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## Groundwater

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### Summary

- Groundwater is found below the earth's surface and includes water from bores, springs and wells.
  - Groundwater quality varies across Victoria; in some areas, groundwater is not suitable for use.
  - Drinking untreated groundwater can lead to illness, including gastroenteritis.
  - Do not use groundwater for drinking, cooking or personal hygiene (including cleaning teeth and bathing) without understanding and addressing the water-quality risks.
  - If mains water is available, use it instead of groundwater. Mains water is reliable and treated to a level that is safe for human consumption.
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Groundwater is found below the earth's surface and includes water from bores, springs, wells and other sources. There are risks involved in using groundwater.

Groundwater may contain disease-causing microorganisms which can cause illness. Some groundwater supplies in Victoria have been found to contain high levels of chemical contaminants, such as arsenic, which can cause illness in people who drink the water. Groundwater containing high levels of salts such as sulfate and nitrate can also be harmful.

Other dissolved salts can make the water hard, which can result in scale build-up and corrosion in pipes. This can release harmful metals such as lead and copper into the water.

If mains water is available, use it instead of groundwater.

### Using a groundwater supply

If you use groundwater as a water supply, contact your local water agency for information on local groundwater quality and suitability of use.

It is important that you understand:

- the risks of using groundwater
- the quality of your groundwater supply
- what use(s) it is suitable for
- what type of treatment is needed to make groundwater suitable for its intended use – be aware that different treatments are required for different uses. For example, a treatment to remove harmful microorganisms does not remove other types of contaminants that may be present
- what it cannot be used for
- how to maintain and monitor your groundwater supply to be sure that it continues to be safe to use.

Anyone with a private water supply should have a **water supply management plan** to ensure water is suitable for the intended end use and does not pose a human health risk.

Key Victorian water agency websites have information on bore licensing and maintenance, including:

- **[Southern Rural Water](#)**
- **[Goulburn-Murray Water](#)**
- **[Grampians Wimmera Mallee Water](#)**

### Hazards to groundwater quality

Groundwater quality can be influenced by factors such as the time of year, the depth at which the water is stored, the catchment area (the area of land from which the water is collected and channelled into the groundwater)

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storage) and land uses in that area.

Groundwater can be contaminated by a range of sources including:

- sewage
- animal waste
- agriculture (pesticides and fertilisers)
- industrial pollution
- floodwater
- seepage from rubbish tips
- polluted stormwater
- chemical spills
- contaminated surface waters
- high levels of naturally occurring chemicals and radioactive substances.

### Managing health risks from groundwater

Health risks from groundwater depend on the type and concentration of contaminants in the groundwater, and how often, for how long and in what ways people are exposed to the water (for example, drinking, inhalation, or skin contact).

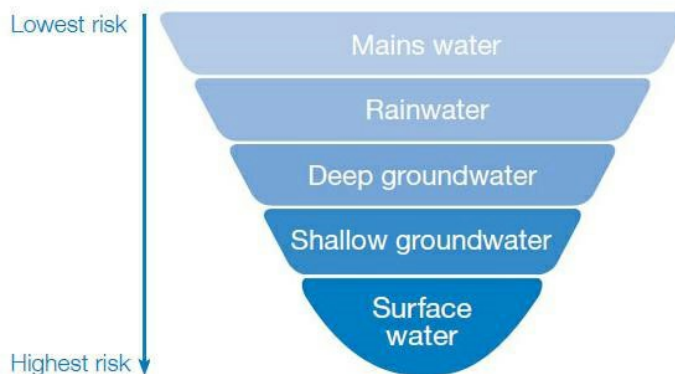
Disease-causing microorganisms found in water supplies can cause diarrhoea, vomiting or other gastrointestinal illness. Some of these microorganisms can also lead to more serious illnesses, even death.

The people most at risk from unsafe water are the elderly, young children, pregnant women and people with weakened immune systems.

To reduce your risk of ill-health from using contaminated groundwater:

- Where a mains water supply is available, always use it for drinking.
- When mains water is not available, choose the next best source of water (see the risk hierarchy below). You may need to treat the alternative water supply to make it safe for drinking.

The risk hierarchy for water sources used in private drinking water supplies



- If you live in an area where contamination is likely (for example areas of previous industrial use), do not use groundwater for domestic purposes such as drinking, brushing teeth, preparing food, bathing, watering fruit and vegetables, or filling spas and swimming pools.
- Avoid using water from shallow bores due to the risk of contamination.
- If you are considering using groundwater to prepare infant formula, talk to your maternal and child health nurse or family doctor first. Nitrates in groundwater can pose a risk to bottle-fed babies.
- If you have a private water supply on your property, make sure you have an up-to-date water supply management plan and regularly assess your water supply for contamination.

## Maintaining bores

If you use bore water, make sure that:

- it is protected from contamination from
- surface run-off
- channel water
- irrigation water
- leakage from sewer pipes or septic tanks
- stormwater and greywater drainage
- shallow underground seepage
- inundation from flooding
- the borehole is properly cased (lined, for example with a PVC pipe)
- the well-head is above ground.

If possible, store drinking water in an above-ground tank rather than an underground tank.

To avoid the risk of cross contamination, make sure any mains drinking water plumbing is separate from all other plumbing or pipe systems, and that all pipe joints are properly sealed.

For information on the licensing, construction and protection of bores and groundwater sources contact the **Department of Environment, Land, Water and Planning**.

### More information on Better Health Channel

#### Water quality in tanks bores and dams

**This page has been produced in consultation with and approved by:**

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