Watercare Laboratory Services

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Certificate of Analysis
Laboratory Reference:180214-170

Attention:	Richard Phillips	*Final Report:*	**260421-0**
Client:	**ORAVIDA WATERS LIMITED**	*Report Issue Date:*	**01-Mar-2018**
Address:	**PO Box 106123, Auckland City, 1143**	*Received Date:*	**14-Feb-2018**
Client Reference:	**Quote 8787 - Typical Analysis**		
Purchase Order:	**Not Available**	*Quote Reference :*	**8787**

Sample Details	WATERS
Lab Sample ID:	**180214-170-1**
Client Sample ID:	
Sample Date/Time:	13/02/2018
Description:	Quote 8787 - Typical Analysis
Chemistry Detailed	
Anions by Ion Chromatography (0.45 µm Filtered)	
Chloride mg/L	7.4
Nitrate (as N) mg/L	0.015
Nitrite (as N) mg/L	<0.002
Sulphate mg/L	<0.02
Total Oxidised Nitrogen (as N) by Calculation mg/L	0.015 *
General Testing	
Bicarbonate Alkalinity (as HCO3) mg/L	37
Carbonate Alkalinity (as CO3) mg/L	<1.0
Molybdate Reactive Silica (as SiO2) mg/L	89
pH (at room temp c. 20 °C) pH unit	7.2
Total Alkalinity (as CaCO3) mg/L	30
Total Dissolved Solids mg/L	160
Metals	
Total Metals by ICP-MS—Trace (Default Digest)	
Calcium (Total) mg/L	2.7
Calcium Hardness (as CaCO3) (Total) mg/L	6.8
Magnesium (Total) mg/L	1.3
Magnesium Hardness (as CaCO3) (Total) mg/L	5.5
Potassium (Total) mg/L	2.4
Silicon (as Silica) (Total) mg/L	79
Sodium (Total) mg/L	11
Total Hardness (as CaCO3) mg/L	12
Microbiology	
Escherichia coli by MPN(Colilert-18)	
Escherichia coli MPN/100 mL	<1.0
Total Coliforms MPN/100 mL	<1.0
Heterotrophic Plate Count by Pour Plate Method	
HPC (22°C) cfu/mL	<1.0

*Results marked with * are not accredited to International Accreditation New Zealand*

Where samples have been supplied by the client they are tested as received. A dash indicates no test performed.

Reference Methods
The sample(s) referred to in this report were analysed by the following method(s)

Analyte	Method Reference	MDL	Samples	Location
Chemistry Detailed				
Anions by Ion Chromatography (0.45 µm Filtered)				

Chemistry Detailed

Anions by Ion Chromatography (0.45 µm Filtered)

Chloride	In House based on APHA (online edition) 4110 B and EPA 300.0	0.02 mg/L	All	Auckland
Nitrate (as N)	In House based on APHA (online edition) 4110 B and EPA 300.0	0.002 mg/L	All	Auckland
Nitrite (as N)	In House based on APHA (online edition) 4110 B and EPA 300.0	0.002 mg/L	All	Auckland
Sulphate	In House based on APHA (online edition) 4110 B and EPA 300.0	0.02 mg/L	All	Auckland
Total Oxidised Nitrogen (as N) by Calculation	In House based on APHA (online edition) 4110 B and EPA 300.0	0.002 mg/L	All	Auckland

General Testing

Bicarbonate Alkalinity (as HCO3) by Titration	APHA (online edition) 2320 B	1 mg/L	All	Auckland
Carbonate Alkalinity (as CO3) by Titration	APHA (online edition) 2320 B	1 mg/L	All	Auckland
Molybdate Reactive Silica (as SiO2) by Colorimetry/Discrete Analyser	APHA (online edition) 4500-SiO2 F (modified)	1 mg/L	All	Auckland
pH (at room temp c. 20 °C) by Electrode	APHA (online edition) 4500-H B	0.1 pH unit	All	Auckland
Total Alkalinity (as CaCO3) by Titration	APHA (online edition) 2320 B	1 mg/L	All	Auckland
Total Dissolved Solids by Gravimetry	APHA (online edition) 2540 C (Modified: Dried at 103 - 105 ºC)	15 mg/L	All	Auckland

Metals

Total Metals by ICP-MS—Trace (Default Digest)

Calcium (Total)	In House based on EPA 200.8 by ICPMS	0.010 mg/L	All	Auckland
Calcium Hardness (as CaCO3) (Total)	In House based on EPA 200.8 by ICPMS	0.03 mg/L	All	Auckland
Magnesium (Total)	In House based on EPA 200.8 by ICPMS	0.001 mg/L	All	Auckland
Magnesium Hardness (as CaCO3) (Total)	In House based on EPA 200.8 by ICPMS	0.004 mg/L	All	Auckland
Potassium (Total)	In House based on EPA 200.8 by ICPMS	0.05 mg/L	All	Auckland
Silicon (as Silica) (Total)	In House based on EPA 200.8 by ICPMS	0.1 mg/L	All	Auckland
Sodium (Total)	In House based on EPA 200.8 by ICPMS	0.1 mg/L	All	Auckland
Total Hardness (as CaCO3)	In House based on EPA 200.8 by ICPMS	0.03 mg/L	All	Auckland

Microbiology

Escherichia coli by MPN(Colilert-18)

Escherichia coli	APHA (online edition) 9223 B Colilert Quantitray	1 MPN/100 mL	All	Auckland
Total Coliforms	APHA (online edition) 9223 B Colilert Quantitray	1 MPN/100 mL	All	Auckland

Heterotrophic Plate Count by Pour Plate Method

HPC (22°C)	APHA (online edition) 9215 B	1 cfu/mL	All	Auckland

Preparations

Digest for Total Metals in Liquids	APHA (online edition) 3030 E (modified, 4:1 Nitric:Hydrochloric Acid)		All	Auckland
Glass Fibre Filtration (1.2 µm)	APHA (online edition) 2540 C (Filtration)		All	Auckland
Membrane Filtration (0.45 µm)	APHA (online edition) 4500-P B (preliminary filtration)		All	Auckland

The method detection limit (MDL) listed is the limit attainable in a relatively clean matrix. If dilutions are required for analysis the detection limit may be higher.

For more information please contact the Operations Manager

Samples, with suitable preservation and stability of analytes, will be held by the laboratory for a period of two weeks after results have been reported, unless otherwise advised by the submitter.

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Report Signatory 01/03/2018

Zum Nguyen
KTP Signatory