

## ARSENIC AND TESTING OF WATER SUPPLIES

### FREQUENTLY ASKED QUESTIONS

#### HOW DO I TEST MY WATER FOR ARSENIC?

If your water supply is from a bore and has not been tested recently, we highly recommend getting this done as soon as possible. If there are multiple properties on the same water supply, this can be done collectively for the whole supply. We recommend contacting the supplier of the water to arrange this testing. The laboratory should provide bottles and instructions for the sampling. It is advisable to let the tap run for a few minutes before the sample is collected. As there is a known issue of arsenic in the district you might consider using bottled water until you have tested your water and the results are shown to be below the MAV.

A list of IANZ accredited laboratories that can test your water for arsenic can be found on the Taumata Arowai website at [www.taumataarowai.govt.nz/for-water-suppliers/using-an-accredited-laboratory-to-test-your-drinking-water/](http://www.taumataarowai.govt.nz/for-water-suppliers/using-an-accredited-laboratory-to-test-your-drinking-water/).

Testing costs can vary between providers, but we estimate them to cost approximately \$50 or less.

Note that water samples need to be specifically tested for arsenic, as a standard water quality test may not measure arsenic. It is therefore essential to confirm with the laboratory that the requested testing includes analysis for arsenic.

Once you have obtained these results, please email them to [waterqualityresults@orc.govt.nz](mailto:waterqualityresults@orc.govt.nz). Please use the ORC bore number (yellow tag) when emailing these details through. If you do not have an ORC bore tag, please use the address of the property that has the bore and some details of the bore (if known) like the depth, diameter, and any other construction details like screen placing, borelog, and previous water quality results. This information helps ORC's groundwater scientists understand the groundwater in the area.

#### WHAT IF THE ARSENIC CONCENTRATIONS IN MY BORE EXCEED THE MAXIMUM ACCEPTABLE VALUE?

If your drinking water supply has levels of arsenic above the MAV, you should consider using bottled water. People wanting health advice or who have specific health concerns should call Healthline: freephone 24/7 to speak with a Registered Nurse on 0800 611 116, or talk to their GP.

#### HOW DO I KNOW IF MY WATER SUPPLY IS SAFE?

Clear water does not always mean that water is safe. The only way to know if your groundwater is safe is through regular laboratory testing by an IANZ accredited laboratory.

The Water Services (Drinking Water Standards for New Zealand) Regulations 2022 Maximum Acceptable Value (MAV) for arsenic is 0.01 mg/L (or 0.01 g/m<sup>3</sup>). This level is based on the World Health Organisation (WHO) guideline value and is set at a very conservative level based on a life-time exposure. The calculation used to set the MAV considers the risk of one case of cancer if 100,000 people drink water with arsenic at the level of the MAV for 70 years.

This is a standard method for assessing health risk for carcinogens that the World Health Organisation uses. Please refer to the long-term health effects below for further information.

Boiling water for drinking does not reduce the potential effects of arsenic in water.

### **WHO IS RESPONSIBLE?**

Drinking water suppliers (whether registered or unregistered) have a duty of care to provide safe drinking water to the communities or people who rely on their supplies. There is further information about being a drinking water supplier below.

Owners of private bores used exclusively for their own drinking water supply are responsible for maintaining, monitoring, and treating their own supply. Water should be safe and comply with the Water Services (Drinking Water Standards for New Zealand) Regulations 2022.

ORC tests for arsenic (as well as other contaminants) in groundwater at 55 sites throughout Otago as part of its State of the Environment (SoE) monitoring. ORC has a groundwater monitoring bore in Kingston (near the lake on Cornwall Street) which has detected arsenic at concentrations above the MAV in the past.

Accordingly, due to the wide and patchy distribution of arsenic in Otago groundwater, and on advice from the National Public Health Service and Taumata Arowai, ORC strongly encourages all bore owners to test their water regularly by an IANZ accredited laboratory.

### **HOW CAN ARSENIC AFFECT YOUR HEALTH?**

People can consume small amounts of arsenic every day for a long time without any obvious health effects. However, consuming larger amounts of arsenic may be harmful to health.

- Consuming moderate amounts of arsenic every day for many years may cause long-term health effects.
- Consuming a large amount of arsenic in a short period of time (such as hours or days) can cause arsenic poisoning.

### **WHAT ARE THE LONG-TERM HEALTH EFFECTS OF EXPOSURE TO ARSENIC?**

If people consume moderate amounts of arsenic every day for many years, possible long-term health effects may include:

- Skin changes, such as light and dark spots, and thickened skin on the palms, soles, and trunk of the body.
- Damage to the heart, liver, kidney, nerves, blood, and blood vessels.
- Cancers of the skin, lung, bladder, liver, kidney, and prostate.

These health effects have been seen in people who:

- Have higher than normal levels of arsenic in their drinking water for many years.
- Have taken medicines containing arsenic for a long time.
- Are exposed to arsenic at their workplace for a long time.

Most studies show that long-term effects are mostly found in people who have high levels of arsenic in their drinking water.

Consuming a large amount of arsenic in a short time can result in arsenic poisoning, causing severe health effects or even death. Large amounts of arsenic can irritate the stomach and intestines and may damage the heart, nerves, liver, and blood. Someone with arsenic poisoning may suffer from:

- Stomach pains, nausea (feeling sick), vomiting and diarrhoea (many runny bowel motions/poo).
- Extreme tiredness and bruising.
- Abnormal heartbeat.

- A ‘pins and needles’ feeling in the hands and feet.

It’s important to reiterate the water sample in Kingston was only slightly above the MAV for arsenic in drinking water. We are not aware of any formal reports of anyone in the Kingston area experiencing any such health effects.

#### **HOW DOES ARSENIC ENTER AND LEAVE THE BODY?**

Arsenic commonly enters the body in food and water – most usually in food. It also enters the body when we ingest soil or dust. Arsenic in soil or dust is usually not as well absorbed by the body as arsenic in food or water. This is because arsenic is often held firmly inside the soil particles and is not as easily dissolved in the stomach.

Arsenic can also enter the body if we breathe in fine dust that contains arsenic. Arsenic is not absorbed very well through the skin.

Arsenic does not usually accumulate (build up) in the body. It leaves the body in different ways:

- The arsenic that we ingest but that is not absorbed leaves the body in the faeces (bowel motions/poo).
- Most of the arsenic absorbed by the body is passed out in urine (pee).
- Some of the arsenic is deposited inside the hair and nails and leaves the body as the hair and nails grow.

#### **WHAT ABOUT BATHING, SWIMMING, AND SHOWERING?**

Arsenic does not easily enter the body through the skin. Bathing, swimming, and showering with water that has levels as high as 0.500 mg/L (500 µg/L) is safe if you avoid swallowing the water. Supervise small children when they are bathing and brushing teeth to ensure they do not swallow the water.

#### **WHAT ABOUT WASHING DISHES, UTENSILS, AND FOOD PREPARATION AREAS?**

Only a very small amount of water clings to smooth surfaces, such as dishes. Water with up to 0.500 mg/L (500 µg/L) of arsenic may be safely used to wash and sanitise dishes, tables, and eating utensils.

#### **WHAT ABOUT GENERAL CLEANING AND LAUNDRY?**

Very little water remains on washed surfaces and in laundered fabrics. Water with up to 0.500 mg/L (500 µg/L) of arsenic may be safely used for general cleaning and washing of clothing, bedding, and linens.

#### **IS THERE A MEDICAL TEST TO CHECK FOR ARSENIC?**

There are several medical tests to check if the body is absorbing abnormally high amounts of arsenic. However, testing is not normally required. If you are unwell or concerned about possible symptoms, you should discuss this with your GP. There is no test that can measure chronic arsenic absorption accurately.

#### **WHAT ABOUT A BLOOD TEST?**

Blood testing is not usually recommended or useful as the body removes arsenic from the blood within a few hours.

#### **AM I A DRINKING WATER SUPPLIER?**

Under the Water Services Act 2021 (the WSA), if you own or operate a water supply that provides drinking water to more than one household, then you are considered a drinking water supplier. All drinking water suppliers have a duty of care to provide safe drinking water to the communities or people who rely on their supplies.

If you own a drinking water supply that was operating before 15 November 2021 but was not registered with the Ministry of Health, you have until November 2025 to register with Taumata Arowai. Full compliance with the Act is not required until November 2028.

Examples of supplies that are often 'unregistered' are smaller community water schemes, or supplies serving marae, papakāinga, rural schools or community halls, or multiple dwellings such as farmhouses that share a bore or water source.

In the meantime, you have a duty of care to make sure the water you provide is safe. If you are unsure, consider arranging a water quality test. This will give you information about the quality of your water and you can start to plan what you might need to do to make sure your water continues to be safe.

If your house or dwelling has its own domestic drinking water supply, then the WSA doesn't apply to you. For further information visit: [taumataarowai.govt.nz/amiawatersupplier](https://taumataarowai.govt.nz/amiawatersupplier).