



Using Bore Water Safely

Environmental Health Guide

Water from private bores can be a valuable resource as it can contribute to your yearly water needs particularly to irrigate garden areas. However, experience has shown that bore water may be contaminated by micro-organisms and chemicals.

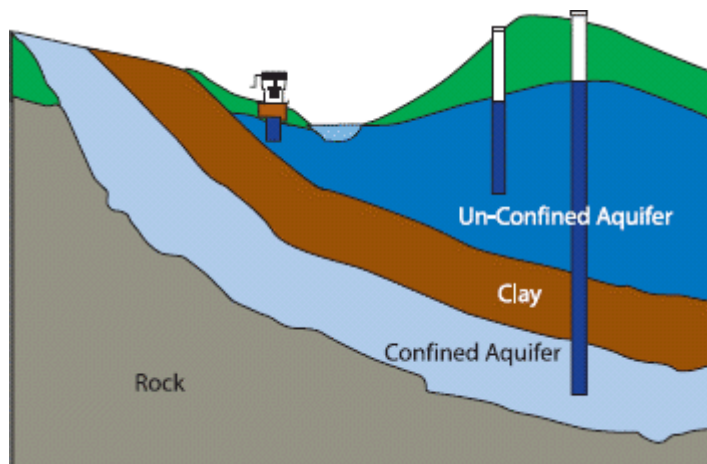
This guide provides information about how to minimise the risk of contamination and disease to you and your family.

Where Does my Bore Water come from?

Water from rain and rivers seeps through layers of rock to underground areas. Water impermeable layers of rock or clay can separate and/or confine underground water bodies at different depths and in different areas. These are called aquifers.

Just like rivers found on the earth's surface, water in aquifers can flow in a particular direction and as it moves through the ground, it can dissolve minerals or chemicals and transport pesticides and micro-organisms.

It is possible for the chemical and microbiological properties of bore water taken from an aquifer at varying depths or from different aquifers at identical depths not to be the same. As the water in an aquifer is constantly moving it is also possible for the chemical and microbiological quality to change over time.



More information about your groundwater may be obtained from the Department of Environment and Conservation.

Is Bore Water Protected from Contamination?

No. Most domestic bores obtain water from shallow unconfined aquifers that are neither located in controlled areas nor protected from surface contamination.

Bores operated by licensed water providers such as the Water Corporation for drinking water are protected from contamination as they are located:

- within aquifers (mostly at depth);
- in areas with restricted development and land usage; and
- are controlled by catchment management plans.

For more information on source protection and catchment management contact the Department of Environment.



How can Bore Water be Contaminated?

Bore water can be naturally contaminated by minerals, chemicals, bacteria and viruses. However, human activity usually has the greatest impact upon shallow ground water quality as a result of:

- Excessive or inappropriate use of fertilizers, animal manures, pesticides and insecticides;
- Poorly maintained septic tanks and other liquid waste disposal systems;
- Leaking fuel and chemical tanks;
- Intensive agriculture, industry or mining;
- Leaching from waste disposal areas; and
- Accidental spills of chemicals.

Are all Bore Water Contaminants a Health Risk?

Some contaminants are simply a nuisance as they cause a stain, smell or discoloration. An example of this can be found in some metropolitan areas where iron oxide leaches out of the soil causing a red brown stain on walls and footpaths.

Other contaminants such as nitrate, arsenic, pesticides and petroleum products are of health concern, particularly if bore water is used for drinking or watering vegetables.

What is the Best Way to use Bore Water?

The safest way to use bore water is to irrigate the garden, flush toilets, wash cars and clothes.

Bore water should never be used for drinking, bathing, filling swimming and paddling pools, food preparation or cooking unless it has been professionally tested and treated.

Can I tell if my Bore Water is Contaminated?

It is not always possible to tell if your bore water is contaminated. However some signs of potential trouble are:

- A low pH (acid water);
- A chemical or petrol smell;
- Soap suds around sprinkler outlets;
- A change in water colour; and
- Dying or wilting plants.

If this occurs contact your local Environmental Health Officer.

Can I Test my Garden Bore Water?

It is possible to do a simple test for pH (acidity) by using either a swimming pool test kit or pH test strips. This will show if the bore water has the ability to dissolve either man made or naturally occurring substance in the soil.

Bore waters with a low pH (acidic) of less than 5 should be professionally tested to ensure that they are safe to use.

Chemical laboratories are listed under Analysts in the Yellow Pages telephone directory.

Do I Need to Treat my Garden Bore Water?

It is not usually necessary to treat your bore water providing it:

- Has a pH greater than 5;
- Is colourless and odourless; and
- Will only be used to water the garden, wash cars and flush toilets.



Can I Connect my Bore Water to a Scheme Drinking Water Supply?

Bore water cannot be connected to the scheme supply unless:

- A back flow prevention device separates the bore water from the scheme drinking water supply;
- Any connection to the scheme supply must be done by a licensed plumber; and
- All work must be done in accordance with Australian Standard AS 3500 Part 1.2 National Plumbing and Drainage.

Do I Need Approval to Install a Bore?

Yes, all bores must be approved by your local government before they can be installed. Contact your local government Environmental Health Officer to find out about construction conditions.

What Should I do if Bore Water is my only Supply of Drinking Water?

Bore water should not be used for drinking unless it has been professionally tested at least once a year for chemical and microbiological contamination by a National Association of Testing Authorities (NATA) registered laboratory.

- Find out about the aquifer that supplies your water, the direction of travel, depth and origin;
- Be aware of activities that occur in the catchment area that supplies the aquifer as these will affect your water quality;
- Keep rubbish, pesticides, fertilizers, animal and compost away from the bore head;
- Use only pipes and materials that are either food grade or Australian Standard AS 4020 'Testing of products for use in contact with drinking water', approved; and
- Use a professionally designed and installed water treatment system that is appropriate to the water quality of the bore water.

Bores intended to provide drinking water must be located at least 30 metres away from any effluent disposal system or probable source of pollution.

Suppliers of water treatment systems may be found under "Water Treatment and Equipment" in the Yellow Pages telephone directory.

Summary

- Get Local Government approval to install a bore;
- Site bores away from any obvious potential sources of contamination such as septic tanks and fuel tanks;
- Keep rubbish, pesticides, fertilizers, animals and compost away from the bore head;
- Remove and dispose of waste materials at approved facilities;
- Apply garden fertilizers and agricultural chemicals sparingly, following label instructions;
- Clean up any chemical spills immediately;
- Lock access to bore covers or sheds;
- Maintain bore equipment;
- Use a back flow prevention device to separate scheme drinking water from bore water; and
- If bore water is intended for human consumption use only AS4020 'Testing of products for use in contact with drinking water', approved materials and test it each year.



Further Information:

For further information contact:

Department of Environment and Conservation

or

Local Government Environmental Health Officer

or

Water Quality Branch
Environmental Health Directorate
Department of Health
PO Box 8172
PERTH BUSINESS CENTRE WA 6849

Telephone: (08) 9388 4999
Facsimile: (08) 9388 4955
<http://www.health.wa.gov.au/envirohealth/home/>

Produced by Environmental Health Directorate
© Department of Health, Western Australia 2007