



Boundary Backflow Prevention Policy

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Development of Boundary Backflow Prevention Policy

Policy overview

The production and preservation of safe, drinking water is the highest priority for all public water supply authorities. In Whakatāne, the water supply authority is the Whakatāne District Council (Council). Backflow can happen unintentionally when a change in pressure in the water supply system causes the flow of water in the water supply to reverse so that water from an external source is drawn into the system. If germs or chemicals are in water that backflows into the public drinking water supply, then sickness or even death can occur.

This Policy outlines a framework of principles that will govern the management, use, functionality and specification of backflow devices on connections. The Council's Policy is that an appropriate level of backflow prevention must be provided on all water connections to minimise the risk that the drinking water supply becomes contaminated through backflow.

The requirements of the Policy are **separate** from and in addition to, the legislative requirements of the Building Act 2004. Currently, some backflow prevention requirements are undertaken via the requirements of the New Zealand Building Code Clause G12 Water Supplies. However, the focus of the Building Act backflow prevention requirements is on protecting the safety of all users in buildings rather than on protecting the water supply. The Building Act requirements do not provide protection to Council's drinking water supply and are not aligned with the backflow requirements in legislation and codes relating to drinking water supply safety.

Therefore, the purpose of this Policy is on meeting the backflow requirements related to protecting the safety of the drinking water supply.

The Council will achieve the Policy through the effective and efficient enforcement of section 20 (Backflow Prevention) of the Combined Waters Bylaw 2017.

Overview of the Policy

- The Council is responsible for supplying safe drinking water to customers and preventing backflow into the water supply. This can be achieved by installing backflow prevention devices, which stop water from being drawn back into the drinking water supply.
- This policy is to protect the community and customers connected to Council's Drinking Water Supply from backflow risks. Every connection has the actual or potential ability to allow backflow and is therefore a contamination hazard.
- This Policy requires all connections to the drinking water supply to have backflow prevention devices installed in order to protect the water supply from contamination. These requirements are separate from requirements under the Building Act 2004 to have backflow prevention devices which may be needed to protect the health and safety of building users.
- The type of activity that takes place (or potentially takes place) within a property dictates the potential hazard rating and the type of protection device required to reduce the likelihood of contamination to the water supply.
- The costs associated with testing backflow devices (where testable and required) will be charged to the owner of the premises.
- Other than testing costs, no other charge will be made (e.g. replacement costs if testing reveals faults).
- Fees and charges will be adjusted as necessary to reflect the position reached by this policy.
- Adjustments may be required to other policies (such as the Combined Waters Bylaw) as a result of the position reached by this policy.
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1. Introduction

The production and preservation of safe, drinking water is the highest priority for all public water supply authorities. In Whakatāne, the water supply authority is the Whakatāne District Council (Council).

Backflow can happen unintentionally when a change in pressure in the water supply system causes the flow of water in the water supply to reverse so that water from an external source is drawn into the public water supply system. If germs or chemicals are in water that backflows into the public drinking water supply, then sickness or even death can occur. Every consumer connection has the actual or potential ability to provide a cross connection and is therefore a contamination hazard.

The Council is responsible for supplying safe drinking water to customers and preventing backflow into the water supply. This is done by installing backflow prevention devices, which stop water from being drawn back into the drinking water supply.

2. Purpose

The purpose of this policy is to outline a framework of principles that will govern the ownership, management, use, functionality and specification of backflow devices in the District. To minimise the risk that the treated water supply becomes contaminated, the Council's policy is that an appropriate level of backflow prevention must be provided on **all** water connections.

This policy outlines how the Council will achieve this policy.

3. Definitions

Auxiliary Water Supply	means any water supply on or available to any premises other than from a public water supply
Building Warrant of Fitness (BWOF)	is required on the anniversary of the issue of the compliance schedule (every 12 months).
Cross Connection	means an actual or potential connection between the drinking water supply and an auxiliary supply or pipe work potentially containing a contaminant.
Council	is the Whakatāne District Council.
Customer	means an owner or occupier of a property who is responsible for the water reticulation within that property
Individual protection	is protection at the source, installed as close as possible to the receiving area and is generally a requirement of a compliance schedule issued under the Building Act.
IQP	means an Independent Qualified Person. This is defined in the Building Act 2004 as a person who: a) has no financial interest in the building, other than as a qualified person; and b) is accepted by the territorial authority as being appropriately qualified to undertake the inspection and maintenance of the feature or system concerned.
Point of Supply	is the point where the responsibility for ownership and maintenance of the water supply pipe passes from the Council to the Customer. Where the connection box and/or meter box is on public land the point of supply is where the supply pipe crosses the property boundary. Where the connection box is on private land, the point of supply is where the service pipe leaves the meter box. That is after backflow prevention and metering. Council will take responsibility for all pipe, fittings and meters up to the point of supply.
Three Waters	is the department within the Council that has responsibility under the Local Government Act 2002 to manage the water supply systems in the Whakatāne District.

4. Principles

The following principles apply with respect to this policy:

1. Council is responsible for supplying safe drinking water to customers and preventing backflow into the water supply.
2. All connections are required to have boundary backflow prevention.
3. The type of backflow prevention device is dependent on the potential risk to the water supply posed by the activities undertaken or potentially undertaken on the site. This level of risk can be assessed as very low, low, medium or high.
4. Domestic/ordinary urban use connections will generally have a (non-testable) dual check device. Commercial/industrial/extraordinary/rural use connections will generally have a testable backflow prevention device.
5. Additional backflow prevention device/s may be required for individual protection within the customer's internal pipework arrangement at the location of a fixture under the provisions of the NZ Building Code. These installations are separate from the requirements of this Policy as they are covered under a Compliance Schedule issued under the Building Act.
6. Where a boundary prevention device is directly associated with a Compliance Schedule and covered under a Building Warrant of Fitness this will be administered in accordance with the Building Act requirements.
7. Boundary Backflow prevention devices must not interfere with the Building Code requirements – Section C - Protection from fire.
8. Boundary Backflow prevention devices must not inhibit the performance of fire sprinkler systems
9. Testable backflow prevention devices will be tested at least annually in accordance with Boundary Backflow Prevention for Drinking Water Supplies 2nd Edition June 2013 and New Zealand Backflow Testing Standard 2019 – Field Testing of Backflow Prevention Devices and Verification of Air Gaps.
10. Testable backflow prevention devices shall also be tested after maintenance.
11. As boundary backflow devices protect the public drinking water supply system costs associated with the installation of devices shall be bulk funded by Council – rather than charging direct costs to owners of premises.
12. Where owners of premises establish a new activity on a site, that owner shall install appropriate boundary backflow protection at their own cost. If this work is undertaken without the knowledge of Council, Council may require the level of backflow protection to be upgraded at the property owner's cost.
13. The Council will periodically survey existing properties with water supply connections to determine whether any change has occurred in the business activity resulting in a change needing to be made to the level of backflow protection required.

14. Failure to comply with the Policy could result in a property being deemed non-compliant and the water supply being restricted to that property. In emergency situations, where the public water supply is being contaminated or is in immediate danger of contamination, the water service may be interrupted at the Council's discretion.
15. The costs associated with testing backflow devices (where testable and required) will be charged to the owner of the premises.

5. Legislation and Regulations

New Zealand's legislation determines the Council's responsibilities and actions regarding the supply of drinking. The legislation outlines:

- how a drinking water supply is managed.
- who has responsibility for ensuring that a water supply is not contaminated.
- the actions that need to be undertaken to ensure water supplies remain safe.
- what happens if a supply is contaminated.

Water Suppliers along with all water consumers are responsible under common law, as well as under the Water Services Act 2021 and the Building Act 2004, to ensure the safety of water in the public supply system and in all buildings on sites.

The principal legislation most relevant to drinking water quality and therefore to the prevention of backflow includes:

- Water Services Act 2021
- Building Act 2004
- Health and Safety at Work Act 2015
- Local Government Act 2002

An overview of the relevant information in each of the currently applicable Acts and Regulations is contained in **Appendix 1**.

6. Relevant Standards and Guidelines

As well as meeting the requirements of the legislation, the following standards and guidelines relate to drinking water quality and the prevention of backflow and cross connection contamination.

- Building Code (G12) – Water supplies
- Building Code (C1 – C6) – Protection from Fire
- New Zealand Drinking Water Standards 2005 (revised 2018)
- Boundary Backflow Prevention for Drinking Water Suppliers 2nd Edition 2013, published by Water NZ
- New Zealand Backflow Testing Standard 2019 – Field testing of backflow prevention devices and verification of air gaps, published by Water NZ
- Water Safety Plan Guide ‘Distribution System – Backflow Prevention’, version 1, Ref D2.4 published by the Ministry of Health
- Public Health Grading of Community Drinking-Water Supplies and Guidelines
- AS/NZS 2845.1 Backflow Prevention Water Supply Material Design Performance
- AS/NZS 2845.3 Backflow Prevention Field Testing and Maintenance
- AS/NZS 3500. 1:2300 National Plumbing and Drainage – Water Services
- NZS PAS 4509:2008 NZFS Firefighting Water Supplies Code of Practice
- NZS 4510:2008 Fire Hydrant Systems for Buildings
- NZS 4512: 2010 Fire Detection and Alarm Systems in Buildings
- NZS 4541:2013 Automatic fire sprinkler systems
- NZS 4515:2009 Fire sprinkler systems for life safety in sleeping occupancies (up to 2000 m²)
- NZS 4517:2010, ‘Fire sprinkler systems for houses
- NZQA Unit Standard 23847 - Prepare to test, and inspect and test, water supply backflow prevention devices
- NZQA Unit Standard 23848 - Describe suitability, installation, and testing of water supply backflow prevention devices, and fault identification

7. Combined Waters Bylaw 2017

The Combined Waters Bylaw 2017 requires that the public water supply be protected and states:

S20 Backflow Prevention

- (1) The Council may require the Customer to provide backflow prevention either by ensuring (and registering with Council) an adequate air gap or by installing a Council approved backflow prevention device to prevent any cross-connection between the Council water supply and:
- a) Any other water supply (potable or non-potable);
 - b) Any other water source;
 - c) Any storage tank;
 - d) Any other pipe, fixture or equipment containing chemicals, liquids, gases, or other non-potable substances.

Unmanaged Risk

- (2) Notwithstanding clause 20(1), the Council may fit a backflow prevention device on the Customer side of the point of supply where the Customer cannot demonstrate that the risk of backflow is adequately managed. The Council may recover the cost of installing and testing the device from the Customer.

8. General Requirements for Backflow Prevention Devices

8.1 *Legislative Requirements*

The legislation and regulations listed above require the Council to ensure that the following backflow prevention devices are installed:

a) Source (point of risk) individual protection

For buildings where compliance with the provisions of the Building Act and the NZ Building Code is required, an appropriate backflow prevention device must be installed as close as possible to the source of potential contamination to protect the health and safety of water users in the building. The type of device used must be compliant with the Building Code G12.

b) Zone Protection

Zone protection is generally only applicable within large industrial and commercial complexes and usually requires workshop areas to be separated from offices and communal areas. If required, this falls under the Building Act and its associated provisions in respect to compliance schedules.

c) Boundary backflow protection

In addition to any individual backflow prevention (8.1(a)), an appropriate backflow prevention device must be installed on the service pipe as close as practicable to the point of supply.

The Council will carry out a programme to install backflow prevention devices on properties that do not have them. The direct costs of installation will be met by the Council.

8.2 *Ownership of Boundary (Containment) Backflow Devices*

Boundary backflow prevention devices will be owned by the Council unless a boundary prevention device is directly associated with a Compliance Schedule issued pursuant to the Building Act 2004. In such instances the customer shall retain ownership of the device and be responsible for ongoing compliance with the testing and maintenance provisions specified under the Compliance Schedule. administration of compliance in this regard will be the responsibility of Councils Building Compliance team.

8.3 *Roles and Responsibilities*

Under the legislation and regulations, the Council has responsibility for preventing backflow. Within the Council, two separate departments have responsibility for backflow prevention devices: Three Waters and Building Compliance.

8.3.1 **Three Waters Department**

The responsibilities of Three Waters is governed primarily by the Water Services Act which gives the department the general responsibility for the safety of the public water supply system. The Act requires Three Waters to ensure that containment devices are provided at the point of supply of all properties.

Boundary protection is independent of any internal backflow prevention.

Three Waters staff or authorised agents may need to inspect a property to determine the level of risk and to assess Boundary Backflow prevention requirements. This could be when a change of business activity occurs or has occurred or when water use within the property changes.

The installation of a backflow prevention device for boundary backflow prevention by Three Waters or its authorised agent shall be in Three Waters' capacity as a network utility operator. Accordingly, if this is the only work undertaken then said work is exempt from the building consent provisions under the Building Act.

Three Waters is required to ensure that all testable boundary backflow prevention devices are tested annually. Three Waters or its authorised agents will undertake testing of devices and record test results.

The customer shall report any failure of any device or any incident that occurs involving a backflow prevention device.

8.3.2 Building Compliance Department

Building Compliance is responsible for ensuring compliance with the Building Act and Building Code. This legislation is focused on protecting building occupants and users from possible dangers, including cross connections and backflow. Under these provisions, the building owner is responsible to protect the buildings occupants. The building owner must install and test appropriate backflow preventers where a hazard exists in accordance with the relevant provisions of the Building Code and the requirements of the Compliance Schedule issued under the Building Act. The building owner is also responsible for reporting any failure of any backflow device and for the payment of all fees, charges and costs associated with backflow prevention devices required under the Building Act.

9. Types of Hazards

9.1 Types of Hazards

A range of specific hazards relating to certain activities have been identified and are outlined in detail in: **Appendix 2**.

Many common installations require backflow prevention, regardless of the nature of the activities conducted on the premises. The hazard rating supplied in the Table 1 below is a general assessment, which means that the specific hazard for an installation may differ from the rating listed below. When in doubt, refer to the section 9.2 below.

9.2 Hazard Ratings

The following levels of risk to public health as outlined in Table 2 below, relate to a hazard rating as defined in G12 of the Building Code.

Description of hazard ratings as defined in the Building Code

Hazard Rating	Description
High Hazard	Any condition, device or practice which, in connection with the potable water supply, has the potential to cause death.
Medium Hazard	Any condition, device or practice which, in connection with the potable water supply system, has the potential to injure or endanger health.

Low Hazard	Any condition, device or practice which in connection with the potable water supply system, would constitute a nuisance, by colour, odour or taste, but not injure or endanger health.
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Unless otherwise exempted, Three Waters requires that an appropriate and testable boundary backflow prevention device be provided as close as practicable to the boundary on the service pipe of any property for which the activity occurring on site is such that the hazard rating is anything other than very low.

Exemptions may be granted at the discretion of Three Waters where it is agreed there is no significant potential for a possible event that could contaminate the public drinking water supply either accidentally or intentionally from the business activity occurring on site. Appropriate supportive evidence shall be supplied in all instances for any exemption to be considered.

10. Interruption or Restriction of Water Supply

If a potentially serious hazard to the public water supply exists, the connection to that property may be interrupted or restricted. Three Waters will make every effort to inform customers in advance of interruption or restriction. Restoration of the supply will not be undertaken until appropriate action has been taken to meet the requirements specified by the Three Waters Manager. The costs may be attributed to the property owner.

Interruption or restriction of the water supply may be undertaken in accordance with the Local Government Act 2002, Water Services Act 2021 and the Council’s Combined Waters Bylaw 2017.

10.1 Backflow Incidents

If the public water supply is contaminated by a backflow incident, the person(s) responsible for causing the contamination will be held responsible for covering the cost of rectifying the contamination irrespective of whether or not legal action is taken.

11. Types of Backflow Prevention Devices

The types of backflow prevention devices are categorised according to the following levels of risk: very low, low, medium or high. However, certain devices may not be suitable in all situations even if they

have the correct hazard rating. For example, an air gap would be impractical as a boundary device. The types of devices to be used are shown in Table 3 below.

Types of Backflow Prevention Devices

Hazard	Device
Very Low Hazard	Dual check valve (non-testable)
Low Hazard	(Testable) Double check valve
Medium hazard	(Testable) Double check valve
High hazard	(Testable) Reduced pressure zone

11.1 Backflow Prevention Devices

All backflow prevention devices must be manufactured in accordance with AS/NZS 2845.1 Water Supply Backflow Prevention Devices Materials, Design and Performance Requirements.

For boundary devices at the property boundary, only top entry backflow preventers complying with AS 2845.1 can be used, see Three Waters Approved Materials List for approved models.

It is important to ensure that the correct device is chosen to cover each potential hazard. If there is any doubt, a higher level of protection must be used.

12. Council installation and ownership of backflow prevention devices

Council records indicate that there are various devices currently in place across the District. Most frequently these are at farms on the Rangitāiki Plains, with some at commercial Whakatāne properties and some at properties at Murupara, Edgecumbe, Tāneatua, Rūātoki and Waimana.

Under this Policy, the Council will undertake a programme to identify all properties without backflow prevention and will install the devices without direct cost to the property owner. These devices will be managed by the Council as part of the Three Waters network.

All existing boundary backflow prevention devices shall be treated as part of the Three Waters network. The exception would be a device installed in accordance with the Building Act/Code and forming part of the Building WOF requirements.

13. Testing

13.1 Test Procedures

Council will undertake testing procedures for backflow preventers in accordance with the New Zealand Backflow Testing Standard 2019 – Field testing of backflow prevention devices and verification of air gaps and/or the American EPA Cross Connection Control Manual. Testing shall be carried out at the following times:

- Immediately after installation
- Annually
- On completion of any maintenance work (triggering a re-test need)
- After a backflow or suspected backflow failure
- At the request of the Area Health Officer, Taumata Arowai, a Building Control Officer or designated Three Waters personnel.

If an incident involving a backflow prevention device occurs on any site, the Council must be notified immediately.

13.2 Test Equipment

The test equipment used must be the correct type for the device being tested. The equipment must be a recognised make and model, and not a 'homemade' device. The test kit must have a maximum working pressure of at least 1200Pa and must have colour coded- hoses for ease of use. Test equipment shall be periodically calibrated, and it is recommended that each hose should contain an in-line filter which should be cleaned out regularly. Testing staff must be appropriately qualified to NZQA Unit Standard 23847.

13.4 Test Record

Test procedures and results shall be recorded and may include:

- Type of test (initial, annual etc.)
- Street address
- Device details (location, make, model, size, serial number)

- Unique backflow registration number (if the tag requires a replacement, then both the old and new number are recorded)
- Associated water meter number (for boundary devices only)
- Type of hazard
- Strainer cleaning
- Test results
- Maintenance work undertaken
- Pass / Fail result
- Test kit information
- Authorised signature and date of test.

14. Surveying

The surveying of properties for potential cross connection and backflow issues shall be undertaken only by designated Three Waters personnel or an authorised agent.

On completion of a survey, a report shall be provided to the owner or occupier. A copy shall be kept within the Council record management system.

Appendix 1: Relevant Legislation

New Zealand has strict legislation relating to the prevention of backflow in order to protect the safety of our drinking water. The installation of backflow prevention devices is mandatory and required in accordance with the following Acts and Regulations.

1. Water Services Act 2021

Section 27 requires boundary backflow prevention for reticulated systems. Two broad options are available:

- Device ownership and management by Council; or
- Device ownership and management by the owner of the premises

Whakatāne District Council prefers device ownership, testing, maintenance and renewal by Council and this policy is written with this in mind.

2. Building Act 2004

The Building Act contains the principal legal and regulatory provisions to ensure that buildings are safe and sanitary, and to safeguard occupants from possible illness caused by unclean water. The Building Act protects the water supply network and deems a building unsanitary if it is without a supply of potable water adequate for its intended use.

The Act requires an annually renewable Building Warrant of Fitness (for non-residential buildings) to ensure the specified systems stated in the compliance schedule are operating correctly. The compliance schedule includes any backflow preventers installed at the source of possible contamination.

The owner is responsible for ensuring that the water supply complies with the requirements of the Building Act and the Building Regulations 1992. If a building is unsanitary, the Act outlines a number of actions that must be implemented.

Building Code Acceptable Solutions - Section C

3. Health and Safety at Work Act 2015

This Act provides for the prevention of harm to employees at work. It makes the employer responsible for providing and maintaining a safe working environment for employees. Under this legislation, the employer must ensure that all hazards are identified and eliminated or minimised.

4. Local Government Act 2002

Under Part 8 of the Local Government Act, the Council may make bylaws as it thinks fit for the purposes of 'protecting, promoting, and to maintain public health and safety'.

5. Other Relevant Legislation

There are a number of other Acts and Regulations which may impact on the requirements for backflow prevention including:

- Camping Ground Regulations 1985
- Civil Defence Emergency Management Act 2002
- Education (Early Childhood Centre) Regulations 1998
- Food (Safety) Regulations 2002
- Food Act 2014
- Food Hygiene Regulations 1974
- Local Government Rating Act 2002

6. Firefighting standards

- NZS PAS 4509:2008 - NZFS Firefighting Water Supplies Code of Practice
- NZS 4510:2008 - Fire Hydrant Systems for Buildings
- NZS 4512: 2010 - Fire Detection and Alarm Systems in Buildings
- NZS 4541:2013 - Automatic fire sprinkler systems
- NZS 4515:2009 - Fire sprinkler systems for life safety in sleeping occupancies
- NZS 4517:2010 - Fire sprinkler systems for houses

Appendix 2: Hazard Rating, Activities and Equipment

This Appendix gives examples and guidance for the overall hazard when determining the boundary backflow prevention required at the types of premises described. The hazard rating is a general assessment and the overall hazard for the specific site may differ from this.

Please see the following pages.

HAZARD	COMMENTS	DEVICE REQUIRED
High <i>Any condition, device or practice which, in connection with the potable water supply system, has the potential to cause death.</i>	Equipment used for handling, mixing, measuring and processing hazardous chemical or harmful microbiological substances	Reduced pressure zone device, Registered air gap, Reduced pressure zone detector for fire systems
ACTIVITY	EQUIPMENT	
Medical facilities (includes laboratories, hospitals, pharmacies)	Autoclaves, sterilisers, aspirators, haemodialysis machines, pan washers, bidets, sluice sinks, spittoons/cuspidors	
Fire or cooling systems with chemicals	Systems containing chemicals such as anti-freeze, anti-corrosion, biocides, or fungicides	
Industrial and trade waste customers	Boiler, chiller, steam calorifier and cooling tower make-up and recycled water; electroplating, degreasing, descaling, pickling, stripping and dipping tanks and vessels	
Car and factory washing facilities	Chemical dispensers and chemical injectors (high toxicity)	
Water treatment facilities	Chlorinators, demineralising equipment using ion-exchange resins with acid/alkali regeneration. Plants with auxiliary supplies. Drinking water in reclaimed water plants.	
Dental clinics	Dental equipment	
Commercial buildings	Direct heat exchangers (unsealed and toxic environment). Fire sprinkler systems and fire hydrant systems that use toxic or hazardous water.	
Commercial laundries	Recirculated or recycled water, venturi detergent and bleach dosing	
Mortuaries	Embalming systems	
Pest control businesses	Hose taps associated with High hazard situations like mixing of pesticides, aspirators, sprayers	
Food preparation facilities	Clean in place tanks, vats and food storage vessels	
Photography labs X-ray machines	Developer mixing facilities	
Airports, piers and docks	Seawater cross-connections (ie, hoses on wharves, fire systems using seawater, primed by town supply)	
Sewage pump stations and sump ejectors	Wash-down hoses and decontamination systems	
Horticultural and commercial gardens	Irrigation systems with chemicals	

Agriculture	Livestock water supply added chemicals/chemigation (ie, antibiotic injectors and bloat control), farm irrigation with fertigation systems and cow shed washdowns
Veterinary clinic	Veterinary equipment
Water filling stations	Water tankers and associated hoses
Schools, universities and polytechnics	Boilers and water based heating systems, laboratories, irrigation systems, swimming pools
Inappropriate use of hydrants	Purging of flammable or explosive gases in gas systems

HAZARD	COMMENTS	DEVICE REQUIRED
Medium <i>Any condition, device or practice which, in connection with the potable water supply system, has the potential to injure or endanger health.</i>	In general Commercial and residential water uses other than domestic sanitary fixtures.	Reduced pressure zone device, Registered air gap, Double check valve Double check detector for fire systems
ACTIVITY	EQUIPMENT	
Beauty salon and hairdresser's sinks	Hairdresser's sinks	
Commercial car washes or vehicle wash down	Appliances, vehicles or equipment wash-down facilities without chemical additives	
Water treatment systems	Deionised water, reverse osmosis units and equipment cooling without chemicals	
Auxiliary water supplies such as pumped and non-pumped fire sprinkler secondary water	Fire sprinkler systems and building hydrant systems Hose taps and fire hose reels associated with Medium hazard	
Horticultural and commercial gardens	Irrigation systems with underground controllers but without chemicals (includes residential irrigation)	
Rural water supply	Livestock water supply without added chemicals; milking sheds	
Rain water collection	Untreated water storage tanks	
Recirculated water systems	Water for equipment cooling and steam cleaning	
Residential and commercial premises	Swimming pools, spas and fountains	

HAZARD	COMMENTS	DEVICE REQUIRED
Low <i>Any condition, device or practice which, in connection with the potable water supply system, would constitute a nuisance, by colour, odour or taste, but not injure or endanger health</i>		Double check valve, Registered air gap, Hose connection vacuum breaker
ACTIVITY	EQUIPMENT	
Commercial premises with potential for change of use.	Domestic sanitary fixtures only	
Cafes, restaurants and other facilities used for the storage or preparation of food and beverages	Drink dispensers with carbonators, coffee machines, dishwashers, garbage can washer, retractable hoses, urinal, auto vegetable peeler, ice maker	
Residential premises	Hose tap used for fixed domestic irrigation systems	
Schools and Parks, etc	Drinking water fountains	

HAZARD	COMMENTS	DEVICE REQUIRED
Very Low All household units (ie, residences).	MoH PHRMP Guideline recommends a non-testable dual check valve to be part of meter assembly maintained by water supplier.	Non-testable dual check valve Air gap
ACTIVITY	EQUIPMENT	
Residential water connections	Domestic sanitary fixtures only	

¹ Boundary Backflow Prevention for Drinking Water Supplies – 2013 Water NZ.

Appendix 3: Additional verification for high and medium risk properties.

