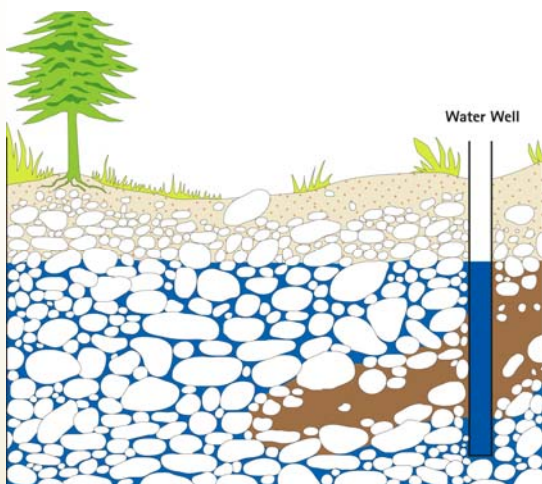


## POTABILITY

### Key points

- Marlborough groundwater is generally of a very high standard.
- Natural and manmade groundwater substances can affect human health and aesthetics.
- The MoH drinking water standards stipulate the maximum values of substances of health significance.
- Marlborough groundwater quality focus areas are:
  - ⇒ Rarangi
  - ⇒ Riverlands
  - ⇒ Wairau Valley
- Proposed subdivisions may be required to take a water sample.



Clean drinking water is seen as a human right in New Zealand, and is something that we usually take for granted.

Most drinking water in the Wairau catchment is sourced from 5-20 metres below ground where the water is found in aquifers. An aquifer is a water bearing layer amongst rock, gravel, sand or clay where the water can be tapped into and abstracted by a well (also referred to as a bore).

Marlborough groundwater is generally a very high quality, and can be used without need for filtration or chemical alteration. However, all groundwater contains substances that can affect human health and aesthetics (i.e. stain whiteware or unacceptable taste/smell). These substances can be either naturally occurring i.e. from weathering of rocks, or manmade from sources such as fertilisers or pesticides.

In some parts of Marlborough, such as rural Renwick, the groundwater can be subject to high levels of nitrates and bacteria as a result of surface water entering the groundwater system.

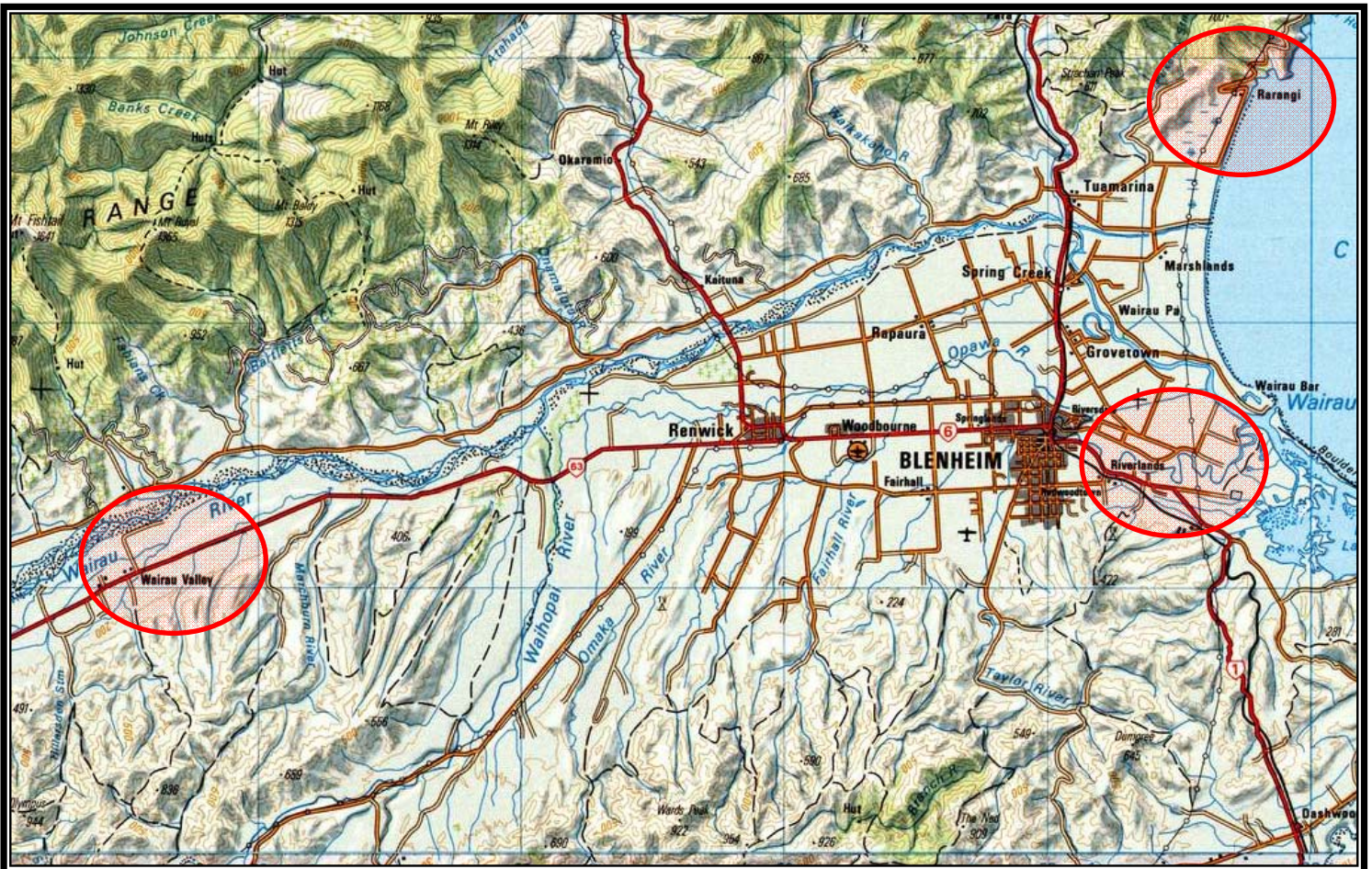
To protect the health of all New Zealanders, the Ministry of Health (MoH) has produced drinking water standards which stipulate the Maximum Acceptable Value (MAV) of substances in groundwater. If water is found to be over these values then the water is likely to cause health or aesthetic problems.

Both naturally occurring and manmade substances have been found in some parts of Marlborough's groundwater which exceed the drinking water standards Maximum Acceptable Value.

## POTABILITY

The Marlborough District Council's groundwater quality focus areas are Rarangi, Riverlands and the Wairau Valley. This is due to higher levels of Arsenic, Manganese, Iron, Chloride, Sodium and Hardness having been found. These are all naturally occurring substances and specific to these areas because of the proximity to the fault line and the lengthy time the water has been in contact with underground rocks.

To ensure water is safe to use or POTABLE in Marlborough, proposed subdivisions may be required to take a water sample from the subdivision's well. If the sample exceeds the drinking water standards MAV then a treatment system or an alternative supply will be required.



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For more information on groundwater quality go to

[www.marlborough.govt.nz](http://www.marlborough.govt.nz)

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# Groundwater Samples to be taken

PARAMETER	TYPE	REASON FOR SAMPLING	SOURCES	MAV / GV
Alkalinity (as HCO <sub>3</sub> )	Major Anion	Indicator of pH buffering capacity, groundwater evolution indicator, geological tracer.	Rock weathering (esp. carbonates), sulphate reduction.	
Ammonia (as NH <sub>4</sub> -N)	Trace	Land use indicator, eutrophication, redox indicator.	Fertiliser, sewage.	
<b>Arsenic DL - &lt;0.001</b>	<b>Trace</b>	<b>Toxicity, redox indicator, contamination indicator.</b>	<b>Schist, hydrothermal fluids, sulphides, timber treatment &amp; pesticide contaminant.</b>	<b>0.01</b>
<b>Boron</b>	<b>Trace</b>	<b>Geological tracer.</b>	<b>Schist, hydrothermal fluids, timber mills, seawater.</b>	<b>1.4</b>
Calcium	Major Cation	Groundwater evolution and salinity indicator, geological tracer.	Rock weathering (esp. carbonates), fertiliser.	100-300
Magnesium	Major Cation	Groundwater evolution and land use indicator, geological tracer.	Rock weathering, fertiliser.	
Chloride	Major Anion	Salinity indicator, behaves conservatively.	Seawater, brines, hydrothermal fluids.	250
Conductivity	Field Measure	Salinity indicator.	Seawater, brines.	
<b>Fluoride</b>	<b>Trace</b>	<b>Toxicity, water source and pH indicator.</b>	<b>Rock weathering, hydrothermal fluids, seawater.</b>	<b>1.5</b>
Iron	Trace	Redox indicator.	Rock weathering.	0.2
Manganese	Trace	Redox indicator, geological tracer.	Rock weathering (esp. carbonates), fertiliser.	0.4
Nitrate (as NO <sub>3</sub> -N)	Trace	Land use and redox indicator, eutrophication.	Fertiliser, sewage & stock effluent.	11.3
pH	Field Measure	Solubility and water source indicator.	Hydrolysis, dissociation, oxidation.	
Potassium	Major	Groundwater evolution and land use indicator, geological	Rock weathering, seawater, brines, hydrothermal fluids, fertil-	
Sodium	Major	Groundwater evolution and salinity indicator, geological	Rock weathering, seawater, brines, hydrothermal fluids, sew-	200
Sulphate	Major Anion	Redox indicator.	Rock weathering (sulphides & hydrates), hydrothermal fluids, seawater, fertiliser.	
Total Hardness	Major Cation	Groundwater evolution and land use indicator, geological tracer.	Rock weathering, fertiliser.	200
<b>E. Coli</b>	<b>Microbe</b>	<b>Bacteria indicator</b>	<b>Sewage &amp; stock effluent.</b>	<b>&lt;1 in</b>

DL = Detection Limit

Parameters with MAV's are in bold text