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ANALYSIS REPORT

Client:	Food and Health Standards (2006) Limited	**Lab No:**	1844008	DWAUPv1
Contact:	Lisa Shaw	**Date Received:**	15-Sep-2017	
	C/- Food and Health Standards (2006) Limited	**Date Reported:**	25-Sep-2017	
	PO Box 7469	**Quote No:**	87133	
	Christchurch 8240	**Order No:**		
		Client Reference:		
		Submitted By:	Lisa Shaw	

Sample Type: Aqueous

Sample Name:		Waiau Township 14-Sep-2017 3:35 pm	Amuri Plains 14-Sep-2017 3:00 pm	Guideline Value	Maximum Acceptable Values (MAV)
Lab Number:		1844008.1	1844008.2		
Individual Tests					
Monochloramine	g/m³	< 0.05	< 0.05	-	3
Halogenated Acetic Acids in Water by GC-MS					
Bromochloroacetic acid	g/m³	0.00106 ± 0.00045	< 0.0005 ± 0.00034	-	-
Dibromoacetic acid	g/m³	< 0.0005 ± 0.00034	< 0.0005 ± 0.00034	-	-
Dichloroacetic acid	g/m³	0.0029 ± 0.0011	0.00101 ± 0.00045	-	0.05
Monobromoacetic acid	g/m³	< 0.0005 ± 0.00034	< 0.0005 ± 0.00034	-	-
Monochloroacetic acid	g/m³	< 0.005 ± 0.0034	< 0.005 ± 0.0034	-	0.02
Trichloroacetic acid	g/m³	0.00125 ± 0.00072	< 0.0010 ± 0.00067	-	0.2
Total HAA	g/m³	< 0.010 ± 0.011	< 0.010 ± 0.011	-	-
Sum of HAA DWSNZ MAV ratios		< 0.3 ± 0.17	< 0.3 ± 0.17	-	1
Halogenated Volatile Disinfection By-Products in Water by GCMS					
Bromochloroacetonitrile	g/m³	0.00039 ± 0.00019	< 0.00014 ± 0.000078	-	-
Bromodichloromethane	g/m³	0.00256 ± 0.00097	0.00040 ± 0.00016	-	0.06
Bromoform (tribromomethane)	g/m³	0.000096 ± 0.000051	< 0.00007 ± 0.000047	-	0.1
Carbon tetrachloride	g/m³	< 0.0007 ± 0.00047	< 0.0007 ± 0.00047	-	0.005
Chloroform (Trichloromethane)	g/m³	< 0.007 ± 0.0047	< 0.007 ± 0.0047	-	0.4
Chloropicrin	g/m³	< 0.0003 ± 0.00020	< 0.0003 ± 0.00020	-	-
1,2-Dibromo-3-chloropropane	g/m³	< 0.0003 ± 0.00020	< 0.0003 ± 0.00020	-	0.001
Dibromoacetonitrile	g/m³	< 0.0003 ± 0.00020	< 0.0003 ± 0.00020	-	0.08
Dibromochloromethane	g/m³	0.00108 ± 0.00039	< 0.00007 ± 0.000047	-	0.15
1,2-Dibromoethane (ethylene dibromide, EDB)	g/m³	< 0.0003 ± 0.00020	< 0.0003 ± 0.00020	-	0.0004
1,1-Dichloro-2-propanone	g/m³	< 0.0003 ± 0.00020	< 0.0003 ± 0.00020	-	-
Dichloroacetonitrile	g/m³	0.00051 ± 0.00025	< 0.0003 ± 0.00020	-	0.02
Tetrachloroethene (tetrachloroethylene)	g/m³	< 0.00014 ± 0.000045	< 0.00014 ± 0.000045	-	0.05
1,1,1-Trichloro-2-propanone	g/m³	0.00104 ± 0.00042	< 0.0003 ± 0.00020	-	-
Trichloroacetonitrile	g/m³	< 0.0003 ± 0.00020	< 0.0003 ± 0.00020	-	-
1,1,1-Trichloroethane	g/m³	< 0.00014 ± 0.000072	< 0.00014 ± 0.000072	-	-
Trichloroethene (trichloroethylene)	g/m³	< 0.00007 ± 0.000047	< 0.00007 ± 0.000047	-	0.02
Total Trihalomethanes (THM)	g/m³	0.0088 ± 0.0042	< 0.007 ± 0.0037	-	-
Chloroform MAV ratio		< 0.018 ± 0.012	< 0.018 ± 0.012	-	-
Bromodichloromethane MAV ratio		0.043 ± 0.017	0.007 ± 0.003	-	-
Dibromochloromethane MAV ratio		0.007 ± 0.003	< 0.001 ± 0.001	-	-
Bromoform MAV ratio		< 0.001 ± 0.001	< 0.001 ± 0.001	-	-
Sum of THM MAV ratios (NZ DW Stds)		0.063 ± 0.021	< 0.018 ± 0.012	-	1
Sum of Haloacetonitriles MAV ratios (NZ DW Stds)		0.027 ± 0.013	< 0.016 ± 0.011	-	-

Note: The Guideline Values and Maximum Acceptable Values (MAV) are taken from the publication 'Drinking-water Standards for New Zealand 2005 (Revised 2008)', Ministry of Health. Copies of this publication are available from http://www.health.govt.nz/publication/drinking-water-standards-new-zealand-2005-revised-2008

The Maximum Acceptable Values (MAVs) have been defined by the Ministry of Health for parameters of health significance and should not be exceeded. The Guideline Values are the limits for aesthetic determinands that, if exceeded, may render the water unattractive to consumers.

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/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 clean 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.

Sample Type: Aqueous

Test	Method Description	Default Detection Limit	Sample No
Halogenated Acetic Acids in Water by GC-MS*	Solvent extraction, methylation, GC-MS SIM analysis Analysis performed at 1 Clyde Street, Hamilton	-	1-2
Halogenated Volatile Disinfection By-Products in Water by GCMS	Solvent extraction, GC-MS SIM analysis Analysis performed at 1 Clyde Street, Hamilton	-	1-2
Monochloramine	Colorimetric. APHA 4500-Cl G 22nd ed. 2012.	0.05 g/m³	1-2
Sum of HAA DWSNZ MAV ratios	Calculated as the sum of the individual haloacetic acids specified in DWSNZ (monochloroacetic acid, dichloroacetic acid and trichloroacetic acid) to their respective Maximum Allowable Values (MAVs). Analysis performed at 1 Clyde Street, Hamilton. Drinking-water Standards for New Zealand 2005 (Revised 2008), Section 8.2.1.1.	0.001	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). Analysis performed at 1 Clyde Street, Hamilton.	0	1-2

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

Samples are held at the laboratory after reporting for a length of time depending on the preservation used and the stability of the analytes being tested. Once the storage period is completed the samples are discarded unless otherwise advised by the client.

Ara Heron BSc (Tech)
Client Services Manager - Environmental