TAUMATA AROWAI

Drinking Water Safety Planning Guidance

For **Small** Supplies (supplying 26 – 100 people)

Covers:

- Networked supplies
- Self-supplied buildings

Te Whakatauākī a Taumata Arowai

Ko te wai ahau
Ko ahau te wai
He whakaaturanga tātou nō te wai
Ko te ora te wai ko te ora o te tangata
He taonga te wai me tiaki
Ko wai tātou
Ko wai tātou

I am water, water is me
We are reflections of our water
The health of water is the health of the people
Water is a treasure that must be protected
We are water
Water is us

Contents

Introduction

Kia ora and welcome!

All New Zealanders should have access to safe, reliable drinking water. To help ensure this vision is achieved, owners of drinking water supplies must have a proper appreciation of drinking water-related risks and options to manage, control or eliminate them. This is the essence of drinking water safety planning.

This guidance is aimed at helping owners of supplies with populations of **26 - 100 people**.

It is not for public water suppliers like Councils whose core business is to supply water.

When is a Drinking Water Safety Plan required?

A Drinking Water Safety Plan (DWSP) must be developed for **each separate water supply that you operate** that supplies drinking water to people.

What is Te Mana o te Wai and why does it matter?

Te Mana o te Wai refers to the wellbeing of water and the role all New Zealanders have in maintaining the abundance, safety, and care of the water. This is important to all of us because healthy water is essential to any thriving community.

Te Mana o te Wai guides us to practice good stewardship and consider other users, including those in the future, and the needs of our ecosystems as we manage access, storage, and use of our water supplies.

Owners of drinking water supplies must give effect to Te Mana o te Wai to the extent that it relates to their legal duties, including in their DWSP preparation. Taumata Arowai understands that some drinking water suppliers will be unfamiliar with applying Te Mana o te Wai to the management of their supplies. The most important thing to demonstrate in this section of a drinking water safety plan is that you have begun considering what Te Mana o te Wai means to you and that you're committed to enhancing your understanding and application of the concept over time.

Taumata Arowai has developed some guidance on Te Mana o te Wai here. Other helpful resources include the Kāhui Wai Māori report to the Hon Minister David Parker, available here, and the Ministry for the Environment's Youtube video 'Te Mana o te Wai: Introduction and overview', which is available here.

Your legal obligations

There are a range of duties under the Water Services Act 2021 (the Act) that owners of drinking water supplies must comply with. We recommend you visit the Taumata Arowai website for further guidance.

In this context, drinking water supply owners must develop and implement a DWSP for each water supply to comply with s30 and s31 of the Act. You must also comply with s43 in relation to your source water.

The template combines the requirements of s31 and s43.

Please note: Taumata Arowai will not sign off your DWSP but may review it to check it complies with the requirements of the Act..

Your Drinking Water Safety Plan is a living document

The DWSP is a living document that you should refresh from time to time to remain accurate and current.

Your DWSP should reflect:

- The type of water supply system you manage, especially the water source and its end users
- What could go wrong with the water supply system and how you would manage or eliminate these issues, including how you plan to respond to emergencies
- How you monitor the drinking water supply
- Updates as incidents or changes happen, including how you will let people know the plan and any updates to the situation.

Before you start

Instructions

1. Ensure you have a copy of the appropriate sections of the Drinking Water Quality Assurance Rules (Rules) on hand so you can cross-check where necessary. It is important to know what Rules apply to your supply, and how compliance with the Rules must be demonstrated.
2. Consider who else knows the supply and may help with this planning.
3. Answer the questions in the template using the guidance in this handbook.
4. Refer to the information contained in the Appendices if needed. Key terms are explained in **Appendix 1**.
5. Sign-off the DWSP to confirm that the water supply details included in the plan are correct and commit to undertaking any identified improvements to the supply. The biggest risks should be addressed first.
6. Provide a copy of your DWSP to Taumata Arowai (see details on page 9).
7. Keep your DWSP in a central place that is easily accessible to you (and any others involved in managing the drinking water supply).

Start completing your plan

The Title Page

Fill in basic details of your water supply on the title page:

- **Name of owner:** the organisation or name(s) of individual(s) who has/have responsibility for the water supply
- **Name of operator**: if different from the owner
- **Supply name:** brief description of the water supply e.g., Cooper's Farm Otago, Medium High School, Small Town, Hapori Kāinga
- **Supply location:** please be precise in your description. GPS coordinates are useful
- **Unique supply identifier:** advised when you first registered the water supply
- **Emergency contact name:** who water supply users or Taumata Arowai should contact if an issue is identified with the water supply
- **Emergency mobile phone number**
- **Population:** state the number of people served by the water supply. If the number of users is variable, state the likely minimum and maximum number of users
- **Drinking Water Quality Assurance Rules:** identify which of the Drinking Water Quality Assurance Rules categories apply to the supply

Question 1: How are you giving effect to Te Mana o te Wai?

As a drinking water supplier, you can embed Te Mana o te Wai by giving priority to the health and wellbeing of water, the wider environment and the community in the development of your water safety plans and source water risk management plans, and in policies, processes and procedures. Actions or activities that support Te Mana o te Wai will be different in different places. You need to think about what is appropriate for your supply in your region.

Taumata Arowai has developed some guidance on te Mana o te Wai here. Other helpful resources include the Kāhui Wai Māori report to the Hon Minister David Parker, available here, and the Ministry for the Environment's Youtube video 'Te Mana o te Wai: Introduction and overview', which is available here.

Question 2: What makes up your drinking water supply?

Your water supply is more than the pipe into a house, your water supply includes everything from the abstraction of the water at its source all the way to the point of supply to a consumer. That means it can include bore heads or river intakes, reservoirs or tanks, treatment equipment, as well as pipes and pumps.

Please identify the components of your water supply by source, treatment, distribution, and population serviced.

Question 3: What does your supply look like?

Provide an accurate flow diagram of your drinking water supply, showing its components and sequence of how water moves or is transported through them.

The drinking water supply system is defined as everything from the point of abstraction from which the water is sourced to the point of supply to its consumers.

An example flow diagram is provided in **Appendix 2**[1]. Use this flow diagram to help you draw a simple picture of your own supply either in the template, or separately.

Please take a photo of your supply diagram (if necessary). If you prefer you can draw the diagram by hand and photograph this.

Your DWSP and photographs can be either uploaded via Hinekōrako on the Taumata Arowai website, emailed or posted. Contact details are at the end of this document and the template.

[1] Please note: this diagram is an **example only** and is not representative of an actual supply.

Question 4: What can go wrong?

Most of the time, your drinking water supply will provide clean and ample drinking water. But sometimes the water supply will be compromised, and people can get sick from unsafe water. Sometimes there may not be enough water available (e.g. during a drought). The best way to make sure there is less chance of people becoming sick is to consider what can go wrong and adopt practices that will prevent it going wrong or manage the impact if it does.

What are the risks to your water supply and how will you control them?

Refer to the Guidance on Drinking Water Safety Planning for more information about the risks to source water, including rainwater.

Other guidance prepared by the Ministry of Health is available on the Taumata Arowai website and can assist you.

We have identified some of the most common hazards for you, there are many others. Refer to Appendix 3.

Step 1

Identify those things or events (potential hazards) that may contaminate or affect the safety or sufficiency of your drinking water, including the quality of the source water, pipes breaking, power cuts, extreme weather events or a treatment process failing. Even if these events have not been recorded as causing issues in the past, it is important to identify them as a possibility here.

Some of the major contamination events that have caused illness (and sometimes death) were from events that had not been recorded as happening before. Some are events that may have occurred in the past, and some occur regularly (e.g. a drought can occur during summer most years). Illness is often assumed to be food-related when it may in fact have been caused by drinking water.

Step 2

Assess the hazards according to their likelihood of affecting the quality or quantity of your water supply. Note the risks associated with each hazard that may cause illness or even death from these events.

Step 3

Consider whether you have ways to eliminate the risk, or reduce the risk from each hazard. These management measures are called controls. Examples of controls include fencing to keep livestock away, regular inspection and maintenance, and water treatment.

Refer to **Appendices 4 – 11** for further information on types of control.

How will you know your controls are working?

Describe how you know a control is working. This may be by inspecting visually, monitoring the operation of the treatment process, or taking samples of the drinking water regularly to test the quality. The Drinking Water Quality Assurance Rules sets minimum monitoring requirements for a supply of this size.

As a minimum, you must sample your water supply at least every **three** months.

All water samples analysed for *E. coli* and total coliforms must be analysed by a laboratory accredited by International Accreditation New Zealand (IANZ) for those tests and must be collected according to the requirements provided by the laboratory.

Can you improve your drinking water supply? What is your timeframe for those improvements?

Think about what you can do to improve the drinking water system or your management of the system to further protect from the risks you have identified, including anything you might need to do to comply with the Drinking Water Quality Assurance Rules.

Start with documenting any shortcomings and then identify improvements that could be made. For example, if you do not have a regular inspection of the equipment, an improvement may be starting a regular check of the equipment.

Prioritise your improvements and give them a time frame you will be able to achieve.

▲ **Question 5:** How will you respond when an incident occurs?

What would be an urgent problem for your water system?

How have you planned for factors which could impact on your supply and require an immediate response? These may include:

- Power cuts/loss of electricity supply
- Damage to or problems with your supply
- Inability of you or a back-up person to address any problems
- Extreme weather event or natural disaster
- Monitoring or sampling indicates that drinking water may be unsafe e.g., *E. coli* detected
- Rāhui following a serious event.

How will you respond to an incident?

Drinking water suppliers **must** act immediately to ensure that public health is protected if their drinking water does not comply with the Drinking Water Standards, is likely to be unsafe, or when they become aware that a notifiable risk or hazard exists.

You should consider:

- What will you do if water is unsafe or unavailable?
- Do you have a suitable alternative source or supply on standby?
- How will you advise affected consumers if there is an issue?
- Is there someone you can ask for help e.g., another local supplier?

Please note: you **must notify your consumers** if your tested samples exceed the relevant Maximum Acceptable Value (MAV) as defined in the Drinking Water Standards. You should also be aware of the other notification requirements in the Water Services Act 2021.

Notifying Taumata Arowai:

- If there is an imminent risk of serious illness or death arising from your drinking water supply, or you need to discuss an urgent matter, contact Taumata Arowai by calling **04 889 8350**. This number is available 24 hours a day, 7 days a week.
- Once you have a user account in Hinekōrako – the self-service portal for drinking water suppliers - you can use the notification function in Hinekōrako.
- The Act requires that you notify Taumata Arowai under certain circumstances, most commonly:
  - where any sample exceeds the relevant MAV
  - if the supply of water is interrupted for more than 8 hours.
- You should also investigate the cause and implement measures to ensure that the problem does not recur. These changes should be captured in an update of your DWSP, to ensure it remains current.

Question 6: When will you review your plan?

This plan should be reviewed annually at least or sooner if any changes or incidents lead to a review of your plan. Triggering events may include:

- Changes in governance, key personnel, processes or equipment
- Changes to the source
- An incident or event

If the owner of a drinking water supply replaces or makes a material change to a drinking water safety plan they must lodge a copy of the amended or replacement plan with Taumata Arowai via the Hinekōrako portal as soon as is reasonably practicable.

Next steps

Please return your completed DWSP to Taumata Arowai, by either:

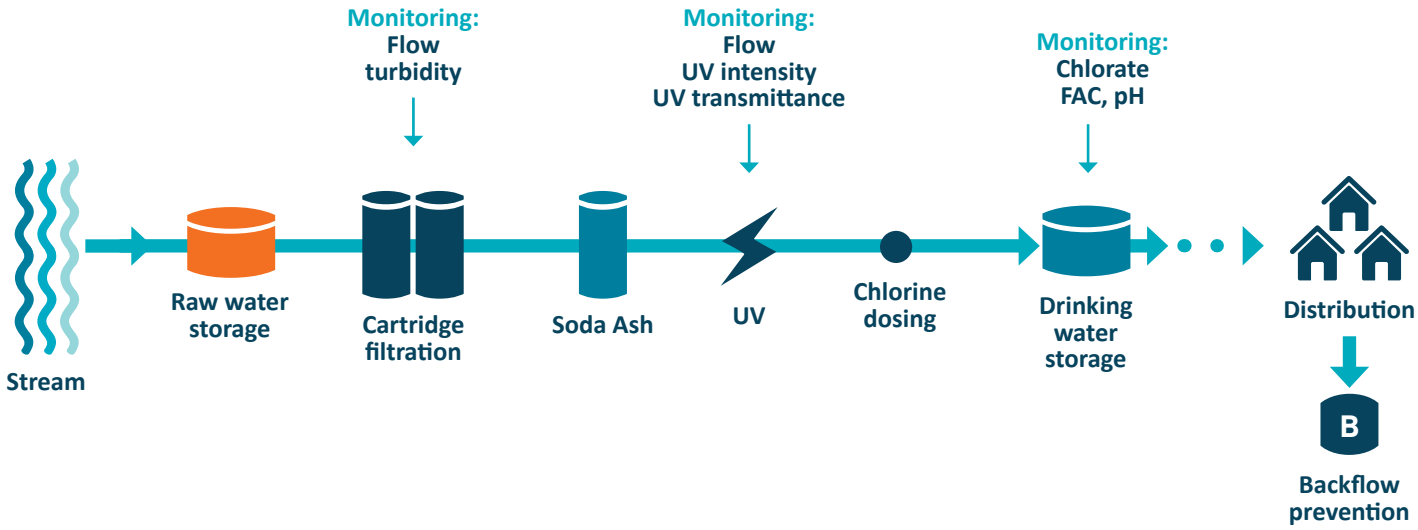
- Online: via Hinekōrako on the Taumata Arowai website
- Email us at info@taumataarowai.govt.nz
- Post: Level 2, 10 Brandon Street, PO Box 628, Wellington 6140, New Zealand

Appendix 1: Key terms explained

Term	Definition
Controls	• A measure or step which is designed to reduce the likelihood or severity of harm. • Also known as 'preventative measures', 'mitigation measures' and 'barriers to contamination'.
Corrective actions	• Remedial action taken to correct a problem (e.g. the breach of a critical limit) and measures taken to prevent recurrence.
Critical control limits	• A monitoring threshold which if breached indicate that drinking water is likely to be unsafe.
Drinking Water Quality Assurance Rules	• The Drinking Water Quality Assurance Rules 2022 are compliance rules made by Taumata Arowai under s 49 of the Water Services Act 2021 and can be found on the Taumata Arowai website.
Drinking Water Standards	• The Water Services (Drinking Water Standards for New Zealand) Regulations 2022. The Drinking Water Standards are regulations made under s 47 of the Water Services Act 2021 and can be found on the New Zealand Legislation website.
Hazard	• An object, substance (including biological, chemical, physical, or radiological agents) or a set of circumstances that has the potential to make a drinking water supply unsafe or insufficient to meet the drinking water needs of consumers.
Hazardous event	• An incident or situation that can lead to the presence of a hazard in the drinking water supply or prevent sufficient supply of drinking water. • The point at which control of the hazard is lost.
Hinekōrako	• A self-service portal for water suppliers and laboratories, and our Regulatory and Intelligence system. Hinekōrako personifies the lunar rainbow. This name was gifted to Taumata Arowai by Te Atiawa.
Rāhui	• Form of restriction place on resources or specific areas to prohibit use of that resource or area for a particular period of time.
Risk	• The likelihood that the hazards will cause harm combined with the severity of the consequences if the hazard does occur.
Rohe	• Boundary/tribal boundary, district, region, territory, area, border (of land).
Source water	• The water body from which water is abstracted for use in a drinking water supply (e.g. river, stream, lake or aquifer) and rainwater.
Takiwā	• District.
Tangihanga	• Funeral.
Te Mana o te Wai	• A universal concept for all Aotearoa New Zealanders. It refers to the fundamental importance of water and recognises that protecting the health of freshwater protects the health and wellbeing of the wider community environment.

Appendix 2: Example flow diagram

Please note: This is just an example of how you could draw your own water source.



Appendix 3: Example of some potential hazards and sources of hazards to a water supply

	Components of the drinking water supply system	Hazard	Potential sources of hazard/hazardous event
SOURCE	Lake, river (surface water)	**Bacteria** **Protozoa** **Viruses**	• Animal or human waste entering the source water from farm run-off, wastewater treatment plant discharges, or septic tanks.
		Chemicals	• Chemicals used on farms within the catchment, discharges from industry within the catchment, run-off from roads, vehicles entering water (road accidents), chemicals from natural sources (e.g. deposition of volcanic ash).
		Cyanotoxins	• Benthic or planktonic cyanobacteria producing toxins (seasonal).
	Bore, spring (ground water)	**Bacteria**	• Animal or human waste entering the aquifer from farm run-off, wastewater treatment plant discharges, or septic tanks.
		Protozoa	• Animal or human waste entering the aquifer from farm run-off, wastewater treatment plant discharges, or septic tanks (typically only in very shallow aquifers, or through defective bore heads).
		Viruses	• Animal or human waste entering the source water from farm run-off, wastewater treatment plant discharges, or septic tanks.
		Chemicals	• Chemicals used on farms within the catchment, discharges from industry within the catchment, run-off from roads, vehicles entering water (road accidents), naturally occurring chemicals from soil and rock.
		Radiological determinands	• Chemical isotopes from soil and rock that are radioactive (alpha and beta emitters including radon) (typically naturally occurring).
	Roof	**Bacteria** **Protozoa**	• Animal or bird waste entering rainwater system.
		Viruses	• Typically, only an issue when people have direct access to the roof.
		Chemicals	• Chemical found in roofing materials, discharge from nearby chimneys.
TREATMENT	Treatment	**Chemicals**	• Failure of the water treatment equipment. • Impurities in treatment chemicals or unloading of the wrong chemical.
DISTRIBUTION	Storage (tanks/ reservoirs)	**Bacteria**	• Animals or birds able to enter the reservoir, or from human access to reservoirs (e.g. swimmers, divers).
		Protozoa	• Animals or birds able to enter the reservoir.
		Viruses	• Human access to reservoirs (e.g. swimmers, divers).
		Chemicals	• Materials used in the construction of reservoirs, deliberate tampering.
	Reticulation systems	**Bacteria**	• Biofilms building up inside the water pipes and entering the supply system when repairs are undertaken or via backflow.
		Viruses	• Viruses entering system through leaks when repairs are undertaken or via backflow.
		Chemicals	• Chemicals entering system through leaks when repairs are undertaken or via backflow. Leaching from pipe materials, joints and fixtures (e.g. lead).

Appendix 4: Controls – Bores and Springs (groundwater)[3]

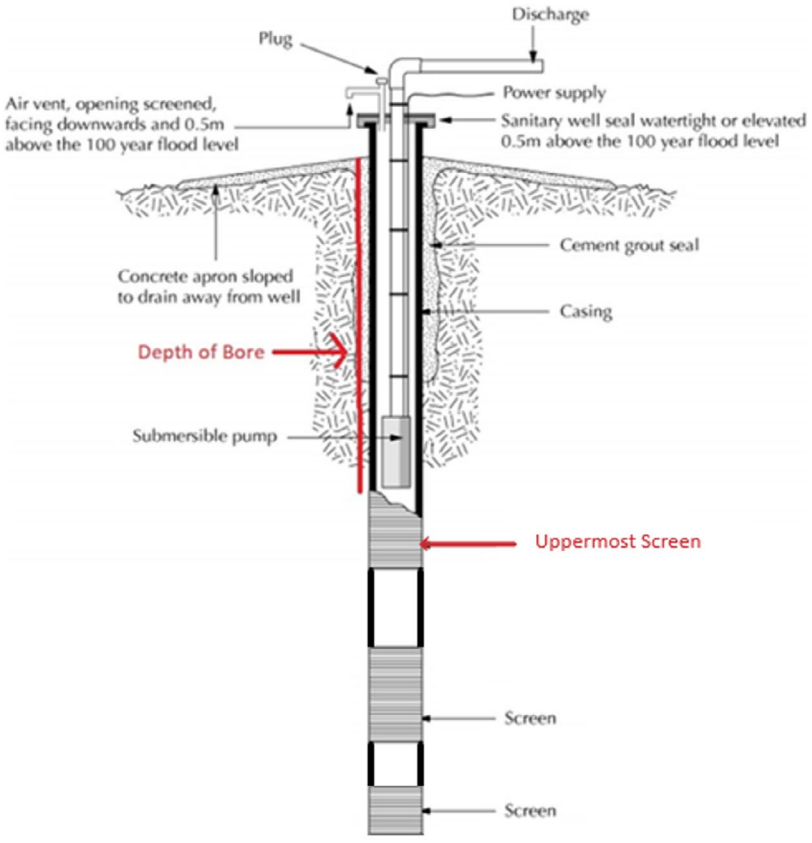
A bore is a small diameter hole sunk/drilled into the ground tapping into a layer of water and usually, with the aid of an underground pump, pushing the water to the surface.

The intake (bore) is an important part of your system. Usually, providing a good intake is only a little more expensive than a poor one, yet a good intake will fix many of the problems caused by turbidity and other contaminants.

Bore heads should be sealed at the surface to prevent surface water and contaminants entering. The bore should be cased so that shallow groundwater does not mix with the deeper water. Ensure that your bore is well away from any septic tank soakage areas, offal or rubbish dumps, and animals are excluded from within **5 metres** of the bore head.

Springs should have a wall or berm around the abstraction area to prevent surface run off mixing with the spring water, and the area should be fenced to keep stock out.

A typical bore is shown below.



[3] Information in Appendices 4 – 11 is provided courtesy of the Ministry of Health and modified where appropriate by Taumata Arowai.

Appendix 5: Controls – Lakes, Rivers and Streams (surface water)

Locate your stream or lake intake upstream of any waste discharges, drawing sufficiently below drought level to prevent sucking air into the system. Intakes normally incorporate a screen to remove larger items such as leaves, sand or stones and aquatic animals.

If the source water becomes dirty after rain, consider introducing a system that shuts off the intake until the water is clear.

Source water can be provided to a raw water tank (minimum 10,000 litres) with a calmed bottom inlet and floating off take, to ensure turbidity is reduced so that it is suitable for further treatment.

Appendix 6: Controls – Rainwater (roof water)

Rainwater may not be suitable for drinking if the property collecting rainwater is near a busy highway, near factories discharging contaminants to the air and while pesticides are being sprayed nearby.

Avoid collecting water from the section of roof that collects fall-out from a flue from a slow combustion heater or oil burner.

Avoid using lead flashings and lead-headed nails on roofs harvesting rainwater. If the roof does have lead flashings, you may be able to isolate the lead by painting it.

Asphaltic and bitumen-based roofing have been known to impart taste and colour to rainwater. Unpainted treated timber shingles may leach chemicals, e.g. copper, chromium, and arsenic.

The metals lead, chromium and cadmium are toxic, and a roof painted with paint containing these metals should not be used as a source of drinking water. Lead and chromium are more likely to be found in primers and rust control coatings.

While modern roof paints are generally labelled for their suitability for painting a roof for water supply, you should still talk to a technical representative from a paint manufacturer before painting.

Guttering should be installed so water does not pond and stagnate; this can allow micro-organisms to grow.

Apart from carrying out maintenance (see later section), the quality of the water running off the roof can be improved significantly by:

- adding leaf guards/mesh to the guttering and/or installing a debris diverter
- installing a first-flush diverter – most need manual cleaning so require regular maintenance
- installing the inlet pipe so the water enters the bottom of the tank through a U-bend without disturbing the sediment
- attaching the draw-off pipe to a float so the water is extracted from near the water surface
- installing a vacuum device that uses the overflow to automatically de-sludge the tank
- operating small tanks run in series rather than installing one large tank; as the water passes to successive tanks, the microbiological quality improves significantly

Appendix 7: Controls – Water Treatment – Filtration

Filtration is a process where water is passed through a treatment device that screens or removes certain types and sizes of particles. Filters may be coarse and remove large particles, or fine, such as ultrafilters, capable of removing most substances.

Cartridge filtration is a water filter housing installed directly into the water. Replaceable cartridges are installed with a tight seal so that all water must pass through the filter. The Drinking Water Quality Assurance Rules require that cartridges rated as 5 micron nominal are used.

Activated carbon is a form of charcoal which is activated by steam treatment at high temperatures, making the material extremely porous and reactive. Granulated activated carbon comes in small lumps or granules. The sizes vary but are usually about 3 to 5 mm in diameter. Powdered activated carbon is a very fine powder that is normally impregnated on to a cartridge.

Either plain or activated carbon cartridge type filters can remove protozoan cysts if the nominal particle retention size of the filter is 1 micron or less. Note: Activated carbon filters should not be exposed directly to water containing biological contaminants; carbon granules can act as a growth medium for bacteria. If you think your water could be contaminated then activated carbon may not be the best filter for you.

Activated carbon will eventually become full of contaminants and must be replaced to prevent contaminants returning to the water.

Ultrafiltration is a type of membrane filtration (see the Drinking Water Quality Assurance Rules).

Ultrafiltration can remove particles down to the size of approximately 0.1 micron (1/10,000th of a mm). Some ultrafilters can remove all biological contaminants. They can clog quickly and should only be used with relatively clear water or following upstream filters.

Appendix 8: Controls – Water treatment – UV disinfection

Ultraviolet light is used to disinfect water by treating microbiological contaminants, making the organism harmless. A UV device must be used with relatively clean water, allowing the light to penetrate with sufficient intensity throughout the reaction chamber. A dose of **40mJ/cm2** is effective against bacteria and protozoa.

The lamps degrade with time and must be replaced on a six monthly to a yearly basis. UV disinfection devices should have a built-in monitoring system that indicates that the device is operating correctly and warns of lamp deterioration or failure.

UV devices must be installed by a suitably qualified person such as a registered plumber.

Appendix 9: Controls – Water treatment – Chlorination

Chlorine is a common disinfectant used to reduce the risk of harmful micro-organisms in drinking water. Nearly all pathogenic organisms can be destroyed with chlorine when suitable volumes and concentrations are added to drinking water with a sufficient contact time.

Chlorine can be used as both a primary disinfectant in the treatment of a water supply, and as a residual disinfectant in the distribution to protect water from contamination events once it has left the treatment plant. It can also be used as a one-time shock disinfection to the water supply in response to a contamination event or as a part of a maintenance schedule and can be flushed through the system to treat the whole supply.

Chlorine is available in multiple forms for water treatment. It is important to remember that chlorine compounds can be harmful to people when mishandled. Check the concentration and recommended dose of the chlorine compound before adding it to the water supply and follow product manufacturers instructions.

One type of chlorine is liquified chlorine gas, Cl2. Chlorine gas must only be used by an approved handler under the Hazardous Substances and New Organisms Act, due to the risks of storing and handling it.

Sodium hypochlorite (NaOCl) is a liquid which is the common ingredient in bleach. It can also be made from brine solutions. Sodium hypochlorite used to disinfect drinking water must be less than 3 months old due to a reaction which decreases the strength of the free available chlorine and the formation of chlorate ions (ClO3-).

Calcium hypochlorite (Ca(OCl)2) is a solid, provided in powder, granules or tablets. The powder must be mixed with water for dosing. Calcium hypochlorite has the same issue of degradation over time as sodium hypochlorite but has a longer shelf life depending on storage conditions.

Chlorate concentrations can reach health-significant levels in water supplies due to the use of hypochlorite, therefore appropriate preparation, dosing and monitoring methods should be used.

Free available chlorine is the standard method of monitoring chlorine in a water supply. This measure indicates if there is enough chlorine in the water to act as a disinfectant. It can also indicate whether something has changed in the supply which has used up a lot of free available chlorine, and therefore a potential contamination event.

Sources:

Supply of Chlorine Third Edition (Water New Zealand)

Instructions for dosing tanks ESR0940-Household-water-supply (Ministry of Health)

Appendix 10: Controls – Treated water – Pipework and connections

Many of New Zealand's waters are soft and drinking water may be corrosive. As corrosive water can leach out metals from metallic pipes and fittings, you may need to use plastic pipes and valves for drinking water.

The most used plastics are:

- unplasticised polyvinylchloride (UPVC)
- low density polyethylene (LDPE e.g. alkathene)
- medium density polyethylene (MDPE)
- high density polyethylene (HDPE)
- polybutylene.

Select pipes according to cost:

- availability
- resistance to handling, trenching and superimposed loads
- flexibility and ease of laying
- ease of connection
- esistance to frost.

Roofing, guttering, downpipes, and pipework used in conjunction with drinking water should comply with AS/NZS 4020: Testing of Products for Use in Contact with Drinking Water.

While an experienced master plumber or plumbing goods supplier should be able to give useful advice, a low-cost quality system might consist of low-density polyethylene pipes, approximately 20 mm internal diameter for main runs and 15 mm internal diameter for spurs. For long runs or high flow, a 25 mm pipe connecting the source and the buildings being supplied may be desirable.

Pipes should be buried (at least 400 mm deep) from the source to storage tanks.

Appendix 11: Controls – Treated water – Backflow prevention

Backflow prevention devices should be installed between a drinking tap and any place where there is a connection which could allow contaminated water to be drawn into the distribution system.

Examples include connections to chemical containers, cattle troughs etc. An air gap is a very simple backflow prevention device. Air gaps must be checked regularly to ensure they are still working (e.g. an overflow pipe can become blocked meaning the air gap no longer exists).

Commercially purchased WC flushing cisterns have a backflow preventer built in, but any "do-it-yourself" device needs a backflow preventer.

Cattle shed devices used for dosing animal remedies into the animal watering system and hose connections where the hose is used to mix sprays and wash down animal or bird faeces should have preventers fitted.

In many cases, the fitting of such a device to the specifications of AS/NZS 3500.1:2015 Plumbing and Drainage – Part 1: Water Services 3 will meet the requirements of the building code.