



Analytical Research Laboratories

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Customer: V E MOON
45 NAPIER STREET
JERVOISTOWN

NAPIER 4112

Service Person: Customer Centre
Name:
Email: vaness@staples-moon.com

Customer No: 60884192
Samples Received: 18/08/2017 11:15
Report Issued: 24/08/2017
Total samples: 1
Order Number: MOON 18AUG2017 EFT

60884192-MOON 18AUG2017 EFT

WATER ANALYSIS REPORT - DOMESTIC

Sample Name: V E Moon	Lab Number: 1546363	Temp on receipt oC: 15.5
Date & Time Sampled:	18/08/2017 10:55	Order Number: MOON 18AUG2017 EFT

Nutrient	Result	Uncertainty of measurement +/-
pH	8.2	0.15
Calcium mg/L	23.8	-
Magnesium mg/L	3.6	-
Potassium mg/L	1.4	-
Sodium mg/L	10.1	0.6
Copper mg/L	<0.01	0.003
Zinc mg/L	<0.01	-
Manganese mg/L	<0.1	0.015
Iron mg/L	<0.1	-
Conductivity mS/m at 25oC	17.44	-
Total Dissolved Solids mg/L **	117	-
Total Alkalinity (as CaCO3) mg/L	67	-
Chloride mg/L	6	-
Hardness (as CaCO3) mg/L	74	-
Bicarbonate me/L (as CaCO3)	1.3	-
Free Carbon Dioxide mg/L	<5	-
Boron mg/L	0.1	-
Ammoniacal Nitrogen mg/L	0.07	-
Nitrate-Nitrogen mg/L	0.03	0.02
Langelier's Saturation Index (LSI)	-0.1	-

Analysis comment:

Karen Cooper, NZCS, for ARL



Tests indicated as not accredited are outside the scope of the laboratory's accreditation.

Relevant test methods, and their statistical information, are available upon request. Results apply to the sample(s) as received * Test was subcontracted to an outside facility. Bacteriological test(s) subcontracted to Hills Laboratory (IANZ accredited). ** Calculated from conductivity test result. Metals (total) determined directly by EPA 200.2 digestion and ICP-MS. Unless prior authorisation is given in writing, this document may only be reproduced in full.

To be valid for compliance testing, samples must not be frozen and must arrive at the laboratory at a temperature not higher than 10°C or not higher than the original temperature at point of sampling.

Tests not Accredited

Tests subcontracted

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COMMENTS: Reference - Drinking Water Standards for NZ (2005, Revised 2008). Guidelines for Drinking Water Quality (WHO; 4th Edition (2011))

BACTERIA Total Coliforms - Total Coliforms is a generic term to describe a group of bacteria present all around us, most of which are not dangerous to human health. Total coliforms include bacteria that are found in the soil, in water that has been influenced by surface water, and in human or animal waste. However, these bacteria are not naturally present in groundwater and are an indication of general environmental contamination of the supply. A positive test for coliform bacteria can be a reasonable indication for the presence of other pathogenic bacteria.

Escherichia Coli (*E. coli*) - Unlike other bacteria that comprise the total coliform group of organisms, *E. coli* is generally not found growing and reproducing in the environment. **Consequently, *E. coli* is considered to be a species within the Coliform group that is the best indicator of recent faecal pollution** and the potential for the presence of more dangerous disease causing organisms (or pathogens).

If *E. coli* is present in your water sample, it is strongly advisable that you find an alternative drinking supply until you have eliminated them by treating the water. In the short term, an alternative to treatment is to use of bottled water. Contact a local water reticulation engineer for treatment options.

TOTAL HARDNESS - The most desirable range of total hardness is between 80 and 100 mg/L. Total hardness is a term to describing the accumulation of dissolved calcium and magnesium (largely as carbonates), and other minerals as it "percolates" through the earth. Total hardness less than 80 mg/L may result in corrosive water, while hardness above 100 mg/L may result in the need for more soap during bathing and laundering. Excessive hardness may also lead to scale deposits in pipes, heaters, and boilers. Water softeners will reduce hardness to acceptable levels, but will result in increased sodium concentrations (see Sodium.) Hardness values exceeding 500 mg/L are generally unsuitable for domestic purposes without treatment.

IRON - The recommended limit is 0.3 mg/L. Excessive iron is a nuisance, resulting in the staining (red through brown) of laundry, bathroom fixtures, crockery and clothing. It may also cause undesirable taste in beverages. If left to stand, water from the tap containing high iron levels can result in a red/brown sediment. Reticulated waters with high iron levels can encourage the growth of iron bacteria causing blockages. Iron in drinking water is not a health concern unless at extreme levels. Iron removal units will reduce iron concentrations.

TOTAL ALKALINITY - The acceptable limit is 500 mg/L. Excessive alkalinity may cause stomach upset and encrustation of utensils, pipes, and inside water heaters. High levels can also impart a 'flat' taste to the water and cause "itchy" skin when bathing.

TOTAL DISSOLVED SOLIDS - Levels less than 500 mg/L are considered good. Total dissolved solids indicate the amount of chemical substances dissolved in the water. At increasing levels, palatability decreases. Levels in excess of 1000 mg/L may produce a bad taste.

CHLORIDE - The recommended limit is 250 mg/L. Excessive chlorides give the water a "salty" taste, usually noticeable at about 350 mg/L.

COPPER - Recommended limit is 2 mg/L. Copper usually arises from the corrosive action of water by leaching the copper pipelines. Concentrations above 1 mg/L may cause staining of sanitary ware and laundry. Concentrations above 5 mg/L can impart and colour and bitter taste to the water.

pH - The generally acceptable range for drinking water is between pH 6.5 to 8.5. The pH is the measurement of the water's acidity or alkalinity. Levels below 6.5 may be corrosive, while levels above 8.5 may create scaling problems and impart a bitter taste.

CONDUCTIVITY - Most drinking waters have conductivity measurements below 200 mS/m. The conductivity of water is used to calculate the concentration of dissolved solids.

SODIUM - Over 200 mg/L is considered high and may cause corrosion of the water supply system particularly if the water is warm and alkaline. At this level it may also impart a salty taste. Healthy people drinking water with levels of 200 mg/L or less will cause no harm, however for people on salt-restricted diets or those suffering from hypertension, congestive heart failure or heart disease, the recommended limit is 20 mg/L. Consult your Doctor or use an alternative supply for drinking.

Note: Water softening devices usually increase sodium concentration, while reverse osmosis and distillation units will reduce it.

POTASSIUM - The recommended limit is 20 mg/L. Levels above 100 mg/L may cause a laxative effect, while levels above 340 mg/L may affect taste.

CALCIUM - The recommended limit is 200 mg/L. Excessive calcium may contribute to the formation of kidney or bladder stones. Calcium also contributes to the hardness of water and may cause problems with laundering, washing and bathing. Because calcium is the major contributor to water hardness, consult the comments for Total Hardness.

MAGNESIUM - The recommended limit is 150 mg/L. Magnesium is another element that contributes to the hardness and taste of water. Excessive magnesium may impart a bitter taste, but is normally not a health hazard. Water softeners will reduce the level of both calcium and magnesium in the water.

BICARBONATE - The recommended limit is 1000 mg/L. High levels of bicarbonate can result in a fine white suspension (sodium bicarbonate.) Excessive bicarbonates contribute to the production of scale inside water heaters and hot water jugs.

NITRATE AND NITRITE NITROGEN (NO₃ + NO₂ - N) - The recommended limit is 11.4 mg/L. If these limits are exceeded, excessive fertiliser use, human and/or animal waste contamination should be suspected and an investigation carried out to determine the source. The concentration nitrite and nitrate above the recommended limit (expressed as nitrogen) is potentially dangerous for bottle fed infants because of its ability to cause Methaemoglobinaemia or "Blue Baby Syndrome" in which the blood loses its ability to carry sufficient oxygen. In the event that you have high nitrate/nitrite in your water it is important to find an alternative source for making infant formulas. It is important to note that nitrate and nitrite concentrations cannot be reduced by water softeners or boiling.

LANGELIER'S SATURATION INDEX (LSI) - A measure of waters ability to form or remove a calcium carbonate scale on surfaces. Desired measure is between -0.5 and 0.5. Above 0.5 - scale forming, can cause issues concerning water flow and quality. Below -0.5 Not scale forming. Possible corrosion.