Hill Laboratories
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Certificate of Analysis

Client:	Timaru District Council	**Lab No:**	2818937	DWMAVUPv1
Contact:	Pauline Robertson C/- Timaru District Council PO Box 522 Timaru 7940	**Date Received:** **Date Reported:** **Quote No:** **Order No:** **Client Reference:** **Submitted By:**	06-Jan-2022 12-Jan-2022 115720 38376 HVDB J Clemens	

Sample Type: Drinking Water for DWSNZ Compliance

		Sample Name:	108 Medows Rd 05-Jan-2022 5:00 pm	**Maximum Acceptable Value**	**Outside Limit**
		Lab Number:	2818937.1		
Halogenated Volatile Disinfection By-Products in Water by GCMS					
Bromochloroacetonitrile	g/m³		< 0.0004 ± 0.00019	-	-
Bromodichloromethane	g/m³		0.00237 ± 0.00090	0.06	No
Bromoform (tribromomethane)	g/m³		< 0.0004 ± 0.00013	0.1	No
Carbon tetrachloride	g/m³		< 0.0007 ± 0.00047	0.005	No
Chloroform (Trichloromethane)	g/m³		0.0076 ± 0.0049	0.4	No
Chloropicrin	g/m³		0.00096 ± 0.00041	-	-
1,2-Dibromo-3-chloropropane	g/m³		< 0.0004 ± 0.00022	0.001	No
Dibromoacetonitrile	g/m³		< 0.0004 ± 0.00023	0.08	No
Dibromochloromethane	g/m³		0.00043 ± 0.00016	0.15	No
1,2-Dibromoethane (ethylene dibromide, EDB)	g/m³		< 0.0003 ± 0.00020	0.0004	No
1,1-Dichloro-2-propanone	g/m³		0.00138 ± 0.00054	-	-
Dichloroacetonitrile	g/m³		0.00087 ± 0.00035	0.02	No
Tetrachloroethene (tetrachloroethylene)	g/m³		< 0.0004 ± 0.00013	0.05	No
1,1,1-Trichloro-2-propanone	g/m³		0.0035 ± 0.0013	-	-
Trichloroacetonitrile	g/m³		< 0.0004 ± 0.00023	-	-
1,1,1-Trichloroethane	g/m³		< 0.0004 ± 0.00014	-	-
Trichloroethene (trichloroethylene)	g/m³		< 0.0004 ± 0.00012	0.02	No
Total Trihalomethanes (THM)	g/m³		0.0104 ± 0.0047	-	-
Chloroform MAV ratio			0.019 ± 0.013	-	-
Bromodichloromethane MAV ratio			0.040 ± 0.015	-	-
Dibromochloromethane MAV ratio			0.003 ± 0.002	-	-
Bromoform MAV ratio			< 0.004 ± 0.002	-	-
Sum of THM MAV ratios (NZ DW Stds)			0.061 ± 0.020	1	No
Sum of Haloacetonitriles MAV ratios (NZ DW Stds)			0.045 ± 0.018	1	No

		Sample Name:	154A Selwyn St 05-Jan-2022 5:10 pm	**Maximum Acceptable Value**	**Outside Limit**
		Lab Number:	2818937.2		
Halogenated Volatile Disinfection By-Products in Water by GCMS					
Bromochloroacetonitrile	g/m³		< 0.0004 ± 0.00019	-	-
Bromodichloromethane	g/m³		0.00189 ± 0.00072	0.06	No
Bromoform (tribromomethane)	g/m³		< 0.0004 ± 0.00013	0.1	No
Carbon tetrachloride	g/m³		< 0.0007 ± 0.00047	0.005	No
Chloroform (Trichloromethane)	g/m³		< 0.007 ± 0.0047	0.4	No
Chloropicrin	g/m³		0.00065 ± 0.00030	-	-
1,2-Dibromo-3-chloropropane	g/m³		< 0.0004 ± 0.00022	0.001	No
Dibromoacetonitrile	g/m³		< 0.0004 ± 0.00023	0.08	No
Dibromochloromethane	g/m³		< 0.0004 ± 0.00015	0.15	No

Sample Type: Drinking Water for DWSNZ Compliance				
Sample Name:		154A Selwyn St 05-Jan-2022 5:10 pm	**Maximum Acceptable Value**	**Outside Limit**
Lab Number:		2818937.2		
Halogenated Volatile Disinfection By-Products in Water by GCMS				
1,2-Dibromoethane (ethylene dibromide, EDB)	g/m³	< 0.0003 ± 0.00020	0.0004	No
1,1-Dichloro-2-propanone	g/m³	0.00143 ± 0.00056	-	-
Dichloroacetonitrile	g/m³	0.00076 ± 0.00031	0.02	No
Tetrachloroethene (tetrachloroethylene)	g/m³	< 0.0004 ± 0.00013	0.05	No
1,1,1-Trichloro-2-propanone	g/m³	0.00257 ± 0.00096	-	-
Trichloroacetonitrile	g/m³	< 0.0004 ± 0.00023	-	-
1,1,1-Trichloroethane	g/m³	< 0.0004 ± 0.00014	-	-
Trichloroethene (trichloroethylene)	g/m³	< 0.0004 ± 0.00012	0.02	No
Total Trihalomethanes (THM)	g/m³	0.0077 ± 0.0039	-	-
Chloroform MAV ratio		< 0.018 ± 0.012	-	-
Bromodichloromethane MAV ratio		0.032 ± 0.012	-	-
Dibromochloromethane MAV ratio		< 0.003 ± 0.001	-	-
Bromoform MAV ratio		< 0.004 ± 0.002	-	-
Sum of THM MAV ratios (NZ DW Stds)		0.048 ± 0.017	1	No
Sum of Haloacetonitriles MAV ratios (NZ DW Stds)		0.038 ± 0.016	1	No

The Maximum Acceptable Values (MAV) are taken from the publication 'Drinking-water Standards for New Zealand 2005 (Revised 2018)', Ministry of Health. Copies of this publication are available from:
https://www.health.govt.nz/publication/drinking-water-standards-new-zealand-2005-revised-2018

The Maximum Acceptable Values (MAVs) have been defined by the Ministry of Health for parameters of health significance and should not be exceeded. The 'Drinking-water Standards for New Zealand' also contains Guideline Values which are the limits for aesthetic determinands that, if exceeded, may render the water unattractive to consumers. This report compares the results obtained with the Maximum Acceptable Values only.

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 New Zealand Drinking Water Standards 2005 (Revised 2018)) that indicates any non-compliance (transgression) with the Maximum Acceptable Values (MAVs) to Taumata Arowai, the water services regulator for Aotearoa.

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:
http://www.hill-laboratories.com/files/Intro_To_UOM.pdf, or contact the laboratory.

Note that the units g/m³ 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 Laboratories, 28 Duke Street, Frankton, Hamilton 3204.

Sample Type: Drinking Water for DWSNZ Compliance			
Test	**Method Description**	**Default Detection Limit**	**Sample No**
Halogenated Volatile Disinfection By-Products in Water by GCMS	Solvent extraction, GC-MS analysis. In-house based on US EPA 551.	-	1-2
Sum of Haloacetonitriles MAV ratios (NZ DW Stds)	Calculated as the sum of the individual haloacetonitriles specified in DWSNZ (dibromoacetonitrile & dichloroacetonitrile) to their respective Maximum Allowable Values (MAVs). Drinking-water Standards for New Zealand 2005 (Revised 2018).	-	1-2

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

Testing was completed on 12-Jan-2022. 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.

Ara Heron BSc (Tech)
Client Services Manager - Environmental