BORES USED RESPONSIBLY ARE GOOD FOR THE ENVIRONMENT

- Bores reduce the demand on scheme water and therefore reduce the need to invest in developing water supply schemes.
- Bores produce untreated water for garden irrigation, instead of using high quality scheme water.
- Bores use excess groundwater in urbanised areas, where clearing of vegetation and the introduction of hard surfaces (houses, roads etc) generally cause a rise in the local water table. In this way bores can actually limit environmental damage brought about by a high water table due to urbanisation.

Most importantly, if you use bore water for your garden, make sure you use it responsibly and conserve water.

waterwise western australia

This pamphlet has been produced with the assistance of the Department of Environmental Protection and the Health Department

USING OUR GROUNDWATER WISELY

WHERE TO FIND OUT MORE

If you wish to find out more about the groundwater resources of Perth and their wise use and management, contact the Water and Rivers Commission on (08) 9278 0300.

The Commission can also provide advice on water quality issues, and on the location of some possible sources of groundwater contamination in the Perth metropolitan area. This information can be obtained by telephoning (08) 9278 0462.

The Environmental Health Service of the Health Department can give advice on the possible health effects of groundwater contamination. They can be contacted on (08) 9388 4999.

If groundwater contamination is detected in garden bores, the issue should be referred to the Pollution Prevention Division of the Department of Environmental Protection on (08) 9222 7000.

Commercial systems to treat groundwater are listed in the Yellow Pages under "Water Treatment and Equipment". Chemical analytical laboratories are listed under "Analysts".

WATER AND RIVERS COMMISSION
Level 2, Hyatt Centre
3 Plain Street East Perth WA 6004
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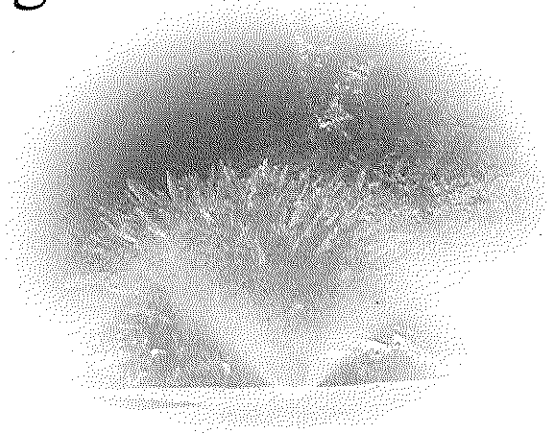
Groundwater contamination in garden bores



WATER ADVICE NO.4

1997

INFORMATION FOR PERTH GARDENERS

WATER AND RIVERS COMMISSION

How does groundwater become contaminated?

Groundwater becomes contaminated when pollutants or microorganisms filter through the soil to the water table as a result of human activities at the land surface.

The most severe contamination often results from localised leaks or spills of chemicals, especially where the water table is shallow, or where chemicals are flushed into soakwells or into unlined pits used for disposing of excess water. Localised sources such as these are known as **point sources** of groundwater contamination.

When chemicals leached from a point source reach the water table, an area of contaminated groundwater is formed which becomes elongated in the direction of groundwater flow. These so called **groundwater contamination plumes** may be less than 50 metres wide, but may extend several hundred metres downstream of a contamination source.

Groundwater may also be contaminated from the widespread application of chemicals at the land surface. This **diffuse** contamination is usually less severe than that derived from point sources, but may degrade the quality of groundwater over a large area. The widespread use of fertilisers on gardens is a common form of diffuse contamination in the Perth metropolitan area.

How do I know if my bore is contaminated?

Groundwater contamination occurs in some Perth suburbs, but is generally of no concern provided that water from household bores is only used for watering gardens, and is **not used for drinking**.

More severe groundwater contamination can often be detected by a change in the colour or smell of pumped water, or by the impact that water is having on plants in gardens. Although these contamination problems are uncommon, they can make groundwater unsuitable for garden watering, and in rare cases could have an adverse impact on the health of people who come into contact with contaminated groundwater.

Groundwater contamination is most likely to be detected in bores near commercial or industrial areas.

If water pumped from your bore has the following features, you should seek advice to determine whether your bore is suitable for garden watering.

Groundwater contamination indicators

You should seek advice if you notice any of the following features. They *may* indicate water in your bore is contaminated.

- Water pumped from your bore has a strong chemical or petrol smell.
- The sudden appearance of a strong rotten egg smell in a bore which has previously been odourless. *(NOTE: Groundwater in the Perth metropolitan area commonly has a "rotten egg" smell which is due to natural processes. The sudden appearance of a smell may be due to contamination).*
- Water pumped from your bore forms "soap suds" around sprinkler outlets.
- Water pumped from your bore has changed colour over a period of a few weeks to a few months.
- Plants rapidly die or wilt when watered with groundwater, with plant deaths only occurring within the range of sprinklers.

Seeking advice

If you suspect that water pumped from your bore is contaminated, you should contact the Water and Rivers Commission for advice, or phone one of the chemical laboratories listed under Analysts in the yellow pages of the telephone book, and arrange for the bore to be sampled. There are many chemicals that can contaminate groundwater, so it is important that you indicate the nature of the problem, and outline whether there are any possible sources of contamination near your property.

The Water and Rivers Commission has published information on several sites that are potential sources of groundwater contamination in the Perth metropolitan area, and can provide advice on the chemicals you should be looking for in groundwater near these sites.

Testing will say whether levels of certain chemicals in water from your bore exceed Australian drinking water guidelines. Levels that exceed drinking water guidelines should be referred to the Department of Environmental Protection or the Water and Rivers Commission. Advice on the possible health effects of contamination can be obtained from the Health Department.

Natural chemicals in groundwater

The following chemicals occur naturally in some parts of Perth, but generally do not affect the usefulness of groundwater for garden watering. There are commercial systems which can treat these problems.

- *Organic matter* leached from soils commonly gives tea coloured water which may stain fences or walls.
- *Dissolved iron* makes water from bores turn brown on exposure to air and can cause staining on fences and walls.
- *Hydrogen sulphide* is often associated with dissolved iron. It is a dissolved gas that gives groundwater a "rotten egg" smell.