Hill Laboratories
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R J Hill Laboratories Limited
28 Duke Street Frankton 3204
Private Bag 3205
Hamilton 3240 New Zealand

T 0508 HILL LAB (44 555 22)
T +64 7 858 2000
E mail@hill-labs.co.nz
W www.hill-laboratories.com

Certificate of Analysis

Client:	Alexanders Drinks & Mineral Water Limited	**Lab No:**	2536901 SPv1
Contact:	Richard MacDonald C/- AWA Water Foundation Limited PO Box 74535 Greenlane Auckland 1546	**Date Received:**	24-Feb-2021
		Date Reported:	03-Mar-2021
		Quote No:	109704
		Order No:	
		Client Reference:	
		Submitted By:	Richard MacDonald

Sample Type: Aqueous

		Sample Name:	Filling Room 23-Feb-2021 11:00 am	Bore 23-Feb-2021 11:00 am			
		Lab Number:	2536901.1	2536901.2			
Turbidity	NTU		0.60	0.52	-	-	-
pH	pH Units		9.4	9.6	-	-	-
Total Alkalinity	g/m^3 as $CaCO_3$		188	189	-	-	-
Calcium Hardness*	g/m^3 as $CaCO_3$		2.8	3.0	-	-	-
Magnesium Hardness*	g/m^3 as $CaCO_3$		< 1.0	< 1.0	-	-	-
Electrical Conductivity (EC)	mS/m		44.0	44.4	-	-	-
Total Dissolved Solids (TDS)	g/m^3		270	260	-	-	-
Total Boron	g/m^3		0.053	0.056	-	-	-
Total Calcium	g/m^3		1.13	1.21	-	-	-
Total Magnesium	g/m^3		0.048	0.049	-	-	-
Total Manganese	g/m^3		0.00064	0.00179	-	-	-
Total Potassium	g/m^3		0.29	0.26	-	-	-
Total Sodium	g/m^3		97	100	-	-	-
Bromide	g/m^3		0.11	0.11	-	-	-
Bromate	g/m^3		< 0.005	< 0.005	-	-	-
Chloride	g/m^3		27	27	-	-	-
Reactive Silica	g/m^3 as SiO_2		22	22	-	-	-
Sulphate	g/m^3		0.6	< 0.5	-	-	-
Escherichia coli	MPN / 100mL		< 1 #1	< 1 #1	-	-	-

Analyst's Comments

#1 Please interpret this result with caution as the sample was > 10 °C on receipt at the lab. The sample temperature is recommended by the laboratory's reference methods to be less than 10 °C on receipt at the laboratory (but not frozen). However, it is acknowledged that samples that are transported quickly to the laboratory after sampling, may not have been cooled to this temperature.

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: Aqueous

Test	Method Description	Default Detection Limit	Sample No
Filtration, Unpreserved	Sample filtration through 0.45µm membrane filter.	-	1-2
Total Digestion	Nitric acid digestion. APHA 3030 E (modified) 23rd ed. 2017.	-	1-2
Turbidity	Analysis by Turbidity meter. APHA 2130 B 23rd ed. 2017 (modified).	0.05 NTU	1-2

This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.
The tests reported herein have been performed in accordance with the terms of accreditation, with the exception of tests marked * or any comments and interpretations, which are not accredited.

Sample Type: Aqueous			
Test	**Method Description**	**Default Detection Limit**	**Sample No**
pH	pH meter. APHA 4500-H^+ B 23rd ed. 2017. 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	1-2
Total Alkalinity	Titration to pH 4.5 (M-alkalinity), autotitrator. APHA 2320 B (modified for Alkalinity <20) 23rd ed. 2017.	1.0 g/m^3 as $CaCO_3$	1-2
Calcium Hardness*	Calculation from Total Calcium.	1.0 g/m^3 as $CaCO_3$	1-2
Magnesium Hardness*	Calculation from Magnesium.	1.0 g/m^3 as $CaCO_3$	1-2
Electrical Conductivity (EC)	Conductivity meter, 25°C. APHA 2510 B 23rd ed. 2017.	0.1 mS/m	1-2
Total Dissolved Solids (TDS)	Filtration through GF/C (1.2 µm), gravimetric. APHA 2540 C (modified; drying temperature of 103 - 105°C used rather than 180 ± 2°C) 23rd ed. 2017.	10 g/m^3	1-2
Total Boron	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23rd ed. 2017.	0.0053 g/m^3	1-2
Total Calcium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23rd ed. 2017.	0.053 g/m^3	1-2
Total Magnesium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23rd ed. 2017.	0.021 g/m^3	1-2
Total Manganese	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23rd ed. 2017 / US EPA 200.8.	0.00053 g/m^3	1-2
Total Potassium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23rd ed. 2017.	0.053 g/m^3	1-2
Total Sodium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23rd ed. 2017.	0.021 g/m^3	1-2
Bromide	Filtered sample. Ion Chromatography. APHA 4110 B (modified) 23rd ed. 2017.	0.05 g/m^3	1-2
Bromate	Sample analysed as received, filtered if required. Ion Chromatography. US EPA Method 300.1 Part B (modified).	0.005 g/m^3	1-2
Chloride	Filtered sample. Ion Chromatography. APHA 4110 B (modified) 23rd ed. 2017.	0.5 g/m^3	1-2
Reactive Silica	Filtered sample. Heteropoly blue colorimetry. Flow Injection Analyser. APHA 4500-SiO2 F (modified) 23rd ed. 2017.	0.10 g/m^3 as SiO_2	1-2
Sulphate	Filtered sample. Ion Chromatography. APHA 4110 B (modified) 23rd ed. 2017.	0.5 g/m^3	1-2
Escherichia coli	MPN count using Colilert (Incubated at 35°C for 24 hours) and 97 wells. APHA 9223 B 23rd ed. 2017.	1 MPN / 100mL	1-2

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

Testing was completed between 25-Feb-2021 and 03-Mar-2021. 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.

This certificate of analysis must not be reproduced, except in full, without the written consent of the signatory.

Ara Heron BSc (Tech)
Client Services Manager - Environmental