L	8	0.0041	0.0018	0.0029	0.0001	0.15		✓
THM Sum Ratio		8	0.11	0.04	0.06		1		✓

Volatile Organic Compounds									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
1,1,1-trichloroethane	mg/L	8	ND	ND	ND	0.0001			
1,2,3-trichlorobenzene	mg/L	8	ND	ND	ND	0.0001		0.01	
1,2,4-trichlorobenzene	mg/L	8	ND	ND	ND	0.0001		0.005	
1,2-dichlorobenzene	mg/L	8	ND	ND	ND	0.0001	1.5	0.001	✓
1,2-dichloroethane	mg/L	8	ND	ND	ND	0.0001	0.03		✓
1,4-dichlorobenzene	mg/L	8	ND	ND	ND	0.0001	0.4	0.0003	✓
Benzene	mg/L	8	ND	ND	ND	0.0001	0.01		✓
Carbon tetrachloride	mg/L	8	ND	ND	ND	0.0001	0.005		✓
Ethylbenzene	mg/L	8	ND	ND	ND	0.0001	0.3	0.002	✓
Xylene	mg/L	8	ND	ND	ND	0.0001	0.6	0.02	✓
Styrene	mg/L	8	ND	ND	ND	0.0001	0.03	0.004	✓
Tetrachloroethene	mg/L	8	ND	ND	ND	0.0001	0.05		✓
Toluene	mg/L	8	ND	ND	ND	0.0001	0.8	0.03	✓

Volatile Organic Compounds cont.									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
1,2-dichloroethene (cis + trans)	mg/L	8	ND	ND	ND	0.0001	0.06		✓
Trichloroethene	mg/L	8	ND	ND	ND	0.0001	0.02		✓

Halo Acetic Acids (HAAs)									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Bromoacetic Acid	mg/L	3	0.001	0.001	0.001	0.0005			
Bromochloroacetic Acid	mg/L	3	0.001	0.001	0.001	0.0005			
Monochloroacetic Acid	mg/L	3	0.001	0.001	0.001	0.0005	0.02		✓
Dibromoacetic Acid	mg/L	3	0.002	0.001	0.001	0.0005			
Dichloroacetic Acid	mg/L	3	0.001	0.001	0.001	0.0005	0.05		✓
Trichloroacetic Acid	mg/L	3	0.001	0.001	0.001	0.0005	0.2		✓
HAA Sum Ratio		3	0.08	0.08	0.08				

Snells/Algies WTP Treated Water

Chemical and Physical									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
UV absorbance at 254nm	Abs units	1	0.011	0.011	0.011	0.002			
Alkalinity (Total) as CaCO ₃	mg/L	4	200	200	200	1			
Aluminium	mg/L	1	ND	ND	ND	0.005	1	0.1	✓
Bromate	mg/L	4	ND	ND	ND	0.005	0.01		✓
Bromide	mg/L	4	0.17	0.13	0.15	0.005			
Calcium	mg/L	4	4.2	3.7	3.9	0.01			
Calcium Hardness	mg/L	4	11.0	9.4	10.0	0.025			
Chlorate	mg/L	4	ND	ND	ND	0.01	0.8		✓
Chloride	mg/L	1	49.40	49.40	49.40	0.02		250	
Chlorine Residual	mg/L	112	1.68	0.7	1.44	0.02	5	0.3-1.0	✓
Chlorite	mg/L	4	ND	ND	ND	0.005	0.8		✓
Colour	Hazen Units	1	ND	ND	ND	5		15	
Conductivity	mS/m	1	54.6	54.6	54.6	0.5			
Cyanide	mg/L	1	ND	ND	ND	0.005	0.6		✓
Fluoride	mg/L	1	0.12	0.12	0.1	0.02	1.5		✓
Iodide	mg/L	1	0.015	0.015	0.015	0.001			
Iron	mg/L	16	0.012	0.006	0.008	0.002		0.3	
Magnesium	mg/L	4	0.36	0.32	0.34	0.001			
Magnesium Hardness	mg/L	4	1.500	1.300	1.375	0.0041			
Manganese	mg/L	16	0.0059	0.0043	0.0049	0.0005	0.4	0.04	✓
pH	pH Units	113	8.4	7.3	8.3	0.1		7.0-8.5	
Potassium	mg/L	1	0.3	0.3	0.3	0.05			
Silicon	mg/L	1	45.0	45.0	45.0	0.1			
Sodium	mg/L	1	120.0	120.0	120.0	0.1		200	
Sulphate	mg/L	1	7.6	7.6	7.6	0.02		250	
Suspended Solids	mg/L	1	ND	ND	ND	0.2			

Chemical and Physical cont.									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Total Dissolved Solids	mg/L	1	320	320	320	15			
Total Hardness	mg/L	4	12.00	11.00	11.25	0.029		200	
Total Organic Carbon TOC	mg/L	1	0.3	0.3	0.3	0.1			
Turbidity	NTU	112	1.6	nD	0.1	0.05		5	

Microbiology									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
<i>E. coli</i>	MPN/100mL	112	ND	ND	ND	1	<1		√

Nutrients									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Ammonia	mg/L	4	0.005	ND	0.001	0.005		1.5	
Dissolved Reactive Phosphorus	mg/L	4	0.006	0.004	0.005	0.005			
Nitrate (as NO ₃)	mg/L	4	0.342	0.146	0.247	0.009	50		√
Nitrite (as NO ₂)	mg/L	4	ND	ND	ND	0.007	3		√
TKN (Total Kjeldahl Nitrogen)	mg/L	4	0.283	ND	0.071	0.1			
Total Phosphorus	mg/L	4	0.005	0.004	0.005	0.005			

Plasticizers									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
bis (2-ethylhexyl) adipate	mg/L	1	ND	ND	ND	2			
bis (2-ethylhexyl) phthalate	mg/L	1	ND	ND	ND	2	0.009		√

Polycyclic Aromatic Hydrocarbons									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Benzo(a)pyrene	mg/L	1	ND	ND	ND	0.1	0.0007		√

Semi Volatile Organic Compounds									
Organochlorine Pesticides									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Aldrin + Dieldrin	mg/L	1	ND	ND	ND	0.01	0.00004		✓
Chlordane	mg/L	1	ND	ND	ND	0.01	0.0002		
Lindane	mg/L	1	ND	ND	ND	0.01	0.002		✓
Heptachlor	mg/L	1	ND	ND	ND	0.01			
Heptachlor epoxide	mg/L	1	ND	ND	ND	0.01			
Hexachlorobenzene	mg/L	1	ND	ND	ND	0.1			
Methoxychlor	mg/L	1	ND	ND	ND	0.2	0.02		✓
Permethrin (cis + trans)	mg/L	1	ND	ND	ND	0.2			
DDT + isomers	mg/L	1	ND	ND	ND	0.2	0.001		✓
Procymidone	mg/L	1	ND	ND	ND	0.2	0.7		✓
Organonitrogen Herbicides									
Alachlor	mg/L	1	ND	ND	ND	0.2	0.02		✓
Atrazine	mg/L	1	ND	ND	ND	0.1	0.1		✓
Metolachlor	mg/L	1	ND	ND	ND	0.1	0.01		✓
Molinate	mg/L	1	ND	ND	ND	0.1	0.007		✓
Pendimethalin	mg/L	1	ND	ND	ND	0.2	0.02		✓
Propanil	mg/L	1	ND	ND	ND	0.1			
Simazine	mg/L	1	ND	ND	ND	0.1	0.002		✓
Terbuthylazine	mg/L	1	ND	ND	ND	0.2	0.008		✓
Trifluralin	mg/L	1	ND	ND	ND	0.2	0.03		✓
Organophosphorus Pesticides									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Chlorpyrifos	mg/L	1	ND	ND	ND	0.2	0.04		✓
Diazinon	mg/L	1	ND	ND	ND	0.1			
Pirimiphos methyl	mg/L	1	ND	ND	ND	0.2	0.1		✓

Trace Elements									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Antimony	mg/L	1	ND	ND	ND	0.001	0.02		✓
Arsenic	mg/L	16	ND	ND	ND	0.0001	0.01		✓
Barium	mg/L	1	ND	ND	ND	0.0002	1.5		✓
Boron	mg/L	1	0.180	0.180	0.180	0.005	2.4		✓
Cadmium	mg/L	1	ND	ND	ND	0.00005	0.004		✓
Chromium	mg/L	1	ND	ND	ND	0.0001	0.05		✓
Copper	mg/L	1	0.0006	0.0006	0.0006	0.0002	2	1	✓
Lead	mg/L	1	ND	ND	ND	0.0001	0.01		✓
Lithium	mg/L	1	0.0260	0.0260	0.0260	0.0001			
Mercury	mg/L	1	ND	ND	ND	0.00005	0.007		✓
Molybdenum	mg/L	1	ND	ND	ND	0.0003			
Nickel	mg/L	1	0.0001	0.0001	0.0001	0.0001	0.08		✓
Selenium	mg/L	1	ND	ND	ND	0.0005	0.04		✓
Zinc	mg/L	1	0.0013	0.0013	0.0013	0.001		1.5	

Trihalomethanes									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Bromodichloromethane	mg/L	14	0.0015	ND	0.0001	0.0001	0.06		✓
Bromoform	mg/L	14	0.0021	ND	0.0004	0.0001	0.1		✓

Trihalomethanes cont.									
Component Name	Units		Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Chloroform	mg/L	14	0.0010	ND	0.0001	0.0001	0.4		✓
Dibromochloromethane	mg/L	14	0.0022	ND	0.0009	0.0001	0.15		✓
THM Ratio		14	0.04	ND	0.01		1		✓

Volatile Organic Compounds									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
1,1,1-trichloroethane	mg/L	1	ND	ND	ND	0.0001			
1,2,3-trichlorobenzene	mg/L	1	ND	ND	ND	0.0001		0.01	
1,2,4-trichlorobenzene	mg/L	1	ND	ND	ND	0.0001		0.005	
1,2-dichlorobenzene	mg/L	1	ND	ND	ND	0.0001	1.5	0.001	✓
1,2-dichloroethane	mg/L	1	ND	ND	ND	0.0001	0.03		✓
1,4-dichlorobenzene	mg/L	1	ND	ND	ND	0.0001	0.4	0.0003	✓
Benzene	mg/L	1	ND	ND	ND	0.0001	0.01		✓
Carbon tetrachloride	mg/L	1	ND	ND	ND	0.0001	0.005		✓
Ethylbenzene	mg/L	1	ND	ND	ND	0.0001	0.3	0.002	✓
Xylene	mg/L	1	ND	ND	ND	0.0001	0.6	0.02	✓
Styrene	mg/L	1	ND	ND	ND	0.0001	0.03	0.004	✓
Tetrachloroethene	mg/L	1	ND	ND	ND	0.0001	0.05		✓
Toluene	mg/L	1	ND	ND	ND	0.0001	0.8	0.03	✓
1,2-dichloroethene (cis + trans)	mg/L	1	ND	ND	ND	0.0001	0.06		✓
Trichloroethene	mg/L	1	ND	ND	ND	0.0001	0.02		✓

Victoria Avenue WTP Treated Water

Chemical and Physical									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Alkalinity (Total) as CaCO ₃	mg/L	4	130	120	123	1			
Aluminium	mg/L	1	ND	ND	ND	0.005	1	0.1	✓
Bromate	mg/L	2	ND	ND	ND	0.005	0.01		✓
Bromide	mg/L	2	0.0864	0.077	0.0817	0.005			
Calcium	mg/L	14	33.0	27.0	30.5	0.01			
Calcium Hardness	mg/L	14	82	67	76	0.025			
Chlorate	mg/L	2	0.02	0.01	0.02	0.01	0.8		✓
Chloride	mg/L	1	33.20	33.20	33.20	0.02		250	
Chlorine Residual	mg/L	111	1.70	0.43	1.00	0.02	5	0.3-1.0	✓
Chlorite	mg/L	2	ND	ND	ND	0.005	0.8		✓
Colour	Hazen Units	1	ND	ND	ND	5		15	
Conductivity	mS/m	1	36.2	36.2	36.2	0.5			
Cyanide	mg/L	1	ND	ND	ND	0.005	0.6		✓
Fluoride	mg/L	1	0.1	0.1	0.1	0.02	1.5		✓
Iodide	mg/L	1	0.0054	0.0054	0.0054	0.001			
Iron	mg/L	14	0.003	ND	0.001	0.002		0.3	
Magnesium	mg/L	14	10.00	8.50	9.15	0.001			
Magnesium Hardness	mg/L	14	42	35	37.71	0.0041			
Manganese	mg/L	14	0.0024	ND	0.0012	0.0005	0.4	0.04	✓
pH	pH Units	111	8.1	7.6	7.9	0.1		7.0-8.5	
Potassium	mg/L	1	3.8	3.8	3.8	0.05			
Silicon	mg/L	1	57	57	57	0.1			
Sodium	mg/L	1	23	23	23	0.1		200	
Sulphate	mg/L	1	5	5	5	0.02		250	
Suspended Solids	mg/L	1	ND	ND	ND	0.2			

Chemical and Physical cont.									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Total Dissolved Solids	mg/L	1	230	230	230	15		1000	
Total Hardness	mg/L	14	120	100	113.57	0.029		200	
Turbidity	NTU	111	0.3	0.05	0.1	0.05		5	

Microbiology									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
<i>E. coli</i>	MPN/100mL	111	ND	ND	ND	1	<1		√

Nutrients									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Ammonia	mg/L	1	ND	ND	ND	0.005		1.5	
Dissolved Reactive Phosphorus	mg/L	1	0.061	0.061	0.061	0.005			
Nitrate (as NO ₃)	mg/L	1	0.120	0.120	0.120	0.009	50		√
Nitrite (as NO ₂)	mg/L	1	ND	ND	ND	0.007	3		√
TKN (Total Kjeldahl Nitrogen)	mg/L	1	ND	ND	ND	0.1			
Total Phosphorus	mg/L	1	0.070	0.070	0.070	0.005			

Plasticizers									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
bis (2-ethylhexyl) adipate	mg/L	1	ND	ND	ND	2			
bis (2-ethylhexyl) phthalate	mg/L	1	ND	ND	ND	2	0.009		√

Polycyclic Aromatic Hydrocarbons									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Benzo(a)pyrene	mg/L	1	ND	ND	ND	0.1	0.0007		√

Semi Volatile Organic Compounds									
Organochlorine Pesticides									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Aldrin + Dieldrin	mg/L	1	ND	ND	ND	0.01	0.00004		✓
gamma-Chlordan	mg/L	1	ND	ND	ND	0.01			
Lindane	mg/L	1	ND	ND	ND	0.01	0.002		✓
Heptachlor	mg/L	1	ND	ND	ND	0.01			
Heptachlor epoxide	mg/L	1	ND	ND	ND	0.01			
Hexachlorobenzene	mg/L	1	ND	ND	ND	0.1			
Methoxychlor	mg/L	1	ND	ND	ND	0.2	0.02		✓
Permethrin (cis + trans)	mg/L	1	ND	ND	ND	0.2			
DDT + isomers	mg/L	1	ND	ND	ND	0.2	0.001		✓
Procymidone	mg/L	1	ND	ND	ND	0.2	0.7		✓
Organonitrogen Herbicides									
Alachlor	mg/L	1	ND	ND	ND	0.2	0.02		✓
Atrazine	mg/L	1	ND	ND	ND	0.1	0.1		✓
Metolachlor	mg/L	1	ND	ND	ND	0.1	0.01		✓
Molinate	mg/L	1	ND	ND	ND	0.1	0.007		✓
Pendimethalin	mg/L	1	ND	ND	ND	0.2	0.02		✓
Propanil	mg/L	1	ND	ND	ND	0.1			
Simazine	mg/L	1	ND	ND	ND	0.1	0.002		✓
Terbuthylazine	mg/L	1	ND	ND	ND	0.2	0.008		✓
Trifluralin	mg/L	1	ND	ND	ND	0.2	0.03		✓
Organophosphorus Pesticides									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Chlorpyrifos	mg/L	1	ND	ND	ND	0.2	0.04		✓
Diazinon	mg/L	1	ND	ND	ND	0.1			
Pirimiphos methyl	mg/L	1	ND	ND	ND	0.2	0.1		✓

Trace Elements									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Antimony	mg/L	1	ND	ND	ND	0.001	0.02		✓
Arsenic	mg/L	14	0.0055	0.004	0.0047	0.0001	0.01		✓
Barium	mg/L	1	0.0008	0.0008	0.0008	0.0002	1.5		✓
Boron	mg/L	1	0.033	0.033	0.033	0.005	2.4		✓
Cadmium	mg/L	1	ND	ND	ND	0.00005	0.004		✓
Chromium	mg/L	1	ND	ND	ND	0.0001	0.05		✓
Copper	mg/L	1	0.0038	0.0038	0.0038	0.0002	2	1	✓
Lead	mg/L	1	0.0002	0.0002	0.0002	0.0001	0.01		✓
Lithium	mg/L	1	0.0110	0.0110	0.0110	0.0001			
Mercury	mg/L	1	ND	ND	ND	0.00005	0.007		✓
Molybdenum	mg/L	1	0.0003	0.0003	0.0003	0.0003	0		
Nickel	mg/L	1	0.0001	0.0001	0.0001	0.0001	0.08		✓
Selenium	mg/L	1	ND	ND	ND	0.0005	0.04		✓
Zinc	mg/L	1	0.035	0.035	0.035	0.001		1.5	

Trihalomethanes									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Bromodichloromethane	mg/L	14	0.0069	ND	0.0014	0.0001	0.06		✓
Bromoform	mg/L	14	0.0052	ND	0.0017	0.0001	0.1		✓
Chloroform	mg/L	14	0.0010	ND	0.0001	0.0001	0.4		✓
Dibromochloromethane	mg/L	14	0.0052	ND	0.0024	0.0001	0.15		✓
THM Ratio		14	0.13	ND	0.06		1		✓

Volatile Organic Compounds									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
1,1,1-trichloroethane	mg/L	1	ND	ND	ND	0.0001			
1,2,3-trichlorobenzene	mg/L	1	ND	ND	ND	0.0001		0.01	
1,2,4-trichlorobenzene	mg/L	1	ND	ND	ND	0.0001		0.005	
1,2-dichlorobenzene	mg/L	1	ND	ND	ND	0.0001	1.5	0.001	✓
1,2-dichloroethane	mg/L	1	ND	ND	ND	0.0001	0.03		✓
1,4-dichlorobenzene	mg/L	1	ND	ND	ND	0.0001	0.4	0.0003	✓
Benzene	mg/L	1	ND	ND	ND	0.0001	0.01		✓
Carbon tetrachloride	mg/L	1	ND	ND	ND	0.0001	0.005		✓
Ethylbenzene	mg/L	1	ND	ND	ND	0.0001	0.3	0.002	✓
Xylene	mg/L	1	ND	ND	ND	0.0001	0.6	0.02	✓
Styrene	mg/L	1	ND	ND	ND	0.0001	0.03	0.004	✓
Tetrachloroethene	mg/L	1	ND	ND	ND	0.0001	0.05		✓
Toluene	mg/L	1	ND	ND	ND	0.0001	0.8	0.03	✓
1,2-dichloroethene (cis + trans)	mg/L	1	ND	ND	ND	0.0001	0.06		✓
Trichloroethene	mg/L	1	ND	ND	ND	0.0001	0.02		✓

Waikato 175 WTP Treated Water

Acid Herbicides									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
1080 (Sodium fluoroacetate)	mg/L	2	ND	ND	ND	0.0001	0.035 ¹		✓
2,4,5- trichlorophenoxyacetic acid (2,4,5-T)	mg/L	26	ND	ND	ND	0.0001	0.01		✓
2,4-Dichlorophenoxyacetic acid (2,4-BD)	mg/L	26	ND	ND	ND	0.0001	0.04		✓
4-(2,4-dichlorophenoxy) butanoic acid (2,4-DB)	mg/L	26	ND	ND	ND	0.0001	0.1		✓
Bentazone	mg/L	26	ND	ND	ND	0.0001			
Dichlorprop	mg/L	26	ND	ND	ND	0.0001	0.1		✓
MCPA	mg/L	26	ND	ND	ND	0.0001	0.8		✓
Mecoprop	mg/L	26	ND	ND	ND	0.0001	0.01		✓
Picloram	mg/L	26	ND	ND	ND	0.0001	0.2		✓
Triclopyr	mg/L	26	ND	ND	ND	0.0001	0.1		✓

1 – The DWSNZ2022 sets out two MAVs for 1080: for short-term effect the MAV is 0.035mg/L, for long-term effect the MAV is 0.0035mg/L.

Chemical and Physical									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
UV absorbance at 254nm	Abs units	51	0.043	0.014	0.028	0.002			
Alkalinity (Total) as CaCO ₃	mg/L	51	130	31	40	1			
Aluminium	mg/L	51	0.097	0.018	0.037	0.005	1	0.1	✓
Bromate	mg/L	51	ND	ND	ND	0.005	0.01		✓
Bromide	mg/L	51	0.03	0.01	0.02	0.005			
Calcium	mg/L	16	19	11	15.4	0.01			
Calcium Hardness	mg/L	16	47.0	27.0	39.0	0.025			
Chlorate	mg/L	51	0.21	0.03	0.08	0.01	0.8		✓
Chloride	mg/L	13	18.8	13.4	16.3	0.02		250	

Chemical and Physical cont.									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Chlorine Residual	mg/L	358	1.79	0.72	1.48	0.02	5	0.3-1.0	✓
Chlorite	mg/L	51	ND	ND	ND	0.005	0.8		✓
Colour	Hazen Units	4	5	ND	1.25	5		15	
Conductivity	mS/m	13	22	18.2	20.1	0.5			
Cyanide	mg/L	4	ND	ND	ND	0.005	0.6		✓
Fluoride	mg/L	51	1	0.5	0.8	0.02	1.5		✓
Iodide	mg/L	4	0.003	ND	0.001	0.001			
Iron	mg/L	51	0.12	0.017	0.033	0.002		0.3	
Magnesium	mg/L	16	2.90	2.40	2.69	0.001			
Magnesium Hardness	mg/L	16	12.000	9.700	11.170	0.0041			
Manganese	mg/L	51	0.0073	0.0007	0.0022	0.0005	0.4	0.04	✓
pH	pH Units	359	8.3	6.8	7.57	0.1		7.0-8.5	
Potassium	mg/L	16	3.4	2.7	3.0	0.05			
Silicon	mg/L	4	33	30	32	0.1			
Sodium	mg/L	4	18	15	16.8	0.1		200	
Sulphate	mg/L	13	31.4	20.6	24.9	0.02		250	
Suspended Solids	mg/L	13	0.6	ND	0.3	0.2			
Total Dissolved Solids	mg/L	13	170	120	143			1000	
Total Hardness	mg/L	16	59	38	49.63	0.029		200	
Total Organic Carbon TOC	mg/L	13	1.9	1	1.4	0.1			
Turbidity	NTU	359	0.55	0.1	0.3	0.05		5	

Microbiology									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Confirmed Cryptosporidium per 100L	cysts/100 L	11	ND	ND	ND	1	<1		✓
Confirmed Giardia per 100L	cysts/100 L	11	ND	ND	ND	1	<1		✓

Microbiology cont.									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
<i>E. coli</i>	MPN/100mL	359	ND	ND	ND	1	<1		✓

Nutrients									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Ammonia	mg/L N	4	0.008	ND	0.002	0.005		1.5	
Dissolved Reactive Phosphorus	mg/L	13	0.007	0.006	0.006	0.005			
Nitrate	mg/L NO3	13	4.384	2.192	2.895	0.009	50		✓
Nitrite	mg/L NO2	13	ND	ND	ND	0.007	3		✓
TKN (Total Kjeldahl Nitrogen)	mg/L N	4	0.229	ND	0.057	0.1			
Total Phosphorus	mg/L	13	0.011	0.005	0.008	0.005			

Plasticizers									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
bis (2-ethylhexyl) adipate	mg/L	25	ND	ND	ND	2			
bis (2-ethylhexyl) phthalate	mg/L	25	ND	ND	ND	2	0.009		✓

Polycyclic Aromatic Hydrocarbons									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Benzo(a)pyrene	mg/L	25	ND	ND	ND	0.1	0.0007		✓

Semi Volatile Organic Compounds									
Organochlorine Pesticides									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Aldrin + Dieldrin	mg/L	51	ND	ND	ND	0.01	0.00004		✓
Chlordane	mg/L	51	ND	ND	ND	0.01	0.0002		✓
Lindane	mg/L	51	ND	ND	ND	0.01	0.002		✓

Organochlorine Pesticides cont.									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Heptachlor	mg/L	51	ND	ND	ND	0.01			
Heptachlor epoxide	mg/L	51	ND	ND	ND	0.01			
Hexachlorobenzene	mg/L	26	ND	ND	ND	0.1			
Methoxychlor	mg/L	25	ND	ND	ND	0.2	0.02		✓
Permethrin (cis + trans)	mg/L	51	ND	ND	ND	0.2			
DDT + isomers	mg/L	25	ND	ND	ND	0.2	0.001		✓
Procymidone	mg/L	25	ND	ND	ND	0.2	0.7		✓
Organonitrogen Herbicides									
Alachlor	mg/L	25	ND	ND	ND	0.2	0.02		✓
Atrazine	mg/L	25	ND	ND	ND	0.1	0.1		✓
Metolachlor	mg/L	25	ND	ND	ND	0.1	0.01		✓
Molinate	mg/L	25	ND	ND	ND	0.1	0.007		✓
Pendimethalin	mg/L	25	ND	ND	ND	0.2	0.02		✓
Propanil	mg/L	25	ND	ND	ND	0.1			
Simazine	mg/L	25	ND	ND	ND	0.1	0.002		✓
Terbuthylazine	mg/L	25	ND	ND	ND	0.2	0.008		✓
Trifluralin	mg/L	25	ND	ND	ND	0.2	0.03		✓
Organophosphorus Pesticides									
Chlorpyrifos	mg/L	25	ND	ND	ND	0.2	0.04		✓
Diazinon	mg/L	25	ND	ND	ND	0.1			
Pirimiphos methyl	mg/L	25	ND	ND	ND	0.2	0.1		✓
Trace Elements									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Antimony	mg/L	9	ND	ND	ND	0.001	0.02		✓
Arsenic	mg/L	16	0.0014	0.0005	0.0008	0.0001	0.01		✓
Barium	mg/L	16	0.0230	0.0150	0.0196	0.0002	1.5		✓

Trace Elements cont.									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Boron	mg/L	16	0.180	0.071	0.132	0.005	2.4		✓
Cadmium	mg/L	21	ND	ND	ND	0.00005	0.004		✓
Chromium	mg/L	21	0.0006	ND	0.0001	0.0001	0.05		✓
Copper	mg/L	21	0.0160	0.0056	0.0108	0.0002	2	1	✓
Lead	mg/L	9	0.0001	ND	0.0000	0.0001	0.01		✓
Lithium	mg/L	4	0.0440	0.0350	0.0382	0.0001			
Mercury	mg/L	21	ND	ND	ND	0.00005	0.007		✓
Molybdenum	mg/L	4	ND	ND	ND	0.0003			
Nickel	mg/L	9	0.0002	ND	0.0001	0.0001	0.08		✓
Selenium	mg/L	4	ND	ND	ND	0.0005	0.04		✓
Zinc	mg/L	4	0.003	0.0015	0.002	0.001		1.5	

Trihalomethanes									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Bromodichloromethane	mg/L	52	0.0100	ND	0.0051	0.0001	0.06		✓
Bromoform	mg/L	52	0.0010	ND	0.0001	0.0001	0.1		✓
Chloroform	mg/L	52	0.0320	ND	0.0085	0.0001	0.4		✓
Dibromochloromethane	mg/L	52	0.0058	ND	0.0032	0.0001	0.15		✓
THM Sum Ratio		52	0.27	ND	0.13		1		✓

Volatile Organic Compounds									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
1,1,1-trichloroethane	mg/L	14	ND	ND	ND	0.0001			
1,2,3-trichlorobenzene	mg/L	14	ND	ND	ND	0.0001		0.01	
1,2,4-trichlorobenzene	mg/L	14	ND	ND	ND	0.0001		0.005	
1,2-dichlorobenzene	mg/L	14	ND	ND	ND	0.0001	1.5	0.001	✓
1,2-dichloroethane	mg/L	14	ND	ND	ND	0.0001	0.03		✓
1,4-dichlorobenzene	mg/L	14	ND	ND	ND	0.0001	0.4	0.0003	✓
Benzene	mg/L	14	ND	ND	ND	0.0001	0.01		✓
Carbon tetrachloride	mg/L	14	ND	ND	ND	0.0001	0.005		✓
Ethylbenzene	mg/L	14	ND	ND	ND	0.0001	0.3	0.002	✓
Xylenes (total)	mg/L	14	ND	ND	ND	0.0001	0.6	0.02	✓
Styrene	mg/L	14	ND	ND	ND	0.0001	0.03	0.004	✓
Tetrachloroethene	mg/L	14	ND	ND	ND	0.0001	0.05		✓
Toluene	mg/L	14	ND	ND	ND	0.0001	0.8	0.03	✓
1,2-dichloroethene (cis + trans)	mg/L	14	ND	ND	ND	0.0001	0.06		✓

Halo Acetic Acids (HAAs)									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Bromoacetic Acid	mg/L	4	0.001	0.001	0.001	0.0005			
Bromochloroacetic Acid	mg/L	4	0.001	0.001	0.001	0.0005			
Monochloroacetic Acid	mg/L	4	0.001	0.001	0.001	0.0005	0.02		✓
Dibromoacetic Acid	mg/L	4	0.001	0.001	0.001	0.0005			
Dichloroacetic Acid	mg/L	4	0.001	0.001	0.001	0.0005	0.05		✓
Trichloroacetic Acid	mg/L	4	0.001	0.001	0.001	0.0005	0.2		✓
HAA Sum Ratio		4	0.08	0.08	0.08				

Waikato 50 WTP Treated Water

Acid Herbicides									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
1080 (Sodium fluoroacetate)	mg/L	2	ND	ND	ND	0.0001	0.035 ¹		✓
2,4,5- trichlorophenoxyacetic acid (2,4,5-T)	mg/L	27	ND	ND	ND	0.0001	0.01		✓
2,4-Dichlorophenoxyacetic acid (2,4-BD)	mg/L	27	ND	ND	ND	0.0001	0.04		✓
4-(2,4-dichlorophenoxy) butanoic acid (2,4-DB)	mg/L	27	ND	ND	ND	0.0001	0.1		✓
Bentazone	mg/L	27	ND	ND	ND	0.0001			
Dichlorprop	mg/L	27	ND	ND	ND	0.0001	0.1		✓
MCPA	mg/L	27	ND	ND	ND	0.0001	0.8		✓
Mecoprop	mg/L	27	ND	ND	ND	0.0001	0.01		✓
Picloram	mg/L	27	ND	ND	ND	0.0001	0.2		✓
Triclopyr	mg/L	27	ND	ND	ND	0.0001	0.1		✓

1 – The DWSNZ2022 sets out two MAVs for 1080: for short-term effect the MAV is 0.035mg/L, for long-term effect the MAV is 0.0035mg/L.

Chemical and Physical									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
UV absorbance at 254nm	Abs units	104	0.082	0.015	0.033	0.002			
Alkalinity (Total) as CaCO ₃	mg/L	105	66	30	43	1			
Aluminium	mg/L	77	0.038	ND	0.014	0.005	1	0.1	✓
Bromate	mg/L	11	ND	ND	ND	0.005	0.01		✓
Bromide	mg/L	11	0.02	0.01	0.02	0.005			
Calcium	mg/L	32	10	7	7.8	0.01			
Calcium Hardness	mg/L	28	24	17	19	0.025			
Chlorate	mg/L	11	0.09	0.05	0.07	0.01	0.8		✓
Chloride	mg/L	26	31	22	26	0.02		250	

Chemical and Physical cont.									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Chlorine Residual	mg/L	364	1.96	0.34	1.32	0.02	5	0.3-1.0	✓
Chlorite	mg/L	11	ND	ND	ND	0.005	0.8		✓
Colour	Hazen Units	6	ND	ND	ND	5		15	
Conductivity	mS/m	28	24.4	19.4	21.3	0.5			
Cyanide	mg/L	6	ND	ND	ND	0.005	0.6		✓
Fluoride	mg/L	59	0.12	0.04	0.09	0.02	1.5		✓
Iodide	mg/L	6	0.0029	ND	0.002	0.001			
Iron	mg/L	77	0.0095	ND	0.001	0.002		0.3	
Magnesium	mg/L	28	2.90	2.30	2.65	0.001			
Magnesium Hardness	mg/L	28	12	9.6	10.96	0.0041			
Manganese	mg/L	76	0.041	0.0040	0.0163	0.0005	0.4	0.04	✓
pH	pH Units	365	8.1	7	7.50	0.1		7.0-8.5	
Potassium	mg/L	28	3.8	2.6	3.0	0.05			
Silicon	mg/L	4	33	24	27	0.1			
Sodium	mg/L	4	29	23	26	0.1		200	
Sulphate	mg/L	26	19.5	10.9	13	0.02		250	
Suspended Solids	mg/L	26	3.5	ND	0.2	0.2			
Total Dissolved Solids	mg/L	26	210	110	142			1000	
Total Hardness	mg/L	28	36	27	30.5	0.029		200	
Total Organic Carbon TOC	mg/L	26	3.1	0.8	1.6	0.1			
Turbidity	NTU	365	0.8	ND	0.1	0.05		5	

Microbiology									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Confirmed Cryptosporidium per 100L	cysts/100 L	9	ND	ND	ND	1	<1		✓
Confirmed Giardia per 100L	cysts/100 L	9	ND	ND	ND	1	<1		✓
<i>E. coli</i>	MPN/100mL	366	ND	ND	ND	1	<1		✓

Nutrients									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Ammonia	mg/L N	6	0.013	ND	0.004	0.005		1.5	
Dissolved Reactive Phosphorus	mg/L	26	0.006	0.003	0.004	0.005			
Nitrate	mg/L NO ₃	26	6.643	1.652	2.877	0.009	50		✓
Nitrite	mg/L NO ₂	26	ND	ND	ND	0.007	3		✓
TKN (Total Kjeldahl Nitrogen)	mg/L N	6	0.145	ND	0.060	0.1			
Total Phosphorus	mg/L	26	0.013	ND	0.003	0.005			

Plasticizers									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
bis (2-ethylhexyl) adipate	mg/L	26	ND	ND	ND	2			
bis (2-ethylhexyl) phthalate	mg/L	26	ND	ND	ND	2	0.009		✓

Polycyclic Aromatic Hydrocarbons									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Benzo(a)pyrene	mg/L	26	ND	ND	ND	0.1	0.0007		✓

Semi Volatile Organic Compounds									
Organochlorine Pesticides									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Aldrin + Dieldrin	mg/L	27	ND	ND	ND	0.01	0.00004		✓
Chlordane	mg/L	26	ND	ND	ND	0.01	0.0002		✓
Lindane	mg/L	26	ND	ND	ND	0.01	0.002		✓
Heptachlor	mg/L	27	ND	ND	ND	0.01			
Heptachlor epoxide	mg/L	27	ND	ND	ND	0.01			
Hexachlorobenzene	mg/L	27	ND	ND	ND	0.1			
Methoxychlor	mg/L	26	ND	ND	ND	0.2	0.02		✓

Organochlorine Pesticides cont.									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Permethrin (cis + trans)	mg/L	26	ND	ND	ND	0.2			
DDT + isomers	mg/L	26	ND	ND	ND	0.2	0.001		✓
Procymidone	mg/L	26	ND	ND	ND	0.2	0.7		✓
Organonitrogen Herbicides									
Alachlor	mg/L	26	ND	ND	ND	0.2	0.02		✓
Atrazine	mg/L	26	ND	ND	ND	0.1	0.1		✓
Metolachlor	mg/L	26	ND	ND	ND	0.1	0.01		✓
Molinate	mg/L	26	ND	ND	ND	0.1	0.007		✓
Pendimethalin	mg/L	26	ND	ND	ND	0.2	0.02		✓
Propanil	mg/L	26	ND	ND	ND	0.1			
Simazine	mg/L	26	ND	ND	ND	0.1	0.002		✓
Terbuthylazine	mg/L	26	ND	ND	ND	0.2	0.008		✓
Trifluralin	mg/L	26	ND	ND	ND	0.2	0.03		✓
Organophosphorus Pesticides									
Chlorpyrifos	mg/L	26	ND	ND	ND	0.2	0.04		✓
Diazinon	mg/L	26	ND	ND	ND	0.1			
Pirimiphos methyl	mg/L	26	ND	ND	ND	0.2	0.1		✓

Trace Elements									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Antimony	mg/L	9	ND	ND	ND	0.001	0.02		✓
Arsenic	mg/L	28	0.0014	0.0004	0.0007	0.0001	0.01		✓
Barium	mg/L	28	0.027	0.016	0.020	0.0002	1.5		✓
Boron	mg/L	28	0.200	0.097	0.133	0.005	2.4		✓
Cadmium	mg/L	28	ND	ND	ND	0.00005	0.004		✓
Chromium	mg/L	28	0.0006	ND	0.0000	0.0001	0.05		✓
Copper	mg/L	28	0.075	0.0014	0.0054	0.0002	2	1	✓

Trace Elements cont.									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Lead	mg/L	9	0.0002	ND	0.0001	0.0001	0.01		✓
Lithium	mg/L	4	0.050	0.027	0.036	0.0001			
Mercury	mg/L	28	ND	ND	ND	0.00005	0.007		✓
Molybdenum	mg/L	4	ND	ND	ND	0.0003			
Nickel	mg/L	9	0.0002	ND	0.0001	0.0001	0.08		✓
Selenium	mg/L	4	ND	ND	ND	0.0005	0.04		✓
Zinc	mg/L	4	0.002	0.0018	0.002	0.001		1.5	

Trihalomethanes									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Bromodichloromethane	mg/L	105	0.0130	0.0014	0.0051	0.0001	0.06		✓
Bromoform	mg/L	105	0.0013	ND	0.0001	0.0001	0.1		✓
Chloroform	mg/L	105	0.0740	ND	0.0128	0.0001	0.4		✓
Dibromochloromethane	mg/L	105	0.0074	ND	0.0027	0.0001	0.15		✓
THM Sum Ratio		105	0.38	0.05	0.14		1		✓

Volatile Organic Compounds									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
1,1,1-trichloroethane	mg/L	27	ND	ND	ND	0.0001			
1,2,3-trichlorobenzene	mg/L	27	ND	ND	ND	0.0001		0.01	
1,2,4-trichlorobenzene	mg/L	27	ND	ND	ND	0.0001		0.005	
1,2-dichlorobenzene	mg/L	27	ND	ND	ND	0.0001	1.5	0.001	✓
1,2-dichloroethane	mg/L	27	ND	ND	ND	0.0001	0.03		✓
1,4-dichlorobenzene	mg/L	27	ND	ND	ND	0.0001	0.4	0.0003	✓
Benzene	mg/L	27	ND	ND	ND	0.0001	0.01		✓
Carbon tetrachloride	mg/L	27	ND	ND	ND	0.0001	0.005		✓
Ethylbenzene	mg/L	27	ND	ND	ND	0.0001	0.3	0.002	✓

Volatile Organic Compounds cont.									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Xylenes (total)	mg/L	27	ND	ND	ND	0.0001	0.6	0.02	√
Styrene	mg/L	27	ND	ND	ND	0.0001	0.03	0.004	√
Tetrachloroethene	mg/L	27	ND	ND	ND	0.0001	0.05		√
Toluene	mg/L	27	ND	ND	ND	0.0001	0.8	0.03	√
1,2-dichloroethene (cis + trans)	mg/L	27	ND	ND	ND	0.0001	0.06		√

Halo Acetic Acids (HAAs)									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Bromoacetic Acid	mg/L	23	0.01	0.001	0.002	0.0005			
Bromochloroacetic Acid	mg/L	23	0.01	0.001	0.003	0.0005			
Monochloroacetic Acid	mg/L	23	0.01	0.001	0.002	0.0005	0.02		√
Dibromoacetic Acid	mg/L	23	0.01	0.001	0.002	0.0005			
Dichloroacetic Acid	mg/L	23	0.014	0.001	0.006	0.0005	0.05		√
Trichloroacetic Acid	mg/L	23	0.016	0.001	0.007	0.0005	0.2		√
HAA Sum Ratio		23	0.86	0.05	0.26				

Waitakere WTP Treated Water

Acid Herbicides									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
2,4,5- trichlorophenoxyacetic acid (2,4,5-T)	mg/L	4	ND	ND	ND	0.0001	0.01		✓
2,4-Dichlorophenoxyacetic acid (2,4-BD)	mg/L	4	ND	ND	ND	0.0001	0.04		✓
4-(2,4-dichlorophenoxy) butanoic acid (2,4-DB)	mg/L	4	ND	ND	ND	0.0001	0.1		✓
Bentazone	mg/L	4	ND	ND	ND	0.0001			
Dichlorprop	mg/L	4	ND	ND	ND	0.0001	0.1		✓
MCPA	mg/L	4	ND	ND	ND	0.0001	0.8		✓
Mecoprop	mg/L	4	ND	ND	ND	0.0001	0.01		✓
Picloram	mg/L	4	ND	ND	ND	0.0001	0.2		✓
Triclopyr	mg/L	4	ND	ND	ND	0.0001	0.1		✓

Chemical and Physical									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
UV absorbance at 254nm	Abs units	51	0.037	0.012	0.022	0.002			
Alkalinity (Total) as CaCO ₃	mg/L	51	23	8	14	1			
Aluminium	mg/L	52	0.08	0.02	0.03	0.005	1	0.1	✓
Bromate	mg/L	4	ND	ND	ND	0.005	0.01		✓
Bromide	mg/L	4	0.08	0.02	0.04	0.005			
Calcium	mg/L	15	12.00	7.90	10.00	0.01			
Calcium Hardness	mg/L	15	31.00	20.00	25.07	0.025			
Chlorate	mg/L	4	ND	ND	ND	0.01	0.8		✓
Chloride	mg/L	4	23.60	17.70	20.98	0.02		250	
Chlorine Residual	mg/L	351	1.57	0.53	1.04	0.02	5	0.3-1.0	✓
Chlorite	mg/L	4	ND	ND	ND	0.005	0.8		✓
Colour	Hazen Units	13	ND	ND	ND	5		15	

Chemical and Physical cont.									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Conductivity	mS/m	13	15.60	12.90	14.40	0.5			
Cyanide	mg/L	4	ND	ND	ND	0.005	0.6		✓
Fluoride	mg/L	51	0.95	0.32	0.81	0.02	1.5		✓
Iodide	mg/L	4	0.002	ND	0.001	0.001			
Iron	mg/L	51	0.02	0.01	0.01	0.002		0.3	
Magnesium	mg/L	15	2.50	1.20	1.95	0.001			
Magnesium Hardness	mg/L	15	10.000	5.100	7.960	0.0041			
Manganese	mg/L	51	0.020	0.001	0.006	0.0005	0.4	0.04	✓
pH	pH Units	351	8.1	7.0	7.5	0.1		7.0-8.5	
Potassium	mg/L	4	1.00	0.81	0.88	0.05			
Silicon	mg/L	4	12.00	10.00	11.00	0.1			
Sodium	mg/L	4	13.0	10.0	11.5	0.1		200	
Sulphate	mg/L	4	19.80	14.10	16.35	0.02		250	
Suspended Solids	mg/L	13	0.3	ND	0.10	0.2			
Total Hardness	mg/L	13	37.00	29.00	33.19	0.029		200	
Total Organic Carbon TOC	mg/L	13	2.00	0.90	1.31	0.1			
Turbidity	NTU	351	0.90	0.10	0.20	0.05		5	

Microbiology									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
<i>E. coli</i>	MPN/100mL	351	ND	ND	ND	1	<1		✓

Nutrients									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Ammonia	mg/L	4	0.008	ND	0.002	0.005		1.5	
Dissolved Reactive Phosphorus	mg/L	4	0.005	0.004	0.004	0.005			
Nitrate (as NO ₃)	mg/L	4	0.177	0.031	0.104	0.009	50		✓

Nutrients									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Nitrite (as NO ₂)	mg/L	4	ND	ND	ND	0.007	3		✓
TKN (Total Kjeldahl Nitrogen)	mg/L	4	ND	ND	ND	0.1			
Total Phosphorus	mg/L	4	0.008	ND	0.003	0.005			

Plasticizers									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
bis (2-ethylhexyl) adipate	mg/L	4	ND	ND	ND	2			
bis (2-ethylhexyl) phthalate	mg/L	4	ND	ND	ND	2	0.009		✓

Polycyclic Aromatic Hydrocarbons									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Benzo(a)pyrene	mg/L	4	ND	ND	ND	0	0.0007		✓

Semi Volatile Organic Compounds									
Organochlorine Pesticides									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Aldrin + Dieldrin	mg/L	4	ND	ND	ND	0.01	0.00004		✓
Chlordane	mg/L	4	ND	ND	ND	0.01	0.0002		✓
Lindane	mg/L	4	ND	ND	ND	0.01	0.002		✓
Heptachlor	mg/L	4	ND	ND	ND	0.01			
Heptachlor epoxide	mg/L	4	ND	ND	ND	0.01			
Hexachlorobenzene	mg/L	4	ND	ND	ND	0.1			
Methoxychlor	mg/L	4	ND	ND	ND	0.2	0.02		✓
Permethrin (cis + trans)	mg/L	4	ND	ND	ND	0.2			
DDT + isomers	mg/L	4	ND	ND	ND	0.2	0.001		✓
Procymidone	mg/L	4	ND	ND	ND	0.2	0.7		✓

Organonitrogen Herbicides									
Alachlor	mg/L	4	ND	ND	ND	0.2	0.02		✓
Atrazine	mg/L	4	ND	ND	ND	0.1	0.1		✓
Metolachlor	mg/L	4	ND	ND	ND	0.1	0.01		✓
Molinate	mg/L	4	ND	ND	ND	0.1	0.007		✓
Pendimethalin	mg/L	4	ND	ND	ND	0.2	0.02		✓
Propanil	mg/L	4	ND	ND	ND	0.1			
Simazine	mg/L	4	ND	ND	ND	0.1	0.002		✓
Terbuthylazine	mg/L	4	ND	ND	ND	0.2	0.008		✓
Trifluralin	mg/L	4	ND	ND	ND	0.2	0.03		✓
Organophosphorus Pesticides									
Chlorpyrifos	mg/L	4	ND	ND	ND	0.2	0.04		✓
Diazinon	mg/L	4	ND	ND	ND	0.1			
Pyrimiphos methyl	mg/L	4	ND	ND	ND	0.2	0.1		✓

Trace Elements									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Antimony	mg/L	9	ND	ND	ND	0.001	0.02		✓
Arsenic	mg/L	4	ND	ND	ND	0.0001	0.01		✓
Barium	mg/L	4	0.0062	0.0037	0.0051	0.0002	1.5		✓
Boron	mg/L	4	0.017	ND	0.007	0.005	2.4		✓
Cadmium	mg/L	9	ND	ND	ND	0.00005	0.004		✓
Chromium	mg/L	9	0.0008	ND	0.0001	0.0001	0.05		✓
Copper	mg/L	9	0.0050	0.002	0.0030	0.0002	2	1	✓
Lead	mg/L	9	ND	ND	ND	0.0001	0.01		✓
Lithium	mg/L	4	0.0007	ND	0.0004	0.0001			
Molybdenum	mg/L	5	ND	ND	ND	0.0003			
Nickel	mg/L	4	ND	ND	ND	0.0001	0.08		✓
Selenium	mg/L	9	0.0005	ND	0.0001	0.0005	0.04		✓
Zinc	mg/L	4	ND	ND	ND	0.001		1.5	

Trihalomethanes									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Bromodichloromethane	mg/L	51	0.020	0.005	0.009	0.0001	0.06		✓
Bromoform	mg/L	51	0.004	ND	0.002	0.0001	0.1		✓
Chloroform	mg/L	51	0.051	0.002	0.011	0.0001	0.4		✓
Dibromochloromethane	mg/L	51	0.014	0.002	0.008	0.0001	0.15		✓
THM Sum Ratio		51	0.48	0.15	0.25		1		✓

Volatile Organic Compounds									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
1,1,1-trichloroethane	mg/L	4	ND	ND	ND	0.0001			
1,2,3-trichlorobenzene	mg/L	4	ND	ND	ND	0.0001		0.01	
1,2,4-trichlorobenzene	mg/L	4	ND	ND	ND	0.0001		0.005	
1,2-dichlorobenzene	mg/L	4	ND	ND	ND	0.0001	1.5	0.001	✓
1,2-dichloroethane	mg/L	4	ND	ND	ND	0.0001	0.03		✓
1,4-dichlorobenzene	mg/L	4	ND	ND	ND	0.0001	0.4	0.0003	✓
Benzene	mg/L	4	ND	ND	ND	0.0001	0.01		✓
Carbon tetrachloride	mg/L	4	ND	ND	ND	0.0001	0.005		✓
Ethylbenzene	mg/L	4	ND	ND	ND	0.0001	0.3	0.002	✓
Xylenes (total)	mg/L	4	ND	ND	ND	0.0001	0.6	0.02	✓
Styrene	mg/L	4	ND	ND	ND	0.0001	0.03	0.004	✓
Tetrachloroethene	mg/L	4	ND	ND	ND	0.0001	0.05		✓
Toluene	mg/L	4	ND	ND	ND	0.0001	0.8	0.03	✓
1,2-dichloroethene (cis + trans)	mg/L	4	ND	ND	ND	0.0001	0.06		✓
Trichloroethene	mg/L	4	ND	ND	ND	0.0001	0.02		✓

Halo Acetic Acids (HAAs)									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Bromoacetic Acid	mg/L	4	0.0010	0.0005	0.0008	0.0005			
Bromochloroacetic Acid	mg/L	4	0.0050	0.0019	0.0035	0.0005			
Monochloroacetic Acid	mg/L	4	0.0010	0.0005	0.0008	0.0005	0.02		√
Dibromoacetic Acid	mg/L	4	0.0041	0.0010	0.0020	0.0005			
Dichloroacetic Acid	mg/L	4	0.0036	0.0027	0.0031	0.0005	0.05		√
Trichloroacetic Acid	mg/L	4	0.0036	0.0010	0.0022	0.0005	0.2		√
HAA Sum Ratio		4	0.14	0.08	0.11				

Waiuku Road WTP Treated Water

Chemical and Physical									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Alkalinity (Total) as CaCO ₃	mg/L	4	120	110	117.5	1			
Aluminium	mg/L	1	ND	ND	ND	0.005	1	0.1	✓
Bromate	mg/L	2	ND	ND	ND	0.005	0.01		✓
Bromide	mg/L	2	0.0878	0.067	0.0774	0.005			
Calcium	mg/L	14	31	24	28	0.01			
Calcium Hardness	mg/L	14	78	60	70.36	0.025			
Chlorate	mg/L	2	0.013	0.012	0.013	0.01	0.8		✓
Chloride	mg/L	1	32	32	32	0.02		250	
Chlorine Residual	mg/L	110	1.64	0.53	0.95	0.02	5	0.3-1.0	✓
Chlorite	mg/L	2	ND	ND	ND	0.005	0.8		✓
Colour	Hazen Units	1	ND	ND	ND	5		15	
Conductivity	mS/m	1	35	35	35	0.5			
Cyanide	mg/L	1	ND	ND	ND	0.005	0.6		✓
Fluoride	mg/L	1	0.06	0.06	0.06	0.02	1.5		✓
Iodide	mg/L	1	0.004	0.004	0.004	0.001			
Iron	mg/L	14	0.026	ND	0.003	0.002		0.3	
Magnesium	mg/L	14	7.8	6.1	7.1	0.001			
Magnesium Hardness	mg/L	14	32	25	29	0.0041			
Manganese	mg/L	14	0.002	0.001	0.001	0.0005	0.4	0.04	✓
pH	pH Units	110	8.2	7.7	7.9	0.1		7.0-8.5	
Potassium	mg/L	1	4.7	4.7	4.7	0.05			
Silicon	mg/L	1	35	35	35	0.1			
Sodium	mg/L	1	25	25	25	0.1		200	
Sulphate	mg/L	1	4.8	4.8	4.8	0.02		250	

Chemical and Physical cont.									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Suspended Solids	mg/L	1	0.3	0.3	0.3	0.2			
Total Dissolved Solids	mg/L	1	190	190	190	15		1000	
Total Hardness	mg/L	14	110	86	99.71	0.029		200	
Turbidity	NTU	110	0.2	ND	0.09	0.05		5	

Microbiology									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
<i>E. coli</i>	MPN/100mL	110	ND	ND	ND	1	<1		✓

Nutrients									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Ammonia	mg/L	1	ND	ND	ND	0.005		1.5	
Dissolved Reactive Phosphorus	mg/L	1	0.054	0.054	0.054	0.005			
Nitrate (as NO ₃)	mg/L	1	0.062	0.062	0.062	0.009	50		✓
Nitrite (as NO ₂)	mg/L	1	ND	ND	ND	0.007	3		✓
TKN (Total Kjeldahl Nitrogen)	mg/L	1	ND	ND	ND	0.1			
Total Phosphorus	mg/L	1	0.066	0.066	0.066	0.005			

Plasticizers									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
bis (2-ethylhexyl) adipate	mg/L	1	ND	ND	ND	2			
bis (2-ethylhexyl) phthalate	mg/L	1	ND	ND	ND	2	0.009		✓

Polycyclic Aromatic Hydrocarbons									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Benzo(a)pyrene	mg/L	1	ND	ND	ND	0.1	0.0007		✓

Semi Volatile Organic Compounds									
Organochlorine Pesticides									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Aldrin + Dieldrin	mg/L	1	ND	ND	ND	0.01	0.00004		✓
Chlordane	mg/L	1	ND	ND	ND	0.01	0.0002		✓
Lindane	mg/L	1	ND	ND	ND	0.01	0.002		✓
Heptachlor	mg/L	1	ND	ND	ND	0.01			
Heptachlor epoxide	mg/L	1	ND	ND	ND	0.01			
Hexachlorobenzene	mg/L	1	ND	ND	ND	0.1			
Methoxychlor	mg/L	1	ND	ND	ND	0.2	0.02		✓
Permethrin (cis + trans)	mg/L	1	ND	ND	ND	0.2			
DDT + isomers	mg/L	1	ND	ND	ND	0.2	0.001		✓
Procymidone	mg/L	1	ND	ND	ND	0.2	0.7		✓
Organonitrogen Herbicides									
Alachlor	mg/L	1	ND	ND	ND	0.2	0.02		✓
Atrazine	mg/L	1	ND	ND	ND	0.1	0.1		✓
Metolachlor	mg/L	1	ND	ND	ND	0.1	0.01		✓
Molinate	mg/L	1	ND	ND	ND	0.1	0.007		✓
Pendimethalin	mg/L	1	ND	ND	ND	0.2	0.02		✓
Propanil	mg/L	1	ND	ND	ND	0.1			
Simazine	mg/L	1	ND	ND	ND	0.1	0.002		✓
Terbutylazine	mg/L	1	ND	ND	ND	0.2	0.008		✓
Trifluralin	mg/L	1	ND	ND	ND	0.2	0.03		✓

Organophosphorus Pesticides									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Chlorpyrifos	mg/L	1	ND	ND	ND	0.2	0.04		✓
Diazinon	mg/L	1	ND	ND	ND	0.1			
Pirimiphos methyl	mg/L	1	ND	ND	ND	0.2	0.1		✓

Trace Elements									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Antimony	mg/L	1	ND	ND	ND	0.001	0.02		✓
Arsenic	mg/L	14	0.004	0.003	0.004	0.0001	0.01		✓
Barium	mg/L	1	ND	ND	ND	0.0002	1.5		✓
Boron	mg/L	1	0.028	0.028	0.028	0.005	2.4		✓
Cadmium	mg/L	1	ND	ND	ND	0.00005	0.004		✓
Chromium	mg/L	1	ND	ND	ND	0.0001	0.05		✓
Copper	mg/L	1	0.003	0.003	0.003	0.0002	2	1	✓
Lead	mg/L	1	ND	ND	ND	0.0001	0.01		✓
Lithium	mg/L	1	0.015	0.015	0.015	0.0001			
Mercury	mg/L	1	ND	ND	ND	0.00005	0.007		✓
Molybdenum	mg/L	1	ND	ND	ND	0.0003			
Nickel	mg/L	1	ND	ND	ND	0.0001	0.08		✓
Selenium	mg/L	1	ND	ND	ND	0.0005	0.04		✓
Zinc	mg/L	1	0.004	0.004	0.004	0.001		1.5	

Trihalomethanes									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Bromodichloromethane	mg/L	14	0.003	0.001	0.002	0.0001	0.06		✓
Bromoform	mg/L	14	0.003	ND	0.002	0.0001	0.1		✓
Chloroform	mg/L	14	0.002	ND	0.001	0.0001	0.4		✓
Dibromochloromethane	mg/L	14	0.005	0.002	0.003	0.0001	0.15		✓
THM Sum Ratio		14	0.11	0.04	0.075		1		✓

Volatile Organic Compounds									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
1,1,1-trichloroethane	mg/L	1	ND	ND	ND	0.0001			
1,2,3-trichlorobenzene	mg/L	1	ND	ND	ND	0.0001		0.01	
1,2,4-trichlorobenzene	mg/L	1	ND	ND	ND	0.0001		0.005	
1,2-dichlorobenzene	mg/L	1	ND	ND	ND	0.0001	1.5	0.001	✓
1,2-dichloroethane	mg/L	1	ND	ND	ND	0.0001	0.03		✓
1,4-dichlorobenzene	mg/L	1	ND	ND	ND	0.0001	0.4	0.0003	✓
Benzene	mg/L	1	ND	ND	ND	0.0001	0.01		✓
Carbon tetrachloride	mg/L	1	ND	ND	ND	0.0001	0.005		✓
Ethylbenzene	mg/L	1	ND	ND	ND	0.0001	0.3	0.002	✓
Xylenes (total)	mg/L	1	ND	ND	ND	0.0001	0.6	0.02	✓
Styrene	mg/L	1	ND	ND	ND	0.0001	0.03	0.004	✓
Tetrachloroethene	mg/L	1	ND	ND	ND	0.0001	0.05		✓
Toluene	mg/L	1	ND	ND	ND	0.0001	0.8	0.03	✓
1,2-dichloroethene (cis + trans)	mg/L	1	ND	ND	ND	0.0001	0.06		✓
Trichloroethene	mg/L	1	ND	ND	ND	0.0001	0.02		✓

Warkworth Wells WTP Treated Water

Chemical and Physical									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
UV absorbance at 254nm	Abs units	1	0.017	0.017	0.017	0.002			
Alkalinity (Total) as CaCO ₃	mg/L	4	190	180	188	1			
Aluminium	mg/L	1	0.0069	0.0069	0.0069	0.005	1	0.1	✓
Bromate	mg/L	4	ND	ND	ND	0.005	0.01		✓
Bromide	mg/L	4	0.048	0.039	0.042	0.005			
Calcium	mg/L	4	21.0	21.0	21.0	0.01			
Calcium Hardness	mg/L	4	54	52	53	0.01			
Chlorate	mg/L	4	ND	ND	ND	0.025	0.8		✓
Chloride	mg/L	1	26.20	26.20	26.20	0.01		250	
Chlorine Residual	mg/L	112	1.43	0.35	1.07	0.02	5	0.3-1.0	✓
Chlorite	mg/L	4	ND	ND	ND	0.02	0.8		✓
Colour	Hazen Units	1	ND	ND	ND	5		15	
Conductivity	mS/m	1	45.2	45.2	45.2	0.5			
Cyanide	mg/L	1	ND	ND	ND	0.005	0.6		✓
Fluoride	mg/L	1	0.16	0.16	0.16	0.02	1.5		✓
Iodide	mg/L	1	ND	ND	ND	0.001			
Iron	mg/L	54	0.013	ND	0.001	0.002		0.3	
Magnesium	mg/L	4	6.40	5.90	6.20	0.001			
Magnesium Hardness	mg/L	4	26.000	24.000	25.250	0.0041			
Manganese	mg/L	54	0.0007	ND	ND	0.0005	0.4	0.04	✓
pH	pH unit	112	8.2	7.3	7.7	0.1		7.0-8.5	
Potassium	mg/L	1	0.41	0.41	0.41	0.05			
Silicon	mg/L	1	60.0	60.0	60.0	0.1			
Sodium	mg/L	1	71.0	71.0	71.0	0.1		200	
Sulphate	mg/L	4	0.048	0.039	0.042	0.02		250	
Suspended Solids	mg/L	1	ND	ND	ND	0.2			

Chemical and Physical cont.									
Total Dissolved Solids	mg/L	1	310	310	310	15		1000	
Total Hardness	mg/L	4	80.00	77.00	78.50	0.029		200	
Total Organic Carbon TOC	mg/L	14	1.3	0.4	0.8	0.1			
Turbidity	NTU	112	0.3	ND	0.1	0.05		5	

Microbiology									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
<i>E. coli</i>	MPN/100mL	112	1*	ND	ND	1	<1		√

*On the 27th January 2023, a positive E.coli result of 3.1 MPN/100mL was detected in the Warkworth Wells WTP treated water sample. A review of all online compliance monitoring data confirmed that the Warkworth Wells WTP was fully compliant with the Drinking Water Quality Assurance Rules, section 4.10.1.4, T3 Bacterial Rules for Water Disinfected with Ultraviolet Light and that the WTP continued to produce safe drinking water. In addition, treated water chlorine data was within the expected range for this day. 3-days of resampling were scheduled at the treatment plant and in the Warkworth network. All samples taken during this period showed E.coli and total coliforms below detection limits.

Nutrients									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Ammonia	mg/L	1	ND	ND	ND	0.005		1.5	
Dissolved Reactive Phosphorus	mg/L	1	0.077	0.077	0.077	0.005			
Nitrate (as NO ₃)	mg/L	1	0.022	0.022	0.022	0.009	50		√
Nitrite (as NO ₂)	mg/L	1	ND	ND	ND	0.007	3		√
TKN (Total Kjeldahl Nitrogen)	mg/L	1	ND	ND	ND	0.1			
Total Phosphorus	mg/L	1	0.081	0.081	0.081	0.005			

Semi Volatile Organic Compounds									
Organochlorine Pesticides									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Hexachlorobenzene	mg/L	1	ND	ND	ND	0.1			

Trace Elements									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Antimony	mg/L	1	ND	ND	ND	0.001	0.02		✓
Arsenic	mg/L	16	ND	ND	ND	0.0001	0.01		✓
Barium	mg/L	1	0.0009	0.0009	0.0009	0.0002	1.5		✓
Boron	mg/L	1	0.14	0.14	0.14	0.005	2.4		✓
Cadmium	mg/L	1	ND	ND	ND	0.00005	0.004		✓
Chromium	mg/L	1	ND	ND	ND	0.0001	0.05		✓
Copper	mg/L	1	ND	ND	ND	0.0002	2	1	✓
Lead	mg/L	1	ND	ND	ND	0.0001	0.01		✓
Lithium	mg/L	1	0.013	0.013	0.013	0.0001			
Mercury	mg/L	1	ND	ND	ND	0.00005	0.007		✓
Molybdenum	mg/L	1	ND	ND	ND	0.0003			
Nickel	mg/L	1	0.0001	0.0001	0.0001	0.0001	0.08		✓
Selenium	mg/L	1	ND	ND	ND	0.0005	0.04		✓
Zinc	mg/L	1	ND	ND	ND	0.001		1.5	

Trihalomethanes									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Bromodichloromethane	mg/L	54	0.0150	0.0065	0.0094	0.0001	0.06		✓
Bromoform	mg/L	54	0.0040	ND	0.0018	0.0001	0.1		✓
Chloroform	mg/L	54	0.0190	0.0068	0.0105	0.0001	0.4		✓
Dibromochloromethane	mg/L	54	0.0150	0.0046	0.0086	0.0001	0.15		✓
THM Sum Ratio		54	0.40	0.18	0.26		1		✓

Wellsford WTP Treated Water

Acid Herbicides									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
2-4-5-Trichlorophenoxyacetic acid (2,4-T)	mg/L	13	ND	ND	ND	0.0001	0.01		✓
2-4-Dichlorophenoxyacetic acid (2,4-D)	mg/L	13	ND	ND	ND	0.0001	0.04		✓
4-(2-4-Dichlorophenoxy) butanoic acid (2,4-DB)	mg/L	13	ND	ND	ND	0.0001	0.1		✓
Bentazone	mg/L	13	ND	ND	ND	0.0001			
Dichlorprop	mg/L	13	ND	ND	ND	0.0001	0.1		✓
MCPA	mg/L	13	ND	ND	ND	0.0001	0.8		✓
Mecoprop (MCPP)	mg/L	13	ND	ND	ND	0.0001	0.01		✓
Picloram	mg/L	13	ND	ND	ND	0.0001	0.2		✓
Triclopyr	mg/L	13	ND	ND	ND	0.0001	0.1		✓

Chemical and Physical									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
UV absorbance at 254nm	Abs units	52	0.032	ND	0.014	0.002			
Alkalinity (Total) as CaCO ₃	mg/L	52	85	21	37	1			
Aluminium	mg/L	52	0.68	0.01	0.060	0.005	1	0.1	✓
Bromate	mg/L	4	ND	ND	ND	0.005	0.01		✓
Bromide	mg/L	4	0.08	0.04	0.06	0.005			
Calcium	mg/L	16	12.0	7.8	10.2	0.01			
Calcium Hardness	mg/L	16	30.00	19.00	25.75	0.025			
Chlorate	mg/L	4	ND	ND	ND	0.01	0.8		✓
Chloride	mg/L	4	27.30	19.40	23.10	0.02		250	
Chlorine Residual	mg/L	111	1.98	0.72	1.39	0.02	5	0.3-1.0	✓
Chlorite	mg/L	4	ND	ND	ND	0.005	0.8		✓
Colour	Hazen Units	4	ND	ND	ND	5		15	

Chemical and Physical cont.									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Conductivity	mS/m	16	32.3	18.6	24.7	0.5			
Cyanide	mg/L	4	ND	ND	ND	0.005	0.6		√
Fluoride	mg/L	13	0.09	ND	0.02	0.02	1.5		√
Iodide	mg/L	4	0.004	ND	0.002	0.001			
Iron	mg/L	16	0.021	ND	0.005	0.002		0.3	
Magnesium	mg/L	16	4.00	2.30	3.59	0.001			
Magnesium Hardness	mg/L	16	17.000	9.400	14.587	0.0041			
Manganese	mg/L	16	0.08	0.01	0.03	0.0005	0.4	0.04	√
pH	pH Units	111	7.7	6.9	7.2	0.1		7.0-8.5	
Potassium	mg/L	4	2.3	1.3	1.8	0.05			
Silicon	mg/L	4	17.0	9.1	14.8	0.1			
Sodium	mg/L	4	29.0	17.0	23.5	0.1		200	
Sulphate	mg/L	4	38.40	9.26	26.6	0.02		250	
Suspended Solids	mg/L	13	0.4	ND	0.1	0.2			
Total Dissolved Solids	mg/L	13	190	130	151	15		1000	
Total Hardness	mg/L	16	47.00	29.00	40.50	0.029		200	
Total Organic Carbon TOC	mg/L	52	1.8	0.3	1.0	0.1			
Turbidity	NTU	111	1	0.1	0.2	0.05		5	

Microbiology									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
<i>E. coli</i>	MPN/100mL	111	ND	ND	ND	1	<1		√

Nutrients									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Ammonia	mg/L	4	ND	ND	ND	0.005		1.5	
Dissolved Reactive Phosphorus	mg/L	13	0.023	0.002	0.005	0.005			
Nitrate (as NO ₃)	mg/L	16	2.493	0.934	1.603	0.009	50		√
Nitrite (as NO ₂)	mg/L	16	0.003	ND	ND	0.007	3		√
TKN (Total Kjeldahl Nitrogen)	mg/L	4	0.133	ND	0.062	0.1			
Total Phosphorus	mg/L	0	0.024	ND	0.003	0.005			

Plasticizers									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
bis (2-ethylhexyl) adipate	mg/L	13	ND	ND	ND	2			
bis (2-ethylhexyl) phthalate	mg/L	13	ND	ND	ND	2	0.009		√

Polycyclic Aromatic Hydrocarbons									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Benzo(a)pyrene	mg/L	13	ND	ND	ND	0.1	0.0007		√

Semi Volatile Organic Compounds									
Organochlorine Pesticides									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Aldrin + Dieldrin	mg/L	13	ND	ND	ND	0.01	0.00004		√
Chlordane	mg/L	13	ND	ND	ND	0.01	0.0002		√
Lindane	mg/L	13	ND	ND	ND	0.01	0.002		√
Heptachlor	mg/L	13	ND	ND	ND	0.01			
Heptachlor epoxide	mg/L	13	ND	ND	ND	0.01			
Hexachlorobenzene	mg/L	13	ND	ND	ND	0.1			
Methoxychlor	mg/L	13	ND	ND	ND	0.2	0.02		√

Organochlorine Pesticides cont.									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Permethrin (cis + trans)	mg/L	13	ND	ND	ND	0.2			
DDT + isomers	mg/L	13	ND	ND	ND	0.2	0.001		✓
Procymidone	mg/L	13	ND	ND	ND	0.2	0.7		✓
Organonitrogen Herbicides									
Alachlor	mg/L	13	ND	ND	ND	0.2	0.02		✓
Atrazine	mg/L	13	ND	ND	ND	0.1	0.1		✓
Metolachlor	mg/L	13	ND	ND	ND	0.1	0.01		✓
Molinate	mg/L	13	ND	ND	ND	0.1	0.007		✓
Pendimethalin	mg/L	13	ND	ND	ND	0.2	0.02		✓
Propanil	mg/L	13	ND	ND	ND	0.1			
Simazine	mg/L	13	ND	ND	ND	0.1	0.002		✓
Terbuthylazine	mg/L	13	ND	ND	ND	0.2	0.008		✓
Trifluralin	mg/L	13	ND	ND	ND	0.2	0.03		✓
Organophosphorus Pesticides									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Chlorpyrifos	mg/L	13	ND	ND	ND	0.2	0.04		✓
Diazinon	mg/L	13	ND	ND	ND	0.1			
Pirimiphos methyl	mg/L	13	ND	ND	ND	0.2	0.1		✓
Trace Elements									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Antimony	mg/L	9	ND	ND	ND	0.001	0.02		✓
Arsenic	mg/L	4	0.0001	ND	ND	0.0001	0.01		✓
Barium	mg/L	4	0.0340	0.0180	0.0240	0.0002	1.5		✓
Boron	mg/L	0	0.015	ND	0.008	0.005	2.4		✓
Cadmium	mg/L	9	ND	ND	ND	0.00005	0.004		✓

Trace Elements cont.									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Chromium	mg/L	9	0.0005	ND	0.0001	0.0001	0.05		✓
Copper	mg/L	9	0.003	0.001	0.002	0.0002	2	1	✓
Lead	mg/L	9	ND	ND	ND	0.0001	0.01		✓
Lithium	mg/L	4	0.0015	0.0006	0.0010	0.0001			
Mercury	mg/L	9	ND	ND	ND	0.00005	0.007		✓
Molybdenum	mg/L	4	ND	ND	ND	0.0003			
Nickel	mg/L	9	0.0016	0.0004	0.0007	0.0001	0.08		✓
Selenium	mg/L	4	ND	ND	ND	0.0005	0.04		✓
Zinc	mg/L	4	0.010	0.005	0.007	0.001		1.5	

Trihalomethanes									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Bromodichloromethane	mg/L	52	0.0110	ND	0.0037	0.0001	0.06		✓
Bromoform	mg/L	52	0.0046	ND	0.0020	0.0001	0.1		✓
Chloroform	mg/L	52	0.0081	ND	0.0019	0.0001	0.4		✓
Dibromochloromethane	mg/L	52	0.0130	ND	0.0058	0.0001	0.15		✓
THM Sum Ratio		52	0.31	ND	0.12		1		✓

Volatile Organic Compounds									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
1,1,1-trichloroethane	mg/L	13	ND	ND	ND	0.0001			
1,2,3-trichlorobenzene	mg/L	13	ND	ND	ND	0.0001		0.01	
1,2,4-trichlorobenzene	mg/L	13	ND	ND	ND	0.0001		0.005	
1,2-dichlorobenzene	mg/L	13	ND	ND	ND	0.0001	1.5	0.001	✓
1,2-dichloroethane	mg/L	13	ND	ND	ND	0.0001	0.03		✓
1,4-dichlorobenzene	mg/L	13	ND	ND	ND	0.0001	0.4	0.0003	✓

Volatile Organic Compounds cont.									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Benzene	mg/L	13	ND	ND	ND	0.0001	0.01		✓
Carbon tetrachloride	mg/L	13	ND	ND	ND	0.0001	0.005		✓
Ethylbenzene	mg/L	13	ND	ND	ND	0.0001	0.3	0.002	✓
Xylenes (total)	mg/L	13	ND	ND	ND	0.0001	0.6	0.02	✓
Styrene	mg/L	13	ND	ND	ND	0.0001	0.03	0.004	✓
Tetrachloroethene	mg/L	13	ND	ND	ND	0.0001	0.05		✓
Toluene	mg/L	13	ND	ND	ND	0.0001	0.8	0.03	✓
1,2-dichloroethene (cis + trans)	mg/L	13	ND	ND	ND	0.0001	0.06		✓
Trichloroethene	mg/L	13	ND	ND	ND	0.0001	0.02		✓

Halo Acetic Acids (HAAs)									
Component Name	Units	Number of Samples	Max	Min	Average	Detection Limit	MAV DWSNZ2022	AV DWQAR	Compliance DWSNZ2022
Bromoacetic Acid	mg/L	4	0.0010	0.0005	0.0008	0.0005			
Bromochloroacetic Acid	mg/L	4	0.0053	0.0010	0.0025	0.0005			
Monochloroacetic Acid	mg/L	4	0.0010	0.0005	0.0008	0.0005	0.02		✓
Dibromoacetic Acid	mg/L	4	0.0043	0.0010	0.0018	0.0005			
Dichloroacetic Acid	mg/L	4	0.0065	0.0010	0.0028	0.0005	0.05		✓
Trichloroacetic Acid	mg/L	4	0.0028	0.0010	0.0015	0.0005	0.2		✓
HAA Sum Ratio		4	0.19	0.05	0.1				

Water Quality Compliance Data for the Distribution Network Zones

Anzac Distribution Network Zone

Supplied by: Ardmore and Waikato WTPs

	Turbidity	<i>E. coli</i>	Chlorine Residual	pH	Total coliforms
	NTU	MPN/100 mL	mg/L	pH unit	MPN/100 mL
Minimum	0.10	0.00	0.04	7.10	0.00
Median	0.20	0.00	0.82	7.70	0.00
Average	0.22	0.00	0.79	7.72	0.00
Maximum	0.45	0.00	1.22	8.00	0.00
Count of Results	130	130	153	130	130

Compliance with D3 disinfection criteria

Not met*

Comments:

*Not met due to 1 of 39 samples <0.1mg/L.

Watercare responded to the low FAC result in a timely manner providing high degree of confidence that water disinfection was not compromised. Based on the investigation and review of the WTP and network performance water continued to be safe and did not pose public health risk.

Auckland Distribution Network Zone

Supplied by: Ardmore, Huia, Onehunga, and Waikato WTPs

	Turbidity	<i>E. coli</i>	Chlorine Residual	pH	Total coliforms
	NTU	MPN/100 mL	mg/L	pH unit	MPN/100 mL
Minimum	0.00	0.00	0.21	7.20	0.00
Median	0.15	0.00	0.97	7.60	0.00
Average	0.19	0.00	0.93	7.60	0.00
Maximum	2.90	0.00	1.45	8.40	0.00
Count of Results	696	696	696	696	696

Compliance with D3 disinfection criteria

Met

Auckland Airport Distribution Network Zone

Supplied by: Ardmore and Waikato WTPs

	Turbidity	<i>E. coli</i>	Chlorine Residual	pH	Total coliforms
	NTU	MPN/100 mL	mg/L	pH unit	MPN/100 mL
Minimum	0.10	0.00	0.03	7.30	0.00
Median	0.15	0.00	1.00	7.60	0.00
Average	0.18	0.00	0.99	7.59	0.00
Maximum	1.00	0.00	1.34	7.80	0.00
Count of Results	131	131	162	131	131
Compliance with D3 disinfection criteria			Met		

Bombay Distribution Network Zone

Supplied by: Bombay WTP

	Turbidity	<i>E. coli</i>	Chlorine Residual	pH	Total coliforms
	NTU	MPN/100 mL	mg/L	pH unit	MPN/100 mL
Minimum	0.00	0.00	0.28	6.90	0.00
Median	0.10	0.00	0.99	7.70	0.00
Average	0.13	0.00	0.98	7.66	0.00
Maximum	0.45	0.00	1.73	8.00	0.00
Count of Results	115	114	146	115	114
Compliance with D3 disinfection criteria			Met		

Buckland Distribution Network Zone

Supplied by: Ardmore and Waikato WTPs

	Turbidity	<i>E. coli</i>	Chlorine Residual	pH	Total coliforms
	NTU	MPN/100 mL	mg/L	pH unit	MPN/100 mL
Minimum	0.00	0.00	0.26	7.10	0.00
Median	0.20	0.00	0.89	7.80	0.00
Average	0.21	0.00	0.88	7.80	0.00
Maximum	2.00	0.00	1.44	8.10	0.00
Count of Results	110	110	133	110	110
Compliance with D3 disinfection criteria			Met		

Central Business District Distribution Network Zone

Supplied by: Ardmore, Huia, and Waikato WTPs

	Turbidity	<i>E. coli</i>	Chlorine Residual	pH	Total coliforms
	NTU	MPN/100 mL	mg/L	pH unit	MPN/100 mL
Minimum	0.10	0.00	0.27	7.10	0.00
Median	0.20	0.00	0.78	7.60	0.00
Average	0.20	0.00	0.75	7.68	0.00
Maximum	0.80	0.00	1.31	9.00	0.00
Count of Results	217	217	224	217	217
Compliance with D3 disinfection criteria			Met		

Clarks / Waiau Beach Distribution Network Zone

Supplied by: Ardmore and Waikato WTPs

	Turbidity	<i>E. coli</i>	Chlorine Residual	pH	Total coliforms
	NTU	MPN/100 mL	mg/L	pH unit	MPN/100 mL
Minimum	0.10	0.00	0.21	7.30	0.00
Median	0.20	0.00	0.79	7.70	0.00
Average	0.24	0.00	0.80	7.73	0.00
Maximum	0.85	0.00	1.67	7.90	0.00
Count of Results	110	110	133	110	110
Compliance with D3 disinfection criteria			Met		

East Tamaki / Botany Distribution Network Zone

Supplied by: Ardmore and Waikato WTPs

	Turbidity	<i>E. coli</i>	Chlorine Residual	pH	Total coliforms
	NTU	MPN/100 mL	mg/L	pH unit	MPN/100 mL
Minimum	0.05	0.00	0.29	7.10	0.00
Median	0.15	0.00	1.07	7.50	0.00
Average	0.18	0.00	1.03	7.54	0.00
Maximum	0.45	0.00	1.36	7.90	0.00
Count of Results	230	230	268	230	230
Compliance with D3 disinfection criteria			Met		

Glenbrook Beach Distribution Network Zone

Supplied by: Ardmore and Waikato WTPs

	Turbidity	<i>E. coli</i>	Chlorine Residual	pH	Total coliforms
	NTU	MPN/100 mL	mg/L	pH unit	MPN/100 mL
Minimum	0.10	0.00	0.20	7.30	0.00
Median	0.20	0.00	0.77	7.70	0.00
Average	0.23	0.00	0.74	7.74	0.00
Maximum	0.60	0.00	1.30	8.20	0.00
Count of Results	110	110	133	110	110
Compliance with D3 disinfection criteria			Met		

Glen Eden / New Lynn Distribution Network Zone

Supplied by: Ardmore, Huia, Waikato, and Waitakere WTPs

	Turbidity	<i>E. coli</i>	Chlorine Residual	pH	Total coliforms
	NTU	MPN/100 mL	mg/L	pH unit	MPN/100 mL
Minimum	0.05	0.00	0.21	7.20	0.00
Median	0.20	0.00	0.91	7.50	0.00
Average	0.28	0.00	0.89	7.51	0.00
Maximum	7.90	0.00	1.41	7.90	0.00
Count of Results	239	239	286	239	239
Compliance with D3 disinfection criteria			Met		

HBC / Waiwera Distribution Network Zone

Supplied by: Ardmore, Huia, Waikato, and Waitakere WTPs

	Turbidity	<i>E. coli</i>	Chlorine Residual	pH	Total coliforms
	NTU	MPN/100 mL	mg/L	pH unit	MPN/100 mL
Minimum	0.00	0.00	0.10	7.10	0.00
Median	0.20	0.00	0.76	7.90	0.00
Average	0.28	0.00	0.75	8.08	0.00
Maximum	4.10	1.00**	1.60	9.10	1.00
Count of Results	251	251	288	251	251

Compliance with D3 disinfection criteria

Not met*

Comments:

*Not met due to 80% of samples in February >0.2mg/L

Watercare responded to the low FAC results in a timely manner providing high degree of confidence that water disinfection was not compromised. Based on the investigation and review of the WTP and network performance water continued to be safe and did not pose public health risk.

**The *E. coli* result of 1.0 MPN/100mL was reported to Taumata Arowai. Investigations confirmed that this result was not representative of the water in supply. Compliance with the DWSNZ was maintained.

Helensville / Parakai Distribution Network Zone

Supplied by: Helensville WTP

	Turbidity	<i>E. coli</i>	Chlorine Residual	pH	Total coliforms
	NTU	MPN/100 mL	mg/L	pH unit	MPN/100 mL
Minimum	0.00	0.00	0.05	7.10	0.00
Median	0.10	0.00	0.70	7.40	0.00
Average	0.16	0.00	0.69	7.40	0.00
Maximum	1.30	0.00	1.71	8.70	0.00
Count of Results	120	120	143	120	120

Compliance with D3 disinfection criteria

Not met*

Comments:

* Not met due to 66.7% of samples in February >0.2mg and 1 of 38 samples <0.1mg/L.

Watercare responded to the low FAC results in a timely manner providing high degree of confidence that water disinfection was not compromised in the distribution zone. Based on the investigation and review of the WTP and network performance water continued to be safe and did not pose public health risk

Henderson Distribution Network Zone

Supplied by: Ardmore, Huia, and Waikato WTPs

	Turbidity	<i>E. coli</i>	Chlorine Residual	pH	Total coliforms
	NTU	MPN/100 mL	mg/L	pH unit	MPN/100 mL
Minimum	0.05	0.00	0.23	7.00	0.00
Median	0.20	0.00	0.95	7.50	0.00
Average	0.23	0.00	0.91	7.51	0.00
Maximum	5.50	0.00	1.35	8.00	12.00
Count of Results	402	402	402	402	402

Compliance with D3 disinfection criteria

Met

High Head Distribution Network Zone

Supplied by: Ardmore and Waikato WTPs

	Turbidity	<i>E. coli</i>	Chlorine Residual	pH	Total coliforms
	NTU	MPN/100 mL	mg/L	pH unit	MPN/100 mL
Minimum	0.05	0.00	0.06	7.00	0.00
Median	0.15	0.00	1.02	7.50	0.00
Average	0.18	0.00	0.97	7.49	0.03
Maximum	0.85	0.00	1.49	7.80	6.40
Count of Results	246	246	246	246	246

Compliance with D3 disinfection criteria

Not met*

Comments:

*Not met due to 1 of 94 samples <0.1mg/L.

Watercare responded to the low FAC result in a timely manner providing high degree of confidence that water disinfection was not compromised. Based on the investigation and review of the WTP and network performance water continued to be safe and did not pose public health risk.

Hillsborough Distribution Network Zone

Supplied by: Ardmore, Huia, Onehunga, and Waikato WTPs

	Turbidity	<i>E. coli</i>	Chlorine Residual	pH	Total coliforms
	NTU	MPN/100 mL	mg/L	pH unit	MPN/100 mL
Minimum	0.05	0.00	0.29	7.30	0.00
Median	0.20	0.00	0.98	7.60	0.00
Average	0.21	0.00	0.95	7.62	0.18
Maximum	1.00	0.00	1.44	8.40	48.00
Count of Results	274	274	274	274	274

Compliance with D3 disinfection criteria

Met

Hilltop Distribution Network Zone

Supplied by: Ardmore and Waikato WTPs

	Turbidity	<i>E. coli</i>	Chlorine Residual	pH	Total coliforms
	NTU	MPN/100 mL	mg/L	pH unit	MPN/100 mL
Minimum	0.10	0.00	0.04	7.20	0.00
Median	0.20	0.00	0.47	7.70	0.00
Average	0.22	0.00	0.50	7.73	0.00
Maximum	0.80	0.00	1.27	8.00	0.00
Count of Results	120	120	143	120	120
Compliance with D3 disinfection criteria			Not met*		
Comments: *Not met due to 69% of samples in January and 75% of samples in February >0.2mg/L, and 4 of 39 samples <0.1mg/L. Watercare responded to the low FAC results in a timely manner providing high degree of confidence that water disinfection was not compromised. Based on the investigation and review of the WTP and network performance water continued to be safe and did not pose public health risk.					

Howick / Pakuranga Distribution Network Zone

Supplied by: Ardmore and Waikato WTPs

	Turbidity	<i>E. coli</i>	Chlorine Residual	pH	Total coliforms
	NTU	MPN/100 mL	mg/L	pH unit	MPN/100 mL
Minimum	0.00	0.00	0.23	7.20	0.00
Median	0.15	0.00	0.90	7.60	0.00
Average	0.20	0.00	0.90	7.62	0.02
Maximum	2.10	0.00	1.54	8.30	6.40
Count of Results	367	367	367	367	367
Compliance with D3 disinfection criteria			Met		

Huia Village Distribution Network Zone

Supplied by: Huia Village WTP

	Turbidity	<i>E. coli</i>	Chlorine Residual	pH	Total coliforms
	NTU	MPN/100mL	mg/L	pH unit	MPN/100 mL
Minimum	0.05	0.00	0.00	7.30	0.00
Median	0.15	0.00	0.96	7.80	0.00
Average	0.15	0.00	0.92	7.78	0.01
Maximum	0.55	0.00	2.20	8.80	2.00
Count of Results	145	145	169	145	145

Compliance with D3 disinfection criteria

Not met*

Comments:

*Not met due to 80% of samples in February >0.2mg and 2 of 91 samples <0.1mg/L

Watercare responded to the low FAC results in a timely manner providing high degree of confidence that water disinfection was not compromised in the distribution zone. Based on the investigation and review of the WTP and network performance water continued to be safe and did not pose public health risk.

Kitchener Distribution Network Zone

Supplied by: Ardmore and Waikato WTPs

	Turbidity	<i>E. coli</i>	Chlorine Residual	pH	Total coliforms
	NTU	MPN/100mL	mg/L	pH unit	MPN/100mL
Minimum	0.00	0.00	0.36	7.20	0.00
Median	0.20	0.00	1.00	7.70	0.00
Average	0.20	0.00	0.97	7.72	0.00
Maximum	0.55	0.00	1.47	8.10	0.00
Count of Results	183	183	267	183	183

Compliance with D3 disinfection criteria

Met

Laingholm Distribution Network Zone

Supplied by: Huia WTP

	Turbidity	<i>E. coli</i>	Chlorine Residual	pH	Total coliforms
	NTU	MPN/100mL	mg/L	pH unit	MPN/100mL
Minimum	0.10	0.00	0.21	7.20	0.00
Median	0.20	0.00	0.75	7.60	0.00
Average	0.31	0.00	073	7.67	0.23
Maximum	9.00	0.00	121	8.30	31.00
Count of Results	136	136	159	136	136
Compliance with D3 disinfection criteria			Met		

Mangere Distribution Network Zone

Supplied by: Ardmore and Waikato WTPs

	Turbidity	<i>E. coli</i>	Chlorine Residual	pH	Total coliforms
	NTU	MPN/100 mL	mg/L	pH unit	MPN/100 mL
Minimum	0.05	0.00	0.34	7.00	0.00
Median	0.15	0.00	1.01	7.60	0.00
Average	0.20	0.00	1.00	7.58	0.00
Maximum	0.70	0.00	1.49	8.10	0.00
Count of Results	283	283	299	283	283
Compliance with D3 disinfection criteria			Met		

Manurewa Distribution Network Zone

Supplied by: Ardmore and Waikato WTPs

	Turbidity	<i>E. coli</i>	Chlorine Residual	pH	Total coliforms
	NTU	MPN/100 mL	mg/L	pH unit	MPN/100 mL
Minimum	0.05	0.00	0.25	7.30	0.00
Median	0.15	0.00	0.99	7.60	0.00
Average	0.18	0.00	0.97	7.64	0.00
Maximum	0.85	0.00	1.50	8.40	0.00
Count of Results	280	280	296	280	280
Compliance with D3 disinfection criteria			Met		

Maungawhau Distribution Network Zone

Supplied by: Ardmore, Huia, and Waikato WTPs

	Turbidity	<i>E. coli</i>	Chlorine Residual	pH	Total coliforms
	NTU	MPN/100 mL	mg/L	pH unit	MPN/100 mL
Minimum	0.00	0.00	0.00	6.80	0.00
Median	0.15	0.00	0.80	7.50	0.00
Average	0.19	0.00	0.78	7.52	0.00
Maximum	5.90	0.00	1.49	8.10	0.00
Count of Results	600	600	625	600	600
Compliance with D3 disinfection criteria			Not met*		
Comments: *Not met due to 3 of 165 samples <0.1mg/L Watercare demonstrated responding to the low FAC results in a timely manner providing high degree of confidence that water disinfection was not compromised in the distribution zone. Based on the investigation and review of the WTP and network performance water continued to be safe and did not pose public health risk.					

Montana Distribution Network Zone

Supplied by: Huia WTP

	Turbidity	<i>E. coli</i>	Chlorine Residual	pH	Total coliforms
	NTU	MPN/100 mL	mg/L	pH unit	MPN/100 mL
Minimum	0.10	0.00	0.16	6.90	0.00
Median	0.20	0.00	0.78	7.40	0.00
Average	0.28	0.00	0.78	7.49	0.06
Maximum	9.20	0.00	1.47	8.40	12.00
Count of Results	193	193	216	193	193
Compliance with D3 disinfection criteria			Met		

Mt Hobson Distribution Network Zone

Supplied by: Ardmore and Waikato WTPs

	Turbidity	<i>E. coli</i>	Chlorine Residual	pH	Total coliforms
	NTU	MPN/100 mL	mg/L	pH unit	MPN/100 mL
Minimum	0.05	0.00	0.18	7.30	0.00
Median	0.15	0.00	0.68	7.60	0.00
Average	0.20	0.00	0.64	7.61	0.00
Maximum	5.90	0.00	1.34	8.10	0.00
Count of Results	292	292	292	292	292
Compliance with D3 disinfection criteria			Met		

Muriwai Distribution Network Zone

Supplied by: Muriwai WTP

	Turbidity	<i>E. coli</i>	Chlorine Residual	pH	Total coliforms
	NTU	MPN/100 mL	mg/L	pH unit	MPN/100 mL
Minimum	0.00	0.00	0.22	7.10	0.00
Median	0.15	0.00	0.87	7.40	0.00
Average	0.18	0.00	0.78	7.40	0.00
Maximum	1.60	0.00	1.58	8.70	0.00
Count of Results	109	109	138	109	109
Compliance with D3 disinfection criteria			Met		

North Shore South Distribution Network Zone

Supplied by: Ardmore and Waikato WTPs

	Turbidity	<i>E. coli</i>	Chlorine Residual	pH	Total coliforms
	NTU	MPN/100 mL	mg/L	pH unit	MPN/100 mL
Minimum	0.05	0.00	0.20	7.20	0.00
Median	0.15	0.00	0.77	7.60	0.00
Average	0.20	0.00	0.75	7.64	0.00
Maximum	3.30	0.00	1.36	8.40	0.00
Count of Results	469	469	520	469	469
Compliance with D3 disinfection criteria			Met		

North Shore West Distribution Network Zone

Supplied by: Ardmore, Huia, and Waikato WTPs

	Turbidity	<i>E. coli</i>	Chlorine Residual	pH	Total coliforms
	NTU	MPN/100 mL	mg/L	pH unit	MPN/100 mL
Minimum	0.10	0.00	0.11	7.10	0.00
Median	0.20	0.00	0.81	7.60	0.00
Average	0.21	0.00	0.81	7.61	0.00
Maximum	1.50	0.00	1.63	8.70	1.00
Count of Results	572	572	577	572	572
Compliance with D3 disinfection criteria			Met		

Onehunga Distribution Network Zone

Supplied by: Onehunga WTP

	Turbidity	<i>E. coli</i>	Chlorine Residual	pH	Total coliforms
	NTU	MPN/100 mL	mg/L	pH unit	MPN/100mL
Minimum	0.00	0.00	0.05	6.90	0.00
Median	0.15	0.00	0.91	7.60	0.00
Average	0.18	0.00	0.86	7.58	0.01
Maximum	0.85	0.00	1.63	8.10	1.00
Count of Results	177	177	209	177	177
Compliance with D3 disinfection criteria			Not met*		
Comments: *Not met due 83% of samples >0.20mg/L in February and 1 of 58 samples <0.1mg/L Watercare demonstrated responding to the low FAC results in a timely manner providing high degree of confidence that water disinfection was not compromised in the distribution zone. Based on the investigation and review of the WTP and network performance water continued to be safe and did not pose public health risk.					

Oratia Distribution Network Zone

Supplied by: Ardmore, Huia, Waikato, and Waitakere WTPs

	Turbidity	<i>E. coli</i>	Chlorine Residual	pH	Total coliforms
	NTU	MPN/100 mL	mg/L	pH unit	MPN/100 mL
Minimum	0.10	0.00	0.08	6.80	0.00
Median	0.20	0.00	0.67	7.80	0.00
Average	0.22	0.00	0.64	7.87	0.00
Maximum	0.45	0.00	1.18	9.20	0.00
Count of Results	141	141	164	141	141

Compliance with D3 disinfection criteria

Not met*

Comments:

*Not met due 75% of samples >0.20mg/L in May and 1 of 46 samples <0.1mg/L

Watercare demonstrated responding to the low FAC results in a timely manner providing high degree of confidence that water disinfection was not compromised in the distribution zone. Based on the investigation and review of the WTP and network performance water continued to be safe and did not pose public health risk.

Otahuhu Distribution Network Zone

Supplied by: Ardmore and Waikato WTPs

	Turbidity	<i>E. coli</i>	Chlorine Residual	pH	Total coliforms
	NTU	MPN/100 mL	mg/L	pH unit	MPN/100 mL
Minimum	0.05	0.00	0.32	7.30	0.00
Median	0.15	0.00	1.05	7.60	0.00
Average	0.26	0.00	1.04	7.57	0.00
Maximum	5.80	0.00	143	7.80	0.00
Count of Results	155	155	170	155	155

Compliance with D3 disinfection criteria

Met

Otara / Papatoetoe / Manukau Central Distribution Network Zone

Supplied by: Ardmore and Waikato WTPs

	Turbidity	<i>E. coli</i>	Chlorine Residual	pH	Total coliforms
	NTU	MPN/100 mL	mg/L	pH unit	MPN/100 mL
Minimum	0.00	0.00	0.23	7.00	0.00
Median	0.20	0.00	1.08	7.60	0.00
Average	0.34	0.00	1.03	7.57	0.03
Maximum	29.00	0.00	1.65	8.90	7.50
Count of Results	270	270	293	270	270
Compliance with D3 disinfection criteria			Met		

Patumahoe Distribution Network Zone

Supplied by: Ardmore and Waikato WTPs

	Turbidity	<i>E. coli</i>	Chlorine Residual	pH	Total coliforms
	NTU	MPN/100 mL	mg/L	pH unit	MPN/100 mL
Minimum	0.10	0.00	0.13	7.10	0.00
Median	0.20	0.00	0.77	7.70	0.00
Average	0.23	0.00	0.75	7.63	0.00
Maximum	0.90	0.00	1.30	8.00	0.00
Count of Results	118	118	141	118	118
Compliance with D3 disinfection criteria			Met		

Snells / Algies Distribution Network Zone

Supplied by: Snells / Algies WTPs

	Turbidity	<i>E. coli</i>	Chlorine Residual	pH	Total coliforms
	NTU	MPN/100 mL	mg/L	pH unit	MPN/100 mL
Minimum	0.00	0.00	0.48	7.60	0.00
Median	0.10	0.00	1.20	8.40	0.00
Average	0.10	0.00	1.19	8.35	0.03
Maximum	0.70	1.0*	1.74	8.50	3.1
Count of Results	112	112	143	112	112
Compliance with D3 disinfection criteria			Met		
Comments: *The <i>E. coli</i> result of 1.0 MPN/100mL was reported to Taumata Arowai. Investigations confirmed that this result was not representative of the water in supply. Compliance with the DWSNZ was maintained.					

Swanson Distribution Network Zone

Supplied by: Ardmore, Huia, Waikato, and Waitakere WTPs

	Turbidity	<i>E. coli</i>	Chlorine Residual	pH	Total coliforms
	NTU	MPN/100 mL	mg/L	pH unit	MPN/100 mL
Minimum	0.15	0.00	0.00	6.90	0.00
Median	0.20	0.00	0.74	7.70	0.00
Average	0.28	0.00	0.72	7.74	0.00
Maximum	1.70	0.00	1.38	8.50	1.00
Count of Results	156	156	179	156	156
Compliance with D3 disinfection criteria			Not met*		
Comments: *Not met due to 3 of 91 samples <0.1mg/L Watercare demonstrated responding to the low FAC results in a timely manner providing high degree of confidence that water disinfection was not compromised in the distribution zone. Based on the investigation and review of the WTP and network performance, water continued to be safe and did not pose public health risk.					

Te Henga Distribution Network Zone

Supplied by: Ardmore, Huia, Waikato, and Waitakere WTPs

	Turbidity	<i>E. coli</i>	Chlorine Residual	pH	Total coliforms
	NTU	MPN/100 mL	mg/L	pH unit	MPN/100 mL
Minimum	0.15	0.00	0.00	7.30	0.00
Median	0.20	0.00	0.65	7.80	0.00
Average	0.27	0.00	0.62	7.83	0.00
Maximum	2.60	0.00	1.28	8.40	0.00
Count of Results	152	152	168	152	152

Compliance with D3 disinfection criteria

Not met*

Comments:

*Not met due 81.3% of samples >0.20mg/L in January, 78.6% in February and 3 of 91 samples <0.1mg/L

Watercare demonstrated responding to the low FAC results in a timely manner providing high degree of confidence that water disinfection was not compromised in the distribution zone. Based on the investigation and review of the WTP and network performance water continued to be safe and did not pose public health risk.

Waiuku Distribution Network Zone

Supplied by: Cornwall Road, Victoria Avenue, and Waiuku Road WTPs

	Turbidity	<i>E. coli</i>	Chlorine Residual	pH	Total coliforms
	NTU	MPN/100 mL	mg/L	pH unit	MPN/100 mL
Minimum	0.00	0.00	0.59	7.60	0.00
Median	0.10	0.00	1.05	8.00	0.00
Average	0.10	0.00	1.04	7.99	0.01
Maximum	0.40	0.00	1.39	8.20	1.00
Count of Results	125	125	148	125	125

Compliance with D3 disinfection criteria

Met

Warkworth Distribution Network Zone

Supplied by: Warkworth Wells WTP

	Turbidity	<i>E. coli</i>	Chlorine Residual	pH	Total coliforms
	NTU	MPN/100 mL	mg/L	pH unit	MPN/100 mL
Minimum	0.00	0.00	0.23	7.50	0.00
Median	0.10	0.00	0.88	7.70	0.00
Average	0.10	0.00	0.87	7.71	0.00
Maximum	0.35	0.00	1.45	8.40	0.00
Count of Results	117	117	148	117	117
Compliance with D3 disinfection criteria			Met		

Wellsford Distribution Network Zone

Supplied by: Wellsford WTP

	Turbidity	<i>E. coli</i>	Chlorine Residual	pH	Total coliforms
	NTU	MPN/100 mL	mg/L	pH unit	MPN/100 mL
Minimum	0.00	0.00	0.30	7.00	0.00
Median	0.15	0.00	0.80	7.30	0.00
Average	0.19	0.00	0.80	7.32	0.00
Maximum	1.70	0.00	1.38	7.90	0.00
Count of Results	112	112	143	112	112
Compliance with D3 disinfection criteria			Met		

Whenuapai Distribution Network Zone

Supplied by: Ardmore, Huia, Waikato, and Waitakere WTPs

	Turbidity	<i>E. coli</i>	Chlorine Residual	pH	Total coliforms
	NTU	MPN/100 mL	mg/L	pH unit	MPN/100 mL
Minimum	0.10	0.00	0.14	7.20	0.00
Median	0.20	0.00	0.86	7.60	0.00
Average	0.24	0.00	0.83	7.59	0.00
Maximum	1.10	0.00	1.29	8.10	0.00
Count of Results	221	221	228	221	221
compliance with D3 disinfection criteria			Met		