Drinking Water Test Report

To:	Dairy Flat School
From:	Waste Management-Redvale
Sampling Date:	15 December 2025
Sampling Locations:	Staff Room (Figure 1), Health Room (Figure 2), Hall Kitchen (Figure 3)
Sampling Source:	Water Tap
Analytical Institution	Hill Laboratories

Analysis of Results

A summary of the December test results, along with comparisons to the October and November results and relevant New Zealand, WHO, and US EPA drinking-water standards, is provided in Table 1. The original Hill Labs report is attached at the end.

According to the laboratory results, all December results were fully compliant with the New Zealand Drinking Water Standards. E. coli was not detected in any sample, confirming microbiological safety. Turbidity, metals, nutrients, and major ions were present at low concentrations and well within guideline values.

Compared with October and November, no significant changes or deterioration in water quality were observed. Although December had lower rainfall and water volume, this did not adversely affect water quality. The slightly low pH and low mineral content are typical of roof water and do not represent a health concern.

In conclusion, the December 2025 drinking water quality was safe, stable, and compliant, with no issues requiring corrective action.

Figure1. Staff Room

Figure 2. Health Room

Figure 3. Hall Kitchen

Thanks,

Dr. Na Zhang (she/her)

Environmental Engineer Redvale Landfill – Operational and Technical Services

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Drinking Water Test Report

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Table 1. Summary of Tap Water Test Results for October, November and December, with Comparison to New Zealand, WHO, and US EPA Drinking-Water Standards

Parameters	Sample Name:	Oct-25			Nov-25			Dec-25			Drinking Water Standards		
		Staff Room	Health Room	Hall Kitchen	Staff Room	Health Room	Hall Kitchen	Staff Room	Health Room	Hall Kitchen	NZ Maximum Acceptable Value (MAV)	WHO Limit	US EPA Limit
	Lab Number:	4010395.1	4010401.1	4010402.1	4042267.1	4042271.1	4042265.1	4058529.1	4058516.1	4058517.1			
Escherichia coli	MPN / 100mL	< 1	<1	< 1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Turbidity	NTU	0.37	0.41	0.12	0.20	0.21	0.11	0.230	0.277	0.128	≤5 (aesthetic)	<5	<1 (recommended)
pH	pH Units	6.8	7.1	6.8	6.3	6.3	6.2	6.2	7.2	6.0	7.0–8.5 (aesthetic)	6.5–8.5	6.5–8.5
Total Alkalinity	g/m^3 as $CaCO_3$	11	13.9	10.6	3.6	3.6	3.4	3.58	6.96	3.18	-	-	-
Free Carbon Dioxide	g/m^3 at 25°C	3.3	2.1	3.4	4.0	3.8	4.2	4.9	<1.0	6.1	-	-	-
Total Hardness	g/m^3 as $CaCO_3$	14.5	16	14.5	2.3	2.5	3.2	1.79	1.79	2.20	≤200 (aesthetic)	<500	<500
Electrical Conductivity (EC)	mS/m	6.4	7.5	6.3	1.6	1.8	1.6	1.0	1.7	1.0	-		
Electrical Conductivity (EC)	µS/cm	64	75	63	16	18	16	10	17	10	-	<1500	<2500
Approx Total Dissolved Salts	g/m^3	43	50	42	11	12	11	6.84	11.69	6.93	≤1000 (aesthetic)	<1000	<500 (aesthetic)
Total Arsenic	g/m^3	< 0.0011	<0.0011	< 0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.01	<0.01	<0.01
Total Boron	g/m^3	< 0.053	<0.053	< 0.053	<0.053	<0.053	<0.053	<0.053	<0.053	<0.053	<2.4	<2.4	-
Total Calcium	g/m^3	4.4	4.6	4.4	0.57	0.60	0.91	0.438	0.43	0.613	-	-	-
Total Copper	g/m^3	0.037	0.121	0.0038	0.061	0.141	0.0037	0.0694	0.128	0.00424	<2	<2	<1.3
Total Iron	g/m^3	< 0.021	0.023	< 0.021	<0.021	<0.021	<0.021	<0.021	<0.021	<0.021	≤0.3 (aesthetic)	<0.3	<0.3
Total Lead	g/m^3	0.00062	0.00118	0.00028	0.00083	0.00088	0.00061	0.000966	0.001078	0.000604	<0.01	<0.01	<0.015
Total Magnesium	g/m^3	0.87	1.12	0.86	0.22	0.23	0.21	0.170	0.173	0.163	-	-	-
Total Manganese	g/m^3	0.0023	0.0035	0.0012	0.00161	0.00157	0.00093	0.00196	0.00183	0.00151	0.04 (Staining); ≤0.1(Taste)	<0.4	<0.05 (aesthetic)
Total Potassium	g/m^3	0.53	0.53	0.53	0.187	0.187	0.172	0.137	0.138	0.144	-	-	-
Total Sodium	g/m^3	5.6	5.7	5.6	1.62	1.59	1.52	1.290	1.278	1.298	≤200 (aesthetic)	<200	<20 (health advisory)

Drinking Water Test Report

WM New Zealand

Total Zinc	g/m^3	0.21	0.189	0.154	0.49	0.48	0.175	0.335	0.320	0.189	≤1.5 (aesthetic)	<3	<5
Chloride	g/m^3	9	9.6	9	2.6	2.6	2.7	2.53	2.29	2.16	≤250 (aesthetic)	<250	<250
Nitrate-N	g/m^3	0.07	0.07	0.08	0.09	0.09	0.11	0.147	0.126	0.171	<11.3	<11.3	<10
Sulphate	g/m^3	4.3	4.6	4.3	0.8	0.8	0.8	0.76	0.77	0.69	≤250 (aesthetic)	<250	<250

a Taken from the 'Water Services (Drinking Water Standards for New Zealand) Regulations 2022'.
b Taken from 'Aesthetic Value for Drinking Water Notice 2022' issued by the Water Services Regulator ("Taumata Arowai")
c Refer to non-health-related parameters — things that affect the taste, smell, colour, or appearance of water but don't pose a health risk.

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Certificate of Analysis

Client:	Waste Management NZ Limited	**Lab No:**	4058529 DWMAVUPv1
Contact:	Na Zhang C/- Waste Management NZ Limited PO Box 228 Silverdale Auckland 0944	**Date Received:**	16-Dec-2025
		Date Reported:	18-Dec-2025
		Quote No:	141146
		Order No:	3853471
		Client Reference:	DWSNZ Compliance – Roof/Rain
		Add. Client Ref:	Routine Water + E. coli - DFS-SR
		Submitted By:	Na Zhang

Sample Type: Drinking Water for DWSNZ Compliance

		Sample Name:	Drinking Water - DFS-SR 15-Dec-2025 12:35 pm	**Maximum Acceptable Value**	**Outside Limits**
		Lab Number:	4058529.1		
Routine Water + E.coli profile Kit					
Escherichia coli	MPN / 100mL		< 1	< 1	No
Routine Water Profile					
Turbidity	NTU		0.230 ± 0.041	-	-
pH	pH Units		6.2 ± 0.2	-	-
Total Alkalinity	g/m³ as $CaCO_3$		3.58 ± 0.68	-	-
Free Carbon Dioxide	g/m³ at 25°C		4.9 ± 2.6	-	-
Total Hardness	g/m³ as $CaCO_3$		1.79 ± 0.13	-	-
Electrical Conductivity (EC)	mS/m		1.0 ± 0.1	-	-
Electrical Conductivity (EC)	µS/cm		10 ± 1	-	-
Approx Total Dissolved Salts	g/m³		6.84 ± 0.43	-	-
Total Arsenic	g/m³		< 0.0011 ± 0.00074	0.01	No
Total Boron	g/m³		< 0.053 ± 0.036	2.4	No
Total Calcium	g/m³		0.438 ± 0.040	-	-
Total Copper	g/m³		0.0694 ± 0.0070	2	No
Total Iron	g/m³		< 0.021 ± 0.014	-	-
Total Lead	g/m³		0.000966 ± 0.000094	0.01	No
Total Magnesium	g/m³		0.170 ± 0.020	-	-
Total Manganese	g/m³		0.00196 ± 0.00041	0.4	No
Total Potassium	g/m³		0.137 ± 0.037	-	-
Total Sodium	g/m³		1.290 ± 0.079	-	-
Total Zinc	g/m³		0.335 ± 0.027	-	-
Chloride	g/m³		2.53 ± 0.38	-	-
Nitrate-N	g/m³		0.147 ± 0.044	11.3	No
Sulphate	g/m³		0.76 ± 0.35	-	-

Note: The Maximum Acceptable Values (MAV) are taken from the 'Water Services (Drinking Water Standards for New Zealand) Regulations 2022', published under the authority of the New Zealand Government-2022. Copies of this publication are available from: https://www.legislation.govt.nz/regulation/public/2022/0168/latest/whole.html

The standards set limits for the concentration of determinands in drinking water. The Maximum Acceptable Values (MAVs) for any determinand must not be exceeded at any time.

Under Section 73 (2) of the Water Services Act 2021, the laboratory is required to report the results of any analysis or test carried out (for the purposes of testing for compliance with the Drinking Water Standards for New Zealand 2022) that indicates any non-compliance (transgression) with the Maximum Acceptable Values (MAVs) to Taumata Arowai, the water services regulator for Aotearoa.

Taumata Arowai also publishes 'Aesthetic Values for Drinking Water Notice 2022' which specifies or provides minimum or maximum values for substances and other characteristics that relate to the acceptability of drinking water to consumers (such as appearance, taste or odour). This report compares the results obtained with the Maximum Acceptable Values only.

The reported uncertainty is an expanded uncertainty with a level of confidence of approximately 95 percent (i.e. two standard deviations, calculated using a coverage factor of 2). Reported uncertainties are calculated from the performance of typical matrices, and do not include variation due to sampling. For further information on uncertainty of measurement at Hill Laboratories, refer to the technical note on our website: www.hill-laboratories.com/files/Intro_To_UOM.pdf, or contact the laboratory.

Note that the units: g/m^3 are the same as mg/L and ppm.

Summary of Methods

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively simple matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis. A detection limit range indicates the lowest and highest detection limits in the associated suite of analytes. A full listing of compounds and detection limits are available from the laboratory upon request. Unless otherwise indicated, analyses were performed at Hill Labs, 28 Duke Street, Frankton, Hamilton 3204.

Sample Type: Drinking Water for DWSNZ Compliance

Test	Method Description	Default Detection Limit	Sample No
Routine Water Profile		-	1
Filtration, Unpreserved	Sample filtration through 0.45µm membrane filter.	-	1
Total Digestion	Nitric acid digestion. APHA 3030 E (modified) : Online Edition.	-	1
Turbidity	Analysis by Turbidity meter. APHA 2130 B (modified) : Online Edition.	0.05 NTU	1
pH	pH meter. APHA 4500-H^+ B (modified) : Online Edition. Note: It is not possible to achieve the APHA Maximum Storage Recommendation for this test (15 min) when samples are analysed upon receipt at the laboratory, and not in the field. Samples and Standards are analysed at an equivalent laboratory temperature (typically 18 to 22 °C). Temperature compensation is used.	0.1 pH Units	1
Total Alkalinity	Titration to pH 4.5 (M-alkalinity), autotitrator. APHA 2320 B (modified for Alkalinity <20) : Online Edition.	1.0 g/m^3 as $CaCO_3$	1
Free Carbon Dioxide	Calculation: from alkalinity and pH, valid where TDS is not >500 mg/L and alkalinity is almost entirely due to hydroxides, carbonates or bicarbonates. APHA 4500-CO_2 D : Online Edition.	1.0 g/m^3 at 25°C	1
Total Hardness	Calculation from Total Calcium and Total Magnesium. APHA 2340 B : Online Edition.	1.0 g/m^3 as $CaCO_3$	1
Electrical Conductivity (EC)	Conductivity meter, 25°C. APHA 2510 B : Online Edition.	0.1 mS/m	1
Electrical Conductivity (EC)	Conductivity meter, 25°C. APHA 2510 B : Online Edition.	1 µS/cm	1
Approx Total Dissolved Salts	Calculation: from Electrical Conductivity.	2 g/m^3	1
Total Arsenic	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.0011 g/m^3	1
Total Boron	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.053 g/m^3	1
Total Calcium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.053 g/m^3	1
Total Copper	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.00053 g/m^3	1
Total Iron	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.021 g/m^3	1
Total Lead	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.00011 g/m^3	1
Total Magnesium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.021 g/m^3	1
Total Manganese	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.00053 g/m^3	1
Total Potassium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.053 g/m^3	1

Sample Type: Drinking Water for DWSNZ Compliance			
Test	**Method Description**	**Default Detection Limit**	**Sample No**
Total Sodium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.021 g/m³	1
Total Zinc	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.0011 g/m³	1
Chloride	Filtered sample. Ion Chromatography. APHA 4110 B (modified) : Online Edition.	0.5 g/m³	1
Nitrate-N	Filtered sample. Ion Chromatography. APHA 4110 B (modified) : Online Edition.	0.05 g/m³	1
Sulphate	Filtered sample. Ion Chromatography. APHA 4110 B (modified) : Online Edition.	0.5 g/m³	1
Escherichia coli	MPN count using Colilert (Incubated at 35°C for 24 hours) and 97 wells. APHA 9223 B : Online Edition.	1 MPN / 100mL	1

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Testing was completed between 16-Dec-2025 and 18-Dec-2025. For completion dates of individual analyses please contact the laboratory.

Samples are held at the laboratory after reporting for a length of time based on the stability of the samples and analytes being tested (considering any preservation used), and the storage space available. Once the storage period is completed, the samples are discarded unless otherwise agreed with the customer. Extended storage times may incur additional charges.

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Client Services Manager - Environmental

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Certificate of Analysis

Client:	Waste Management NZ Limited	**Lab No:**	4058516 DWMAVUPv1
Contact:	Na Zhang C/- Waste Management NZ Limited PO Box 228 Silverdale Auckland 0944	**Date Received:**	16-Dec-2025
		Date Reported:	18-Dec-2025
		Quote No:	141146
		Order No:	3853471
		Client Reference:	DWSNZ Compliance – Roof/Rain
		Add. Client Ref:	Routine Water + E. coli - DFS-HR
		Submitted By:	Na Zhang

Sample Type: Drinking Water for DWSNZ Compliance

		Sample Name:	Drinking Water-DFS-HR 15-Dec-2025 1:05 pm	**Maximum Acceptable Value**	**Outside Limits**
		Lab Number:	4058516.1		
Routine Water + E.coli profile Kit					
Escherichia coli	MPN / 100mL		< 1	< 1	No
Routine Water Profile					
Turbidity	NTU		0.277 ± 0.043	-	-
pH	pH Units		7.2 ± 0.2	-	-
Total Alkalinity	g/m³ as $CaCO_3$		6.96 ± 0.72	-	-
Free Carbon Dioxide	g/m³ at 25°C		< 1.0 ± 0.43	-	-
Total Hardness	g/m³ as $CaCO_3$		1.79 ± 0.13	-	-
Electrical Conductivity (EC)	mS/m		1.7 ± 0.1	-	-
Electrical Conductivity (EC)	µS/cm		17 ± 1	-	-
Approx Total Dissolved Salts	g/m³		11.69 ± 0.47	-	-
Total Arsenic	g/m³		< 0.0011 ± 0.00074	0.01	No
Total Boron	g/m³		< 0.053 ± 0.036	2.4	No
Total Calcium	g/m³		0.433 ± 0.040	-	-
Total Copper	g/m³		0.128 ± 0.013	2	No
Total Iron	g/m³		< 0.021 ± 0.014	-	-
Total Lead	g/m³		0.001078 ± 0.000098	0.01	No
Total Magnesium	g/m³		0.173 ± 0.020	-	-
Total Manganese	g/m³		0.00183 ± 0.00040	0.4	No
Total Potassium	g/m³		0.138 ± 0.037	-	-
Total Sodium	g/m³		1.278 ± 0.078	-	-
Total Zinc	g/m³		0.320 ± 0.026	-	-
Chloride	g/m³		2.29 ± 0.37	-	-
Nitrate-N	g/m³		0.126 ± 0.043	11.3	No
Sulphate	g/m³		0.77 ± 0.35	-	-

Note: The Maximum Acceptable Values (MAV) are taken from the 'Water Services (Drinking Water Standards for New Zealand) Regulations 2022', published under the authority of the New Zealand Government-2022. Copies of this publication are available from: https://www.legislation.govt.nz/regulation/public/2022/0168/latest/whole.html

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Note that the units: g/m^3 are the same as mg/L and ppm.

Summary of Methods

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Sample Type: Drinking Water for DWSNZ Compliance

Test	Method Description	Default Detection Limit	Sample No
Routine Water Profile		-	1
Filtration, Unpreserved	Sample filtration through 0.45µm membrane filter.	-	1
Total Digestion	Nitric acid digestion. APHA 3030 E (modified) : Online Edition.	-	1
Turbidity	Analysis by Turbidity meter. APHA 2130 B (modified) : Online Edition.	0.05 NTU	1
pH	pH meter. APHA 4500-H^+ B (modified) : Online Edition. Note: It is not possible to achieve the APHA Maximum Storage Recommendation for this test (15 min) when samples are analysed upon receipt at the laboratory, and not in the field. Samples and Standards are analysed at an equivalent laboratory temperature (typically 18 to 22 °C). Temperature compensation is used.	0.1 pH Units	1
Total Alkalinity	Titration to pH 4.5 (M-alkalinity), autotitrator. APHA 2320 B (modified for Alkalinity <20) : Online Edition.	1.0 g/m^3 as $CaCO_3$	1
Free Carbon Dioxide	Calculation: from alkalinity and pH, valid where TDS is not >500 mg/L and alkalinity is almost entirely due to hydroxides, carbonates or bicarbonates. APHA 4500-CO_2 D : Online Edition.	1.0 g/m^3 at 25°C	1
Total Hardness	Calculation from Total Calcium and Total Magnesium. APHA 2340 B : Online Edition.	1.0 g/m^3 as $CaCO_3$	1
Electrical Conductivity (EC)	Conductivity meter, 25°C. APHA 2510 B : Online Edition.	0.1 mS/m	1
Electrical Conductivity (EC)	Conductivity meter, 25°C. APHA 2510 B : Online Edition.	1 µS/cm	1
Approx Total Dissolved Salts	Calculation: from Electrical Conductivity.	2 g/m^3	1
Total Arsenic	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.0011 g/m^3	1
Total Boron	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.053 g/m^3	1
Total Calcium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.053 g/m^3	1
Total Copper	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.00053 g/m^3	1
Total Iron	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.021 g/m^3	1
Total Lead	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.00011 g/m^3	1
Total Magnesium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.021 g/m^3	1
Total Manganese	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.00053 g/m^3	1
Total Potassium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.053 g/m^3	1

Sample Type: Drinking Water for DWSNZ Compliance			
Test	**Method Description**	**Default Detection Limit**	**Sample No**
Total Sodium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.021 g/m³	1
Total Zinc	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.0011 g/m³	1
Chloride	Filtered sample. Ion Chromatography. APHA 4110 B (modified) : Online Edition.	0.5 g/m³	1
Nitrate-N	Filtered sample. Ion Chromatography. APHA 4110 B (modified) : Online Edition.	0.05 g/m³	1
Sulphate	Filtered sample. Ion Chromatography. APHA 4110 B (modified) : Online Edition.	0.5 g/m³	1
Escherichia coli	MPN count using Colilert (Incubated at 35°C for 24 hours) and 97 wells. APHA 9223 B : Online Edition.	1 MPN / 100mL	1

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Testing was completed between 16-Dec-2025 and 18-Dec-2025. For completion dates of individual analyses please contact the laboratory.

Samples are held at the laboratory after reporting for a length of time based on the stability of the samples and analytes being tested (considering any preservation used), and the storage space available. Once the storage period is completed, the samples are discarded unless otherwise agreed with the customer. Extended storage times may incur additional charges.

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Certificate of Analysis

Client:	Waste Management NZ Limited	**Lab No:**	4058517 DWMAVUPv1
Contact:	Na Zhang C/- Waste Management NZ Limited PO Box 228 Silverdale Auckland 0944	**Date Received:**	16-Dec-2025
		Date Reported:	18-Dec-2025
		Quote No:	141146
		Order No:	3853471
		Client Reference:	DWSNZ Compliance – Roof/Rain
		Add. Client Ref:	Routine Water + E. coli - DFS-HK
		Submitted By:	Na Zhang

Sample Type: Drinking Water for DWSNZ Compliance

		Sample Name:	Drinking Water-DFS-HK 15-Dec-2025 12:50 pm	**Maximum Acceptable Value**	**Outside Limits**
		Lab Number:	4058517.1		
Routine Water + E.coli profile Kit					
Escherichia coli	MPN / 100mL		< 1	< 1	No
Routine Water Profile					
Turbidity	NTU		0.128 ± 0.036	-	-
pH	pH Units		6.0 ± 0.2	-	-
Total Alkalinity	g/m³ as $CaCO_3$		3.18 ± 0.68	-	-
Free Carbon Dioxide	g/m³ at 25°C		6.1 ± 3.2	-	-
Total Hardness	g/m³ as $CaCO_3$		2.20 ± 0.14	-	-
Electrical Conductivity (EC)	mS/m		1.0 ± 0.1	-	-
Electrical Conductivity (EC)	µS/cm		10 ± 1	-	-
Approx Total Dissolved Salts	g/m³		6.93 ± 0.43	-	-
Total Arsenic	g/m³		< 0.0011 ± 0.00074	0.01	No
Total Boron	g/m³		< 0.053 ± 0.036	2.4	No
Total Calcium	g/m³		0.613 ± 0.043	-	-
Total Copper	g/m³		0.00424 ± 0.00055	2	No
Total Iron	g/m³		< 0.021 ± 0.014	-	-
Total Lead	g/m³		0.000604 ± 0.000082	0.01	No
Total Magnesium	g/m³		0.163 ± 0.020	-	-
Total Manganese	g/m³		0.00151 ± 0.00039	0.4	No
Total Potassium	g/m³		0.144 ± 0.037	-	-
Total Sodium	g/m³		1.298 ± 0.080	-	-
Total Zinc	g/m³		0.189 ± 0.016	-	-
Chloride	g/m³		2.16 ± 0.37	-	-
Nitrate-N	g/m³		0.171 ± 0.045	11.3	No
Sulphate	g/m³		0.69 ± 0.35	-	-

Note: The Maximum Acceptable Values (MAV) are taken from the 'Water Services (Drinking Water Standards for New Zealand) Regulations 2022', published under the authority of the New Zealand Government-2022. Copies of this publication are available from: https://www.legislation.govt.nz/regulation/public/2022/0168/latest/whole.html

The standards set limits for the concentration of determinands in drinking water. The Maximum Acceptable Values (MAVs) for any determinand must not be exceeded at any time.

Under Section 73 (2) of the Water Services Act 2021, the laboratory is required to report the results of any analysis or test carried out (for the purposes of testing for compliance with the Drinking Water Standards for New Zealand 2022) that indicates any non-compliance (transgression) with the Maximum Acceptable Values (MAVs) to Taumata Arowai, the water services regulator for Aotearoa.

Taumata Arowai also publishes 'Aesthetic Values for Drinking Water Notice 2022' which specifies or provides minimum or maximum values for substances and other characteristics that relate to the acceptability of drinking water to consumers (such as appearance, taste or odour). This report compares the results obtained with the Maximum Acceptable Values only.

The reported uncertainty is an expanded uncertainty with a level of confidence of approximately 95 percent (i.e. two standard deviations, calculated using a coverage factor of 2). Reported uncertainties are calculated from the performance of typical matrices, and do not include variation due to sampling. For further information on uncertainty of measurement at Hill Laboratories, refer to the technical note on our website: www.hill-laboratories.com/files/Intro_To_UOM.pdf, or contact the laboratory.

Note that the units: g/m^3 are the same as mg/L and ppm.

Summary of Methods

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively simple matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis. A detection limit range indicates the lowest and highest detection limits in the associated suite of analytes. A full listing of compounds and detection limits are available from the laboratory upon request. Unless otherwise indicated, analyses were performed at Hill Labs, 28 Duke Street, Frankton, Hamilton 3204.

Sample Type: Drinking Water for DWSNZ Compliance

Test	Method Description	Default Detection Limit	Sample No
Routine Water Profile		-	1
Filtration, Unpreserved	Sample filtration through 0.45µm membrane filter.	-	1
Total Digestion	Nitric acid digestion. APHA 3030 E (modified) : Online Edition.	-	1
Turbidity	Analysis by Turbidity meter. APHA 2130 B (modified) : Online Edition.	0.05 NTU	1
pH	pH meter. APHA 4500-H^+ B (modified) : Online Edition. Note: It is not possible to achieve the APHA Maximum Storage Recommendation for this test (15 min) when samples are analysed upon receipt at the laboratory, and not in the field. Samples and Standards are analysed at an equivalent laboratory temperature (typically 18 to 22 °C). Temperature compensation is used.	0.1 pH Units	1
Total Alkalinity	Titration to pH 4.5 (M-alkalinity), autotitrator. APHA 2320 B (modified for Alkalinity <20) : Online Edition.	1.0 g/m^3 as $CaCO_3$	1
Free Carbon Dioxide	Calculation: from alkalinity and pH, valid where TDS is not >500 mg/L and alkalinity is almost entirely due to hydroxides, carbonates or bicarbonates. APHA 4500-CO_2 D : Online Edition.	1.0 g/m^3 at 25°C	1
Total Hardness	Calculation from Total Calcium and Total Magnesium. APHA 2340 B : Online Edition.	1.0 g/m^3 as $CaCO_3$	1
Electrical Conductivity (EC)	Conductivity meter, 25°C. APHA 2510 B : Online Edition.	0.1 mS/m	1
Electrical Conductivity (EC)	Conductivity meter, 25°C. APHA 2510 B : Online Edition.	1 µS/cm	1
Approx Total Dissolved Salts	Calculation: from Electrical Conductivity.	2 g/m^3	1
Total Arsenic	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.0011 g/m^3	1
Total Boron	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.053 g/m^3	1
Total Calcium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.053 g/m^3	1
Total Copper	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.00053 g/m^3	1
Total Iron	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.021 g/m^3	1
Total Lead	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.00011 g/m^3	1
Total Magnesium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.021 g/m^3	1
Total Manganese	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.00053 g/m^3	1
Total Potassium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.053 g/m^3	1

Sample Type: Drinking Water for DWSNZ Compliance			
Test	**Method Description**	**Default Detection Limit**	**Sample No**
Total Sodium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.021 g/m³	1
Total Zinc	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.0011 g/m³	1
Chloride	Filtered sample. Ion Chromatography. APHA 4110 B (modified) : Online Edition.	0.5 g/m³	1
Nitrate-N	Filtered sample. Ion Chromatography. APHA 4110 B (modified) : Online Edition.	0.05 g/m³	1
Sulphate	Filtered sample. Ion Chromatography. APHA 4110 B (modified) : Online Edition.	0.5 g/m³	1
Escherichia coli	MPN count using Colilert (Incubated at 35°C for 24 hours) and 97 wells. APHA 9223 B : Online Edition.	1 MPN / 100mL	1

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Testing was completed between 16-Dec-2025 and 18-Dec-2025. For completion dates of individual analyses please contact the laboratory.

Samples are held at the laboratory after reporting for a length of time based on the stability of the samples and analytes being tested (considering any preservation used), and the storage space available. Once the storage period is completed, the samples are discarded unless otherwise agreed with the customer. Extended storage times may incur additional charges.

Martin Cowell - BSc
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