

Water collection tanks and safe household water



Safe drinking water is vital for the good health of you and your family and the people who visit your home. Water used for drinking, teeth cleaning, hand washing, bathing, showering, food preparation, and cooking needs to be free from harmful germs and chemicals. 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. If your water comes from a mains supply, your water safety is monitored by your local authority.

Water collection tanks

Tank water may be collected from:

- **Rain off the roof.**
- **Natural water** (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 with ash, dust, agricultural spray, bird or possum droppings.
- Water from rivers, streams, shallow bore and spring may contain harmful germs, chemicals or be discoloured and unpleasant to taste.
- Bore water can contain harmful chemicals and may be hard or corrosive.

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

Water contamination

Water contamination can cause serious illness (for example, diarrhoea and vomiting), which can be particularly dangerous for infants, the elderly, and people with compromised immune systems.

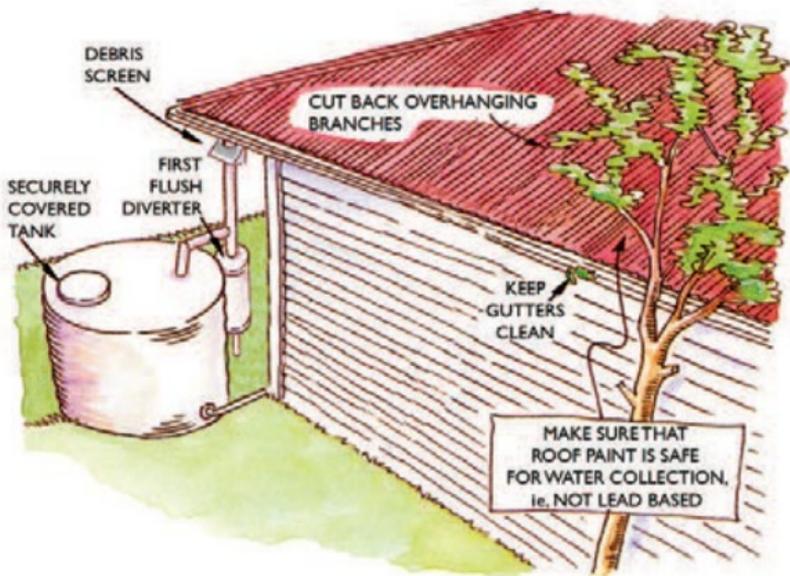
Contamination of a tank water supply can be caused by:

- Viruses and germs (such as *Cryptosporidium*, *Giardia*, *Campylobacter*, *Salmonella*, *E. Coli 0157*) from animal or bird faeces entering the source of the supply.
- Bird or animal droppings on the roof, dead animals or insects in the gutters or in the tank itself.
- Leaves, soil, or other debris entering the tank.
- Lead flashing on the roof causing high lead levels in the collected water.
- Volcanic and wood ash, agricultural spray drift, 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 local public health unit
 - choose paint that the manufacturer advises is suitable 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 (such as a 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 to extract water from near the top of the tank. This is a flexible outlet hose that is attached below a float and it is always just below the surface of the water in the tank.

- Attach insect-proof screens at the ends of the tank overflow outlets to keep mosquitoes and pests out. Ensure that the tank is vented properly to reduce pressure build-up, allowing the water to breathe.
- Operate two tanks in series. This provides higher quality water than water that is stored in just one large 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 other debris from falling onto the catchment. Overhanging branches also give rodents, cats, and possums access to the roof and allow birds to roost above it.

WARNING: Take care when cleaning roofs and gutters. Ensure that the ladder is secure and away from power lines and make sure another person is present while you are cleaning.

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

- Disconnect the pipes that feed water to the tank.
- Clean the droppings from the roof by adding half a teaspoon of plain, unperfumed household bleach to 10 litres of water and use this to scrub and flush away the faecal material (do not use scented or coloured brands of bleach).
- Use sufficient quantities of clean 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 have collected in the gutters.
- Use clean water to flush the gutters of all dirt, animal droppings, or paint flakes.
- Reconnect the pipes to the tank.

Tank cleaning

Tanks should be inspected annually and cleaned if necessary. Ideally tank cleaning should be carried out by tank cleaning contractors.

WARNING: If you enter the tank to clean it, ensure there is adequate ventilation and another person present.

- Cleaning should generally be limited to removing accumulated sediment, leaf litter, or other objects such as insects and animals that may have gained access to the tank.
- Sediment may be removed by:
 - installing a tank vacuum system that automatically siphons off sediment from the bottom of the tank whenever the tank water overflows
 - putting an inverted funnel on the end of a hose and moving it carefully across the bottom of the tank
 - using a swimming pool vacuum cleaner.

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

A water filter or point-of-use device

Water filters help remove impurities from your household water. To treat all household water, place the filter at the point where the water enters your house. To treat some of the water, put the filter on the appropriate tap. Always install filters in places where it can be easily inspected and cleaned.

Water filters may remove:

- tastes and smells
- harmful bugs
- chemicals.

Note: Most filters will only remove one or two types of impurities therefore, it is important that you choose the right type of filter for your needs. Buy from reputable suppliers and always ask the supplier what the device can and can't do before buying.

Disinfect unsafe water

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

- Using an approved filter or purifier.
- Boiling the water for one minute. Boiling is the simplest and most effective method to reliably kill *Cryptosporidium* parasites and other germs. It is ok to use jugs with an automatic cut-off switch, as long as the jug is full. Never hold down the switch to increase the boiling time. The jug should be allowed to turn off automatically.
- Adding half a teaspoon of plain, unperfumed household bleach to 10 litres of water. This will kill most germs (but note that some parasites are resistant to chlorine). Bleach used to disinfect water should not contain perfume, colour, or detergents (surfactants), so always check the label before using.

A backflow prevention device

Backflow prevention devices stop contaminated water from flowing back into the household water supply. Devices are required on:

- Home-made toilet flush systems.
- Animal dosing, washing, and watering systems.
- Connections for hoses that are used for mixing sprays, or for washing down animal or bird droppings.

A registered water carrier

If you need to fill your water tanks from an external source, such as in times of low rainfall, use a registered water carrier. To find a registered water carrier in your area, see the **Register of Water Carriers for New Zealand** on the Ministry of Health website or check with your local District Health Board 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*. This is available online at: <https://www.healthed.govt.nz/resource/household-water-supplies>

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

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

Revised June 2018. 11/2018. Code **HE10148**

