

Using bore water safely

Bore water may be contaminated and unsafe to use. It should never be used for drinking, cooking, watering edible plants or filling up swimming pools unless it has been tested by a specialist laboratory.

What is bore water?

Bore water is groundwater that has been accessed by drilling a bore into underground water storages called aquifers.

An aquifer is formed when water from rain and rivers seeps through layers of soil and rock and fills spaces or fractures within layers of sand and fractured rock.

This stored water moves very slowly through aquifers and can often be accessed by drilling a water bore and pumping to the surface.

Aquifers may contain chemicals and micro-organisms that are potentially harmful. Some of these chemicals are naturally occurring (such as those present in soils and rocks) while others are a result of contamination.

What types of bores are there?

- **Deep Bore** (generally in confined aquifers)

A deep bore is usually overlain by more than 20 metres of soil and clay. This material acts as a filter, preventing microbial contamination.

Deep aquifers may be protected from the surface by impermeable layers of materials such as rock or clay (confined aquifers).

The microbiological quality of water in deep or confined aquifers is generally very good. This water quality will be retained if the bore is properly constructed, protected from entry of surface water and well maintained.

Though its microbiological quality may be good, water in these aquifers can contain high concentrations of naturally occurring hazardous chemicals.

Before using a deep bore, obtain a chemical analysis of the water.

- **Shallow Bore** (unconfined aquifer)

Shallow, unconfined aquifers are not protected by thick layers of soils and clays and are susceptible to both chemical and microbiological contamination.

The use of these aquifers is generally not recommended as a suitable source of drinking water, particularly in urban areas.

Bore water should never be used for drinking, cooking, watering edible plants or filling up swimming pools unless it has been tested by a specialist laboratory.

Specific advice should be sought from SA Health Scientific Services.

Where should a bore be installed?

When deciding on a location, there are a number of factors that can affect water quality including:

- Presence of possible sources of pollution such as proximity to septic tanks
- Previous land uses such as industrial use or waste disposal
- Physical features that could lead to contamination such as installation at the bottom of a gully where surface run-off could submerge it or

Water Quality Fact Sheet

installation in the path of industrial or stormwater drains.

Approval to install a water bore

A permit must be obtained before the construction of a bore because:

- Certain locations may have temporary or permanent restrictions on new bores
- A bore is required to be installed by a licensed water bore driller.
- You can apply for a permit through:
 - the Department of Water, Land and Biodiversity Conservation (DWLBC): (08) 8463-6875
 - talking to a licensed water bore driller.

How can I use bore water?

Depending on quality, the uses for **deep** bore water can include irrigation, livestock watering and clothes washing.

This groundwater may be deemed safe for drinking, cooking, filling swimming pools or watering edible plants such as home grown vegetables only after it has been fully tested by a specialist laboratory.

Particularly in urban settings and where mains water is available, the use of **shallow bore water is not recommended** because of the high likelihood of chemical or microbial contamination.

If you have no choice but to use water from a shallow bore, testing requirements will be more intense than for water from a deep bore.

In general, water quality should be assessed with reference to the *Australian Drinking Water Guidelines* and the *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*.

Responsibility for safety

The land owner is responsible for the safety aspects of bore water.

Testing before using bore water

For information on bore water testing and other bore water related resources go to the SA Health Drought webpage: www.health.sa.gov.au/pehs/topics/drought-package.htm

or contact SA Health Scientific Services (see contact details page 3).

Bore water quality may change over time. Therefore, after the initial analysis the bore water should be checked every 2-3 years and monitored by the owner for any undesirable changes in water quality. Shallow groundwater will need to be tested more frequently.

For commercial water testing laboratories look under 'Analysts' in the Yellow Pages®.

Preventing bore water contamination

- Keep septic tanks well maintained and don't discharge septic waste within 50 metres of the bore
- Avoid chemical spills or excessive use of chemicals such as fertilizers
- Protect the bore from livestock access by erecting fencing to allow at least a 50 metre clear zone around the bore
- Seal the bore to prevent surface water or shallow ground water from contaminating the ground water
- Once the ground water is pumped to the surface, protect the water through properly maintained, enclosed water systems and storage tanks
- Use backflow prevention devices

Avoiding contamination is important because bore water that becomes

Water Quality Fact Sheet

polluted can be difficult and expensive to treat.

Failure to properly maintain and protect bores contravenes the requirements of the Environment Protection (Water Quality) Policy.

Contamination of bore water

It is not always possible to tell if bore water is contaminated. However, changes in appearance or odour can indicate contamination. If this occurs, owners are advised to check the integrity of the bore and to test water quality.

If you suspect your water is contaminated, seek advice from your local council Environmental Health Officer.

Do not use the water until you can be sure that it is safe.

What if the bore is no longer in use?

If a bore is no longer in use, it should be properly decommissioned to prevent ground water contamination and to eliminate any physical hazard:

- Covering the bore with a rock or dirt is not an appropriate option
- For decommissioning a bore, there are minimum requirements that a licensed driller must follow. See 'Minimum construction requirements for water bores in Australia' available through the Queensland Department of Natural Resources, Mines or online: www.nrw.qld.gov.au/water/bores#standards

Further information

- Department of Water, Land and Biodiversity Conservation:(08) 8463-6875
- your local council Environmental Health Officer
- SA Health Drought webpage to access a range of bore water related resources: www.health.sa.gov.au/pehs/topics/drought-package.htm
- Australian Drinking Water Guidelines: www.nhmrc.gov.au/publications/synopses/eh19syn.htm
- Australian and New Zealand Guidelines for Fresh and Marine Water Quality: www.mincos.gov.au/publications/australian_and_new_zealand_guidelines_for_fresh_and_marinewater_quality
- Contact Scientific Services, SA Health (contact details below).

Contact

Scientific Services
Public Health
SA Health

1st floor, Citi Centre Building
11 Hindmarsh Square
Adelaide SA 5000

PO Box 6, Rundle Mall
Adelaide SA 5000

Tel 08 8226 7100
Fax 08 8226 7102
ABN 97 643 356 590

Email: public.health@health.sa.gov.au

Web: www.health.sa.gov.au/pehs/environmental-health-index.htm

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