



Certificate of Analysis

Client:	Waireka Beverages Limited	Lab No:	1987984	SPV1
Contact:	C/- Waireka Beverages Limited PO Box 12110 Palmerston North 4444	Date Received:	24-May-2018	
		Date Reported:	22-Jun-2018	
		Quote No:	80230	
		Order No:		
		Client Reference:		

Sample Type: Aqueous

Sample Name:	Waireka 1L			
Lab Number:	1987984.1			

Individual Tests

Sum of Anions	meq/L	2.1	-	-	-	-
Sum of Cations	meq/L	2.0	-	-	-	-
Turbidity	NTU	0.07	-	-	-	-
pH	pH Units	7.9	-	-	-	-
Acidity (pH 3.7)	g/m ³ as CaCO ₃	< 1.0	-	-	-	-
Total Alkalinity	g/m ³ as CaCO ₃	88	-	-	-	-
Carbonate	g/m ³ at 25°C	< 1.0	-	-	-	-
Bicarbonate	g/m ³ at 25°C	106	-	-	-	-
Free Carbon Dioxide	g/m ³ at 25°C	2.1	-	-	-	-
Total Hardness	g/m ³ as CaCO ₃	71	-	-	-	-
Electrical Conductivity (EC)	mS/m	20.1	-	-	-	-
Total Dissolved Solids (TDS)	g/m ³	121	-	-	-	-
Total Solids (TS)	g/m ³	130	-	-	-	-
Permanganate Value*	g/m ³ as O ₂	< 0.10	-	-	-	-
Total Borate (B ₄ O ₇)*	g/m ³	0.05	-	-	-	-
Total Bromine*	g/m ³	0.025	-	-	-	-
Dissolved Calcium	g/m ³	22	-	-	-	-
Hexavalent Chromium	g/m ³	< 0.0010 #1	-	-	-	-
Total Cobalt	g/m ³	< 0.00021	-	-	-	-
Total Iodine	g/m ³	0.0020	-	-	-	-
Dissolved Magnesium	g/m ³	3.8	-	-	-	-
Dissolved Potassium	g/m ³	0.99	-	-	-	-
Dissolved Sodium	g/m ³	13.8	-	-	-	-
Total Strontium	g/m ³	0.159	-	-	-	-
Total Vanadium	g/m ³	< 0.0011	-	-	-	-
Bromide	g/m ³	< 0.05	-	-	-	-
Total Cyanide	g/m ³	< 0.0010	-	-	-	-
Chloride	g/m ³	8.2	-	-	-	-
Fluoride	g/m ³	0.11	-	-	-	-
Total Ammoniacal-N	g/m ³	< 0.010	-	-	-	-
Nitrite-N	g/m ³	< 0.002	-	-	-	-
Nitrate-N	g/m ³	0.38	-	-	-	-
Nitrate-N + Nitrite-N	g/m ³	0.38	-	-	-	-
Total Sulphide	g/m ³	< 0.002	-	-	-	-
Sulphate	g/m ³	2.2	-	-	-	-
Methylene Blue Active Substances (MBAS)*	g/m ³	0.1	-	-	-	-
Dioxane*	g/m ³	< 2	-	-	-	-



Sample Type: Aqueous

Sample Name:		Waireka 1L				
Lab Number:		1987984.1				
Bromate in Drinking Water by LCMSMS						
Bromate	g/m ³	0.0019	-	-	-	-
Hazen Colour Profile						
Apparent Hazen Colour	Hazen units	< 10	-	-	-	-
pH for Colour Analysis	pH Units	7.3	-	-	-	-
OrganoNitrogen & Phosphorus pesticides, trace, liq/liq GCMS						
Acetochlor	g/m ³	< 0.00004	-	-	-	-
Alachlor	g/m ³	< 0.00004	-	-	-	-
Atrazine	g/m ³	< 0.00004	-	-	-	-
Atrazine-desethyl	g/m ³	< 0.00004	-	-	-	-
Atrazine-desisopropyl	g/m ³	< 0.00008	-	-	-	-
Azaconazole	g/m ³	< 0.00002	-	-	-	-
Azinphos-methyl	g/m ³	< 0.00010	-	-	-	-
Benalaxyl	g/m ³	< 0.00002	-	-	-	-
Bitertanol	g/m ³	< 0.00008	-	-	-	-
Bromacil	g/m ³	< 0.00004	-	-	-	-
Bromopropylate	g/m ³	< 0.00004	-	-	-	-
Butachlor	g/m ³	< 0.00004	-	-	-	-
Captan	g/m ³	< 0.00008	-	-	-	-
Carbaryl	g/m ³	< 0.00004	-	-	-	-
Carbofenthion	g/m ³	< 0.00004	-	-	-	-
Carbofuran	g/m ³	< 0.00010	-	-	-	-
Chlorfluazuron	g/m ³	< 0.00004	-	-	-	-
Chlorothalonil	g/m ³	< 0.00004	-	-	-	-
Chlorpyrifos	g/m ³	< 0.00004	-	-	-	-
Chlorpyrifos-methyl	g/m ³	< 0.00004	-	-	-	-
Chlortoluron	g/m ³	< 0.00008	-	-	-	-
Cyanazine	g/m ³	< 0.00004	-	-	-	-
Cyfluthrin	g/m ³	< 0.00004	-	-	-	-
Cyhalothrin	g/m ³	< 0.00004	-	-	-	-
Cypermethrin	g/m ³	< 0.00008	-	-	-	-
Deltamethrin (including Tralomethrin)	g/m ³	< 0.00006	-	-	-	-
Diazinon	g/m ³	< 0.00002	-	-	-	-
Dichlofluanid	g/m ³	< 0.00004	-	-	-	-
Dichloran	g/m ³	< 0.0002	-	-	-	-
Dichlorvos	g/m ³	< 0.00008	-	-	-	-
Difenoconazole	g/m ³	< 0.00008	-	-	-	-
Dimethoate	g/m ³	< 0.00008	-	-	-	-
Diphenylamine	g/m ³	< 0.00008	-	-	-	-
Diuron	g/m ³	< 0.00004	-	-	-	-
Fenpropimorph	g/m ³	< 0.00004	-	-	-	-
Fluazifop-butyl	g/m ³	< 0.00004	-	-	-	-
Fluometuron	g/m ³	< 0.00004	-	-	-	-
Flusilazole	g/m ³	< 0.00004	-	-	-	-
Fluvalinate	g/m ³	< 0.00004	-	-	-	-
Furalaxyl	g/m ³	< 0.00002	-	-	-	-
Haloxifop-methyl	g/m ³	< 0.00004	-	-	-	-
Hexaconazole	g/m ³	< 0.00004	-	-	-	-
Hexazinone	g/m ³	< 0.00002	-	-	-	-
IPBC (3-Iodo-2-propynyl-n-butylcarbamate)	g/m ³	< 0.0002	-	-	-	-
Kresoxim-methyl	g/m ³	< 0.00002	-	-	-	-
Linuron	g/m ³	< 0.00005	-	-	-	-
Malathion	g/m ³	< 0.00004	-	-	-	-
Metalaxyl	g/m ³	< 0.00004	-	-	-	-
Metolachlor	g/m ³	< 0.00004	-	-	-	-

Sample Type: Aqueous

Sample Name:	Waireka 1L				
Lab Number:	1987984.1				
OrganoNitrogen & Phosphorus pesticides, trace, liq/liq GCMS					
Metribuzin	g/m ³	< 0.00004	-	-	-
Molinate	g/m ³	< 0.00008	-	-	-
Myclobutanil	g/m ³	< 0.00004	-	-	-
Naled	g/m ³	< 0.0002	-	-	-
Norflurazon	g/m ³	< 0.00008	-	-	-
Oxadiazon	g/m ³	< 0.00004	-	-	-
Oxyfluorfen	g/m ³	< 0.00002	-	-	-
Pacllobutrazol	g/m ³	< 0.00004	-	-	-
Parathion-ethyl	g/m ³	< 0.00004	-	-	-
Parathion-methyl	g/m ³	< 0.00004	-	-	-
Pendimethalin	g/m ³	< 0.00004	-	-	-
Permethrin	g/m ³	< 0.00002	-	-	-
Pirimicarb	g/m ³	< 0.00004	-	-	-
Pirimiphos-methyl	g/m ³	< 0.00004	-	-	-
Prochloraz	g/m ³	< 0.0002	-	-	-
Procymidone	g/m ³	< 0.00004	-	-	-
Prometryn	g/m ³	< 0.00002	-	-	-
Propachlor	g/m ³	< 0.00004	-	-	-
Propanil	g/m ³	< 0.0002	-	-	-
Propazine	g/m ³	< 0.00002	-	-	-
Propiconazole	g/m ³	< 0.00004	-	-	-
Pyriproxyfen	g/m ³	< 0.00004	-	-	-
Quizalofop-ethyl	g/m ³	< 0.00004	-	-	-
Simazine	g/m ³	< 0.00004	-	-	-
Simetryn	g/m ³	< 0.00004	-	-	-
Sulfentrazone	g/m ³	< 0.0002	-	-	-
TTCMTB [2-(thiocyanomethylthio) benzothiazole, Busan]	g/m ³	< 0.00010	-	-	-
Tebuconazole	g/m ³	< 0.00004	-	-	-
Terbacil	g/m ³	< 0.00004	-	-	-
Terbufos	g/m ³	< 0.00004	-	-	-
Terbumeton	g/m ³	< 0.00004	-	-	-
Terbutylazine	g/m ³	< 0.00002	-	-	-
Terbutylazine-desethyl	g/m ³	< 0.00004	-	-	-
Terbutryn	g/m ³	< 0.00004	-	-	-
Thiabendazole	g/m ³	< 0.0002	-	-	-
Thiobencarb	g/m ³	< 0.00004	-	-	-
Tolyfluanid	g/m ³	< 0.00002	-	-	-
Triazophos	g/m ³	< 0.00004	-	-	-
Trifluralin	g/m ³	< 0.00004	-	-	-
Vinclozolin	g/m ³	< 0.00004	-	-	-
Drinking water metals suite, totals, trace					
Total Aluminium	g/m ³	< 0.0032	-	-	-
Total Antimony	g/m ³	< 0.00021	-	-	-
Total Arsenic	g/m ³	< 0.0011	-	-	-
Total Barium	g/m ³	0.0079	-	-	-
Total Beryllium	g/m ³	< 0.00011	-	-	-
Total Boron	g/m ³	0.0148	-	-	-
Total Cadmium	g/m ³	< 0.000053	-	-	-
Total Calcium	g/m ³	23	-	-	-
Total Chromium	g/m ³	< 0.00053	-	-	-
Total Copper	g/m ³	< 0.00053	-	-	-
Total Iron	g/m ³	0.035	-	-	-
Total Lead	g/m ³	< 0.00011	-	-	-
Total Lithium	g/m ³	0.0068	-	-	-
Total Magnesium	g/m ³	4.1	-	-	-

Sample Type: Aqueous						
Sample Name:		Waireka 1L				
Lab Number:		1987984.1				
Drinking water metals suite, totals, trace						
Total Manganese	g/m ³	< 0.00053	-	-	-	-
Total Mercury	g/m ³	< 0.00008	-	-	-	-
Total Molybdenum	g/m ³	< 0.00021	-	-	-	-
Total Nickel	g/m ³	< 0.00053	-	-	-	-
Total Potassium	g/m ³	1.00	-	-	-	-
Total Selenium	g/m ³	< 0.0011	-	-	-	-
Total Silver	g/m ³	< 0.00011	-	-	-	-
Total Sodium	g/m ³	14.8	-	-	-	-
Total Tin	g/m ³	< 0.00053	-	-	-	-
Total Uranium	g/m ³	0.00033	-	-	-	-
Total Zinc	g/m ³	0.0076	-	-	-	-
Haloethers Trace in SVOC Water Samples by GC-MS						
Bis(2-chloroethoxy) methane	g/m ³	< 0.0005	-	-	-	-
Bis(2-chloroethyl)ether	g/m ³	< 0.0005	-	-	-	-
Bis(2-chloroisopropyl)ether	g/m ³	< 0.0005	-	-	-	-
4-Bromophenyl phenyl ether	g/m ³	< 0.0003	-	-	-	-
4-Chlorophenyl phenyl ether	g/m ³	< 0.0005	-	-	-	-
Nitrogen containing compounds Trace in SVOC Water Samples, GC-MS						
2,4-Dinitrotoluene	g/m ³	< 0.0010	-	-	-	-
2,6-Dinitrotoluene	g/m ³	< 0.0010	-	-	-	-
Nitrobenzene	g/m ³	< 0.0005	-	-	-	-
N-Nitrosodi-n-propylamine	g/m ³	< 0.0010	-	-	-	-
N-Nitrosodiphenylamine + Diphenylamine	g/m ³	< 0.0010	-	-	-	-
Organochlorine Pesticides Trace in SVOC Water Samples by GC-MS						
Aldrin	g/m ³	< 0.0005	-	-	-	-
alpha-BHC	g/m ³	< 0.0005	-	-	-	-
beta-BHC	g/m ³	< 0.0005	-	-	-	-
delta-BHC	g/m ³	< 0.0005	-	-	-	-
gamma-BHC (Lindane)	g/m ³	< 0.0005	-	-	-	-
4,4'-DDD	g/m ³	< 0.0005	-	-	-	-
4,4'-DDE	g/m ³	< 0.0005	-	-	-	-
4,4'-DDT	g/m ³	< 0.0010	-	-	-	-
Dieldrin	g/m ³	< 0.0005	-	-	-	-
Endosulfan I	g/m ³	< 0.0010	-	-	-	-
Endosulfan II	g/m ³	< 0.0010	-	-	-	-
Endosulfan sulfate	g/m ³	< 0.0010	-	-	-	-
Endrin	g/m ³	< 0.0005	-	-	-	-
Endrin ketone	g/m ³	< 0.0010	-	-	-	-
Heptachlor	g/m ³	< 0.0005	-	-	-	-
Heptachlor epoxide	g/m ³	< 0.0005	-	-	-	-
Hexachlorobenzene	g/m ³	< 0.0005	-	-	-	-
Polycyclic Aromatic Hydrocarbons Trace in SVOC Water Samples						
Acenaphthene	g/m ³	< 0.0003	-	-	-	-
Acenaphthylene	g/m ³	< 0.0003	-	-	-	-
Anthracene	g/m ³	< 0.0003	-	-	-	-
Benzo[a]anthracene	g/m ³	< 0.0003	-	-	-	-
Benzo[a]pyrene (BAP)	g/m ³	< 0.0003	-	-	-	-
Benzo[b]fluoranthene + Benzo[j]fluoranthene	g/m ³	< 0.0003	-	-	-	-
Benzo[g,h,i]perylene	g/m ³	< 0.0003	-	-	-	-
Benzo[k]fluoranthene	g/m ³	< 0.0003	-	-	-	-
1&2-Chloronaphthalene	g/m ³	< 0.0003	-	-	-	-
Chrysene	g/m ³	< 0.0003	-	-	-	-
Dibenzo[a,h]anthracene	g/m ³	< 0.0003	-	-	-	-
Fluoranthene	g/m ³	< 0.0003	-	-	-	-

Sample Type: Aqueous						
Sample Name:	Waireka 1L					
Lab Number:	1987984.1					
Polycyclic Aromatic Hydrocarbons Trace in SVOC Water Samples						
Fluorene	g/m ³	< 0.0003	-	-	-	-
Indeno(1,2,3-c,d)pyrene	g/m ³	< 0.0003	-	-	-	-
2-Methylnaphthalene	g/m ³	< 0.0003	-	-	-	-
Naphthalene	g/m ³	< 0.0003	-	-	-	-
Phenanthrene	g/m ³	< 0.0003	-	-	-	-
Pyrene	g/m ³	< 0.0003	-	-	-	-
Phenols Trace (drinkingwater) in SVOC Water Samples by GC-MS						
2-Chlorophenol	g/m ³	< 0.0005	-	-	-	-
2,4-Dichlorophenol	g/m ³	< 0.0005	-	-	-	-
2,4,6-Trichlorophenol	g/m ³	< 0.0010	-	-	-	-
Phenols Trace (non-drinkingwater) in SVOC Water Samples by GC-MS						
4-Chloro-3-methylphenol	g/m ³	< 0.0010	-	-	-	-
2,4-Dimethylphenol	g/m ³	< 0.0005	-	-	-	-
3 & 4-Methylphenol (m- + p-cresol)	g/m ³	< 0.0010	-	-	-	-
2-Methylphenol (o-Cresol)	g/m ³	< 0.0005	-	-	-	-
2-Nitrophenol	g/m ³	< 0.0010	-	-	-	-
Pentachlorophenol (PCP)	g/m ³	< 0.010	-	-	-	-
Phenol	g/m ³	< 0.0010	-	-	-	-
2,4,5-Trichlorophenol	g/m ³	< 0.0010	-	-	-	-
Plasticisers Trace (non-drinkingwater) in SVOC Water by GCMS						
Butylbenzylphthalate	g/m ³	< 0.0010	-	-	-	-
Diethylphthalate	g/m ³	< 0.0010	-	-	-	-
Dimethylphthalate	g/m ³	< 0.0010	-	-	-	-
Di-n-butylphthalate	g/m ³	< 0.0010	-	-	-	-
Di-n-octylphthalate	g/m ³	< 0.0010	-	-	-	-
Plasticisers Trace (drinkingwater) in SVOC Water Samples by GCMS						
Bis(2-ethylhexyl)phthalate	g/m ³	< 0.003	-	-	-	-
Di(2-ethylhexyl)adipate	g/m ³	< 0.0010	-	-	-	-
Other Halogenated compounds Trace (drinkingwater) in SVOC Water						
1,2-Dichlorobenzene	g/m ³	< 0.0005	-	-	-	-
1,3-Dichlorobenzene	g/m ³	< 0.0005	-	-	-	-
1,4-Dichlorobenzene	g/m ³	< 0.0005	-	-	-	-
Other Halogenated compounds Trace (non-drinkingwater) in SVOC						
Hexachlorobutadiene	g/m ³	< 0.0005	-	-	-	-
Hexachloroethane	g/m ³	< 0.0005	-	-	-	-
1,2,4-Trichlorobenzene	g/m ³	< 0.0005	-	-	-	-
Other SVOC Trace in SVOC Water Samples by GC-MS						
Benzyl alcohol	g/m ³	< 0.005	-	-	-	-
Carbazole	g/m ³	< 0.0005	-	-	-	-
Dibenzofuran	g/m ³	< 0.0005	-	-	-	-
Isophorone	g/m ³	< 0.0005	-	-	-	-
BTEX in VOC Water by Headspace GC-MS						
Benzene	g/m ³	< 0.0003	-	-	-	-
Ethylbenzene	g/m ³	< 0.0005	-	-	-	-
Toluene	g/m ³	< 0.0003	-	-	-	-
m&p-Xylene	g/m ³	< 0.0005	-	-	-	-
o-Xylene	g/m ³	< 0.0003	-	-	-	-
Halogenated Aliphatics in VOC Water by Headspace GC-MS						
Bromomethane (Methyl Bromide)	g/m ³	< 0.0003	-	-	-	-
Carbon tetrachloride	g/m ³	< 0.0003	-	-	-	-
Chloroethane	g/m ³	< 0.0003	-	-	-	-
Chloromethane	g/m ³	< 0.0003	-	-	-	-
1,2-Dibromo-3-chloropropane	g/m ³	< 0.0003	-	-	-	-
1,2-Dibromoethane (ethylene dibromide, EDB)	g/m ³	< 0.0003	-	-	-	-

Sample Type: Aqueous

Sample Name:		Waireka 1L				
Lab Number:		1987984.1				
Halogenated Aliphatics in VOC Water by Headspace GC-MS						
Dibromomethane	g/m ³	< 0.0003	-	-	-	-
Dichlorodifluoromethane	g/m ³	< 0.0003	-	-	-	-
1,1-Dichloroethane	g/m ³	< 0.0003	-	-	-	-
1,2-Dichloroethane	g/m ³	< 0.0003	-	-	-	-
1,1-Dichloroethene	g/m ³	< 0.0003	-	-	-	-
cis-1,2-Dichloroethene	g/m ³	< 0.0003	-	-	-	-
trans-1,2-Dichloroethene	g/m ³	< 0.0003	-	-	-	-
Dichloromethane (methylene chloride)	g/m ³	< 0.010	-	-	-	-
1,2-Dichloropropane	g/m ³	< 0.0003	-	-	-	-
1,3-Dichloropropane	g/m ³	< 0.0003	-	-	-	-
1,1-Dichloropropene	g/m ³	< 0.0003	-	-	-	-
cis-1,3-Dichloropropene	g/m ³	< 0.0005	-	-	-	-
trans-1,3-Dichloropropene	g/m ³	< 0.0005	-	-	-	-
Hexachlorobutadiene	g/m ³	< 0.0003	-	-	-	-
1,1,1,2-Tetrachloroethane	g/m ³	< 0.0003	-	-	-	-
1,1,1,2,2-Tetrachloroethane	g/m ³	< 0.0003	-	-	-	-
Tetrachloroethene (tetrachloroethylene)	g/m ³	< 0.0003	-	-	-	-
1,1,1-Trichloroethane	g/m ³	< 0.0003	-	-	-	-
1,1,2-Trichloroethane	g/m ³	< 0.0003	-	-	-	-
Trichloroethene (trichloroethylene)	g/m ³	< 0.0003	-	-	-	-
Trichlorofluoromethane	g/m ³	< 0.0003	-	-	-	-
1,2,3-Trichloropropane	g/m ³	< 0.0003	-	-	-	-
1,1,2-Trichlorotrifluoroethane (Freon 113)	g/m ³	< 0.0003	-	-	-	-
Vinyl chloride	g/m ³	< 0.0003	-	-	-	-
Halogenated Aromatics in VOC Water by Headspace GC-MS						
Chlorobenzene (monochlorobenzene)	g/m ³	< 0.0003	-	-	-	-
1,2-Dichlorobenzene	g/m ³	< 0.0003	-	-	-	-
1,3-Dichlorobenzene	g/m ³	< 0.0003	-	-	-	-
1,4-Dichlorobenzene	g/m ³	< 0.0003	-	-	-	-
1,2,3-Trichlorobenzene	g/m ³	< 0.0003	-	-	-	-
1,2,4-Trichlorobenzene	g/m ³	< 0.0003	-	-	-	-
1,3,5-Trichlorobenzene	g/m ³	< 0.0003	-	-	-	-
Bromobenzene	g/m ³	< 0.0003	-	-	-	-
2-Chlorotoluene	g/m ³	< 0.0003	-	-	-	-
4-Chlorotoluene	g/m ³	< 0.0003	-	-	-	-
Monoaromatic Hydrocarbons in VOC Water by Headspace GC-MS						
n-Butylbenzene	g/m ³	< 0.0005	-	-	-	-
tert-Butylbenzene	g/m ³	< 0.0003	-	-	-	-
4-Isopropyltoluene (p-Cymene)	g/m ³	< 0.0005	-	-	-	-
Isopropylbenzene (Cumene)	g/m ³	< 0.0003	-	-	-	-
n-Propylbenzene	g/m ³	< 0.0005	-	-	-	-
sec-Butylbenzene	g/m ³	< 0.0003	-	-	-	-
Styrene	g/m ³	< 0.0005	-	-	-	-
1,2,4-Trimethylbenzene	g/m ³	< 0.0003	-	-	-	-
1,3,5-Trimethylbenzene	g/m ³	< 0.0003	-	-	-	-
Ketones in VOC Water by Headspace GC-MS						
Acetone	g/m ³	< 0.05	-	-	-	-
2-Butanone (MEK)	g/m ³	< 0.05	-	-	-	-
Methyl tert-butylether (MTBE)	g/m ³	< 0.0003	-	-	-	-
4-Methylpentan-2-one (MIBK)	g/m ³	< 0.010	-	-	-	-
Trihalomethanes in VOC Water by Headspace GC-MS						
Bromodichloromethane	g/m ³	< 0.0003	-	-	-	-
Bromoform (tribromomethane)	g/m ³	0.0004	-	-	-	-
Chloroform (Trichloromethane)	g/m ³	< 0.0003	-	-	-	-
Dibromochloromethane	g/m ³	< 0.0003	-	-	-	-

Sample Type: Aqueous						
Sample Name:		Waireka 1L				
Lab Number:		1987984.1				
Other VOC in Water by Headspace GC-MS						
Carbon disulphide	g/m ³	< 0.00010	-	-	-	-
Naphthalene	g/m ³	< 0.0005	-	-	-	-

Analyst's Comments

#1 It should be noted that the chromium 6 analysis was taken from the unpreserved container provided by the client, not a caustic preserved container which is recommended for this test. This was due to insufficient sample left on caustic preserved pour off fraction.

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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
Individual Tests			
Bromate by LCMSMS	Direct injection LCMSMS analysis.	-	1
TMAH Digestion*	Tetramethylammonium hydroxide micro digestion, filtration. P.A.Fecher, I.Goldman and A.Nagengast. Journal of Analytical Atomic Spectrometry, 1998, 13, 977-982.	-	1
Total Digestion	Nitric acid digestion. APHA 3030 E 22 nd ed. 2012 (modified).	-	1
Total acid digest for Silver analysis	Boiling nitric / hydrochloric acid digestion (5:1 ratio). APHA 3030 F (modified) 22 nd ed. 2012.	-	1
Total Cyanide Distillation	Distillation following the addition of sulphuric acid, alkaline trapping solution. APHA 4500-CN C (modified) 22 nd ed. 2012.	-	1
Total anions for anion/cation balance check	Calculation: sum of anions as mEq/L calculated from Alkalinity (bicarbonate), Chloride and Sulphate. Nitrate-N, Nitrite-N. Fluoride, Dissolved Reactive Phosphorus and Cyanide also included in calculation if available. APHA 1030 E 22 nd ed. 2012.	0.07 meq/L	1
Total cations for anion/cation balance check	Sum of cations as mEq/L calculated from Sodium, Potassium, Calcium and Magnesium. Iron, Manganese, Aluminium, Zinc, Copper, Lithium, Total Ammoniacal-N and pH (H ⁺) also included in calculation if available. APHA 1030 E 22 nd ed. 2012.	0.05 meq/L	1
Turbidity	Analysis using a Hach 2100N, Turbidity meter. APHA 2130 B 22 nd ed. 2012.	0.05 NTU	1
pH	pH meter. APHA 4500-H+ B 22 nd ed. 2012. 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
Acidity (pH 3.7)	Titration to pH 3.7 with standard sodium hydroxide solution, bromophenol blue indicator. APHA 2310 B 22 nd ed. 2012.	1.0 g/m ³ as CaCO ₃	1
Total Alkalinity	Titration to pH 4.5 (M-alkalinity), autotitrator. APHA 2320 B (Modified for alk <20) 22 nd ed. 2012.	1.0 g/m ³ as CaCO ₃	1
Carbonate	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 22 nd ed. 2012.	1.0 g/m ³ at 25°C	1
Bicarbonate	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 22 nd ed. 2012.	1.0 g/m ³ at 25°C	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 22 nd ed. 2012.	1.0 g/m ³ at 25°C	1
Total Hardness	Calculation from Calcium and Magnesium. APHA 2340 B 22 nd ed. 2012.	1.0 g/m ³ as CaCO ₃	1
Electrical Conductivity (EC)	Conductivity meter, 25°C. APHA 2510 B 22 nd ed. 2012.	0.1 mS/m	1
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) 22 nd ed. 2012.	10 g/m ³	1
Total Solids (TS)	Gravimetric. APHA 2540 B (modified) 22 nd ed. 2012.	10 g/m ³	1

Sample Type: Aqueous			
Test	Method Description	Default Detection Limit	Sample No
Permanganate Value*	Addition of standard potassium permanganate solution, incubation at 27°C for 4 hours, iodometric titration.	0.10 g/m ³ as O ₂	1
Filtration for dissolved metals analysis	Sample filtration through 0.45µm membrane filter and preservation with nitric acid. APHA 3030 B 22 nd ed. 2012.	-	1
Total Borate (B ₄ O ₇)*	Calculation: from total boron.	0.02 g/m ³	1
Total Bromine*	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 22 nd ed. 2012.	0.0053 g/m ³	1
Dissolved Calcium	Filtered sample, ICP-MS, trace level. APHA 3125 B 22 nd ed. 2012.	0.05 g/m ³	1
Hexavalent Chromium	Diphenylcarbazide colorimetry. Discrete Analyser. APHA 3500 Cr B (modified from manual analysis) 22 nd ed. 2012.	0.0010 g/m ³	1
Total Cobalt	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 22 nd ed. 2012 / US EPA 200.8.	0.00021 g/m ³	1
Total Iodine	Sample digestion with aqueous TMAH at 90°C. Analysis by ICP-MS. APHA 3125 B 22 nd ed. 2012.	0.0010 g/m ³	1
Dissolved Magnesium	Filtered sample, ICP-MS, trace level. APHA 3125 B 22 nd ed. 2012.	0.02 g/m ³	1
Dissolved Potassium	Filtered sample, ICP-MS, trace level. APHA 3125 B 22 nd ed. 2012.	0.05 g/m ³	1
Dissolved Sodium	Filtered sample, ICP-MS, trace level. APHA 3125 B 22 nd ed. 2012.	0.02 g/m ³	1
Total Strontium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 22 nd ed. 2012.	0.00053 g/m ³	1
Total Vanadium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 22 nd ed. 2012 / US EPA 200.8.	0.0011 g/m ³	1
Bromide	Filtered sample. Ion Chromatography. APHA 4110 B (modified) 22 nd ed. 2012.	0.05 g/m ³	1
Total Cyanide	Distillation, colorimetry. APHA 4500-CN- C (modified) & E (modified) 22 nd ed. 2012.	0.0010 g/m ³	1
Chloride	Filtered sample. Ion Chromatography. APHA 4110 B (modified) 22 nd ed. 2012.	0.5 g/m ³	1
Fluoride	Direct measurement, ion selective electrode. APHA 4500-F- C 22 nd ed. 2012.	0.05 g/m ³	1
Total Ammoniacal-N	Phenol/hypochlorite colourimetry. Flow injection analyser. (NH ₄ -N = NH ₄ ⁺ -N + NH ₃ -N). APHA 4500-NH ₃ H (modified) 22 nd ed. 2012.	0.010 g/m ³	1
Nitrite-N	Automated Azo dye colorimetry, Flow injection analyser. APHA 4500-NO ₂ - I 22 nd ed. 2012 (modified).	0.002 g/m ³	1
Nitrate-N	Calculation: (Nitrate-N + Nitrite-N) - NO ₂ N. In-House.	0.0010 g/m ³	1
Nitrate-N + Nitrite-N	Total oxidised nitrogen. Automated cadmium reduction, flow injection analyser. APHA 4500-NO ₃ - I 22 nd ed. 2012 (modified).	0.002 g/m ³	1
Sulphide Distillation	Acid distillation of sample into alkaline trapping solution using Simple Distillation system. APHA 4500-S ²⁻ I 22 nd ed. 2012.	-	1
Total Sulphide	Sulphide distillation. Automated methylene blue colorimetry, discrete analyser. APHA 4500-S ²⁻ I (modified) 22 nd ed. 2012.	0.002 g/m ³	1
Sulphate	Filtered sample. Ion Chromatography. APHA 4110 B (modified) 22 nd ed. 2012.	0.5 g/m ³	1
Methylene Blue Active Substances*	Subcontracted to Eurofins ELS Ltd, Lower Hutt. APHA 5540 C 22 nd ed. 2012. (modified in-house).	0.1 g/m ³	1
Dioxane*	Direct injection, dual column GC-FID.	2 g/m ³	1
Bromate in Drinking Water by LCMSMS	Direct injection LCMSMS analysis. Default Detection Limit 0.0001 g/m ³	0.00010 g/m ³	1
OrganoNitrogen & Phosphorus pesticides, trace, liq/liq GCMS	Liquid/liquid extraction, GPC (if required), GCMS analysis	-	1
Semivolatile Organic Compounds Trace in Water by GC-MS	Liquid/Liquid extraction, GPC cleanup (if required), GC-MS FS analysis	-	1
Volatile Organic Compounds Trace in Water by Headspace GC-MS	Headspace, GC-MS SIM analysis [KBIs:37857,37921]	0.00010 - 0.05 g/m ³	1
Hazen Colour Profile			
Apparent Hazen Colour	Determined on original sample without filtration or centrifugation, determination by Lovibond colorimeter. Note: pH measurement performed at the time of Hazen Colour analysis. APHA 2120 B (modified) 22 nd ed. 2012.	10 Hazen units	1
pH for Colour Analysis	pH meter. APHA 4500-H+ B 22 nd ed. 2012. Note: pH measurement performed at the time of Hazen Colour analysis.	0.1 pH Units	1
Drinking water metals suite, totals, trace			

Sample Type: Aqueous			
Test	Method Description	Default Detection Limit	Sample No
Total Aluminium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 22 nd ed. 2012 / US EPA 200.8.	0.0032 g/m ³	1
Total Antimony	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 22 nd ed. 2012 / US EPA 200.8.	0.00021 g/m ³	1
Total Arsenic	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 22 nd ed. 2012 / US EPA 200.8.	0.0011 g/m ³	1
Total Barium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 22 nd ed. 2012 / US EPA 200.8.	0.0053 g/m ³	1
Total Beryllium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 22 nd ed. 2012 / US EPA 200.8.	0.00011 g/m ³	1
Total Boron	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 22 nd ed. 2012.	0.0053 g/m ³	1
Total Cadmium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 22 nd ed. 2012 / US EPA 200.8.	0.000053 g/m ³	1
Total Calcium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 22 nd ed. 2012.	0.053 g/m ³	1
Total Chromium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 22 nd ed. 2012 / US EPA 200.8.	0.00053 g/m ³	1
Total Copper	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 22 nd ed. 2012 / US EPA 200.8.	0.00053 g/m ³	1
Total Iron	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 22 nd ed. 2012.	0.021 g/m ³	1
Total Lead	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 22 nd ed. 2012 / US EPA 200.8.	0.00011 g/m ³	1
Total Lithium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 22 nd ed. 2012.	0.00021 g/m ³	1
Total Magnesium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 22 nd ed. 2012.	0.021 g/m ³	1
Total Manganese	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 22 nd ed. 2012 / US EPA 200.8.	0.00053 g/m ³	1
Total Mercury	Bromine Oxidation followed by Atomic Fluorescence. US EPA Method 245.7, Feb 2005.	0.00008 g/m ³	1
Total Molybdenum	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 22 nd ed. 2012 / US EPA 200.8.	0.00021 g/m ³	1
Total Nickel	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 22 nd ed. 2012 / US EPA 200.8.	0.00053 g/m ³	1
Total Potassium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 22 nd ed. 2012.	0.053 g/m ³	1
Total Selenium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 22 nd ed. 2012 / US EPA 200.8.	0.0011 g/m ³	1
Total Silver	Boiling nitric / hydrochloric acid digestion (5:1 ratio), ICP-MS, trace level. APHA 3125 B 22 nd ed. 2012.	0.00011 g/m ³	1
Total Sodium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 22 nd ed. 2012.	0.021 g/m ³	1
Total Tin	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 22 nd ed. 2012.	0.00053 g/m ³	1
Total Uranium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 22 nd ed. 2012 / US EPA 200.8.	0.000021 g/m ³	1
Total Zinc	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 22 nd ed. 2012 / US EPA 200.8.	0.0011 g/m ³	1

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.

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



Eurofins ELS Limited

Hill Laboratories Ltd - Hamilton
 1 Clyde Street
 Private Bag 3205
 Hamilton 3240
 Attention: Customer Services

Analytical Report

Report Number: 18/28753
 Issue: 1
 19 June 2018

Sample	Site	Map Ref.	Date Sampled	Date Received	Order No.
18/28753-01	Hill Laboratories		24/05/2018 00:00	12/06/2018 08:45	150218
Notes: 1987984.1, Still bottle water, EnvSubEurofinsELS 263					
Test	Result	Units	Signatory		
0011 Detergent	0.1	g/m ³	Gordon McArthur KTP		

Comments:

Sampled by customer using ELS approved containers.

Test Methodology:

Test	Methodology	Detection Limit
Detergent	Reported as anionic surfactants as Methylene Blue Active Substances following APHA 22nd Edition Method 5540 C - modified in house.	0.1 g/m ³

"<" means that no analyte was found in the sample at the level of detection shown. Detection limits are based on a clean matrix and may vary according to individual sample.

g/m³ is the equivalent to mg/L and ppm.

Samples will be retained for a period of time, in suitable conditions appropriate to the analyses requested.

All test methods and confidence limits are available on request. This report must not be reproduced except in full, without the written consent of the laboratory.

Report Released By
 Rob Deacon