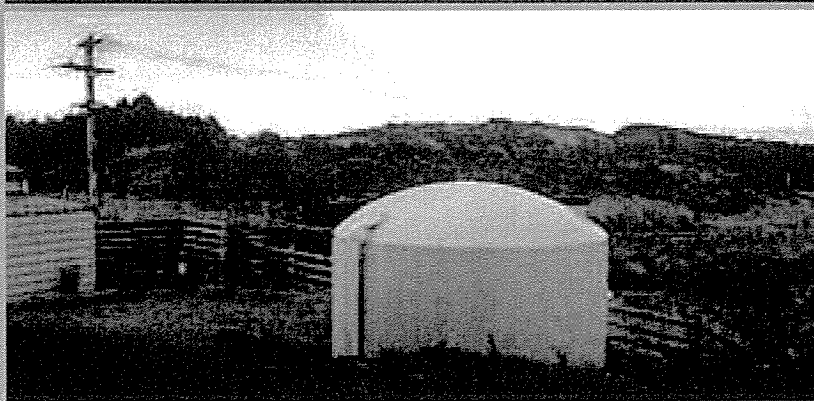


Water Collection Tanks

and safe
household
water



Safe drinking-water is vital for good health. If your water comes from a water collection tank, it is up to you to keep your water safe and reduce the risk of water-borne illness from contaminated tank water.

Water used for drinking, teeth cleaning, hand washing, bathing, showering, food preparation and cooking needs to be free from harmful germs and chemicals.

SAFE DRINKING-WATER

Safe drinking-water is vital for the good health of you and your family, as well as for friends and visitors who visit your home.

If your water comes from a mains supply, your water safety is monitored by your local authority. If your water comes from a water collection tank, it is up to you to keep your water safe.

WATER COLLECTION TANKS

Tank water may be collected from:

- **rain off the roof**
- **natural water**, for example, from streams or lakes
- **a bore** (a deep hole in the ground)
- **a spring**.

Water supplies from all these sources can very easily become unsafe. For example:

- **roof water** may be corrosive or may become contaminated from ash, dust, agricultural spraying or bird or possum droppings
- **river or stream water and shallow bore water and springs** may contain harmful germs or chemicals or be discoloured and unpleasant to taste
- **bore water** can contain harmful chemicals and can be hard and corrosive.

If you are unsure about the quality of your water, have it tested in a recognised laboratory. (See the box on the back panel for details.)

WATER CONTAMINATION

Water contamination can cause illness (diarrhoea and vomiting), which can be particularly dangerous for infants, very old people or people with damaged immune systems.

Contamination of a tank water supply may be caused by:

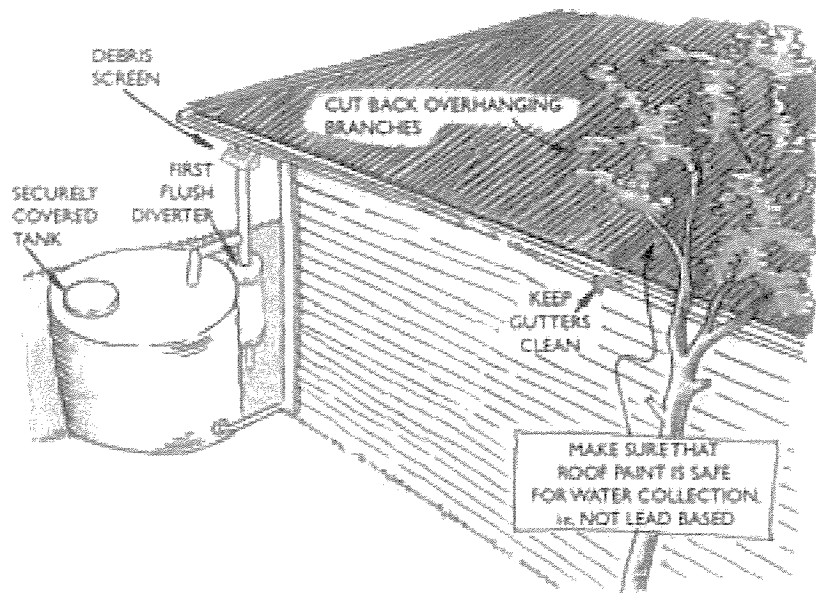
- animal or bird faeces entering at the source of the supply. These can carry harmful germs such as *Cryptosporidium*, *Giardia*, *Campylobacter*, *Salmonella*, *E. coli* 0157 and viruses. All these germs can cause serious illness
- bird, possum or other animal droppings on the roof or dead animals and insects in the gutters or the tank itself
- leaves, soil, and other debris entering the tank
- lead flashing on the roof causing high lead levels in the collected water
- volcanic and wood ash, agrichemical spraydrift, and chemical residues from road vehicle emissions
- cracks or holes in partially-buried tanks.

WAYS TO IMPROVE THE QUALITY OF ROOF-COLLECTED RAINWATER

Install the entire system correctly

- Ensure the roof surface is suitable for collecting quality rainwater.
- Use safe roof paint:
 - check old paint for lead through your public health unit
 - choose paint that the manufacturer advises is safe for roof water.
- Use plastic pipes and gutters approved for rainwater collection.
- Install a gutter mesh to prevent leaves and debris from blocking gutters.
- Include a fine mesh (for example, debris screen) and a first flush diverter (a device that reduces contamination of the tank water by diverting the first flush of contaminated water when it rains).
- Install the inlet pipe to the tank so that the roof water enters near the bottom of the tank through a “U” bend in the pipe. This will avoid disturbing sediment in the bottom of the tank.
- Fit a floating outlet pipe; this is a flexible outlet hose attached below a float (so that it is always just below the surface of the water in the tank) to extract tank water from near the top of the tank.
- Attach insect-proof screens at the ends of tank overflow outlets to keep mosquitoes and pests out and ensure that the tank is vented properly so the water can breathe and to reduce pressure build-up in the tank.
- Operate two tanks in series. This provides higher quality water than that from one larger tank.

Cover the tank to prevent animals, birds and other matter from entering.



Roof areas should be kept clear of overhanging vegetation to prevent leaves and debris falling on to the catchment. Overhanging branches also give rodents, cats and possums access to the roof and allow birds to roost above it.

WARNING! Exercise extreme care when cleaning roofs and gutters. Ensure that the ladder is secure and away from power lines and that there is another person present.

If there is evidence of heavy faecal contamination on your roof:

- disconnect the pipes that feed water to the tank
- dislodge and remove the bird or animal droppings from the roof. Use a chlorine solution (half a teaspoon of plain household bleach added to 10 litres of water) to scrub and flush away the faecal material
- use sufficient water to flush away the remaining material
- reconnect the pipes that feed water to the tank.

If your gutters need cleaning:

- disconnect the pipes that feed water to the tank
- remove any debris that has collected in the gutters
- use clean water to flush the gutters of all dirt, animal droppings and paint flakes
- reconnect the pipes that feed water to the tank.

Tanks should be inspected annually and cleaned if necessary, but tank cleaning should ideally be carried out by tank-cleaning contractors.

WARNING! *Should you need to enter the tank to clean it, ensure the tank has adequate ventilation and there is another person present.*

- Cleaning should generally be limited to removing accumulated sediments, leaf litter, or other objects such as insects and animals that may have gained access to the tank.
- Sediments may be removed by installing a tank vacuum system that automatically siphons off the sediment from the bottom of the tank whenever the tank water overflows.
- Siphoning of sediments can also be done by using an inverted funnel in the end of a hose and moving it carefully across the bottom of the tank.
- A swimming pool vacuum cleaner can also be used for siphoning sediments.
- Further details on tank cleaning and disinfection can be found in the **Household Water Supplies** booklet (see box on the back panel).

OTHER WAYS TO KEEP HOUSEHOLD WATER SAFE

Water pipes

Water that is untreated or from mixed sources is often corrosive, so plastic pipes should be used to carry cold water. If you are installing a new system, see **Household Water Supplies** for details.

A water filter or point-of-use device

A water filter helps prevent contamination of your household water. It can be used to treat all household water and placed where all water entering the house passes through it, or it can be used for just one tap. It should be placed where you can get at it for inspection and cleaning.

Some water filters may:

- remove tastes and smells
- filter out harmful bugs
- remove chemicals.

Note: most filters will only do one or two of these. It is important to get the appropriate filter for your needs. Buy from reputable suppliers and ask them what the device will not do, as well as what it can do.

Disinfect unsafe water

If you are unsure about the quality and safety of your drinking-water supply, you can disinfect the supply by:

- using an approved filter or purifier
- boiling the water for one minute; boiling is the simplest and the most effective method that will reliably kill *Cryptosporidium* parasites and other germs. It is OK to use jugs with an automatic cut-off switch as long as they are full. On no account should the switch be held down to increase boiling time
- adding chlorine; half a teaspoon of plain household bleach added to 10 litres of water kills most germs, but some parasites will be resistant to chlorine disinfection. It is important to check the bottle to ensure it contains no added perfumes, colourants, or detergents (surfactants).

A backflow prevention device

A backflow prevention device stops contaminated water from flowing back into the home supply. It is needed on:

- home-made toilet flush cisterns
- animal dosing, washing and watering systems
- connections for hoses used in mixing sprays or for washing down animal or bird droppings.

A registered water carrier

If you need to fill your tanks from an external source, such as in times of low rainfall, use a registered water carrier. To find registered water carriers in your region, see the **Register of Water Carriers for New Zealand** (available at <http://www.health.govt.nz/our-work/environmental-health/drinking-water/drinking-water-legislation>) or check with your local public health unit. Ask the carrier for a delivery docket that includes information about the source of the water and any instructions for use, such as whether it needs boiling.

For more information on water safety and tank installation, read **Household Water Supplies** (Code HE4602), available from your local public health unit or your local authority (council).

If you are concerned about the quality of your water supply, contact a Health Protection Officer at your local public health unit or an Environmental Health Officer at your local council for advice. They can also advise you about the location of water-testing laboratories in your area and assist you with the interpretation of laboratory results.

New Zealand Government

This resource is available from www.health.govt.nz or the Authorised Provider at your local DHB.

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