

Backflow Prevention and Containment Policy Guidelines

[Head of Asset Systems & Environment, February 2024]

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Table of Contents

1	Operating Statement.....	3
2	Background	3
3	Objectives.....	4
4	Definitions.....	4
5	Legislation and Standards.....	6
6	Operating Principles.....	7
7	Operating and administrative requirements	8
8	Compliance.....	10
9	Non-compliance.....	10
10	Where can I go for extra information?.....	11
11	References.....	11
11.1	Related Barwon Water Policies and documents.....	11
11.2	Resources	11
12	Review	12

1 Operating Statement

All property owners must comply with the requirements of (and as amended):

- AS/NZS 3500.1 and AS/NZS 2845.1
- The National Construction Code Volume 3 2022 (also known as the Plumbing Code of Australia)
- Water (Estimation, Supply and Sewerage) Regulations 2014

when notified by Barwon Water to install/test a backflow prevention device.

All property owners/agents must, when requested to, arrange for a suitably qualified person to install and maintain an appropriate backflow prevention device at the boundary/main water meter for containment purposes, of the type specified by Barwon Water. The property owner is also responsible for arranging a suitably qualified person to:

- conduct ongoing annual servicing and testing of testable backflow prevention devices
- submit the test results form to Barwon Water.

The installation of an appropriate backflow prevention device is necessary to ensure the reticulated water supply is protected from unintended cross-connection and backflow of possible contaminants into the reticulated water supply system.

2 Background

Barwon Water implements a backflow prevention program to:

- address property containment for new and existing connections
- ensure the protection of the reticulated drinking water supply system
- safeguard public health.

These guidelines are to be used in conjunction with each customer's backflow prevention agreement to assist them in complying with Barwon Water's backflow prevention requirements. They encompass the varying aspects of backflow prevention and Barwon Water's commitment to maintaining a collaborative approach with property owners when managing the changing demands for reticulated water supply, including alternative water supplies.

Barwon Water reserves the right to specify any additional requirements without notice as deemed appropriate to ensure the integrity of the reticulated water supply system.

3 Objectives

1. To ensure the integrity of Barwon Water's reticulated water supply system by minimising the risk of backflow contamination from connections to the system. This may include potential threats from residential, commercial, mixed development processes, industrial processes and properties serviced by alternate, grey and black water recycling systems.
2. To specify when testable backflow prevention devices shall be installed at properties with a medium or high hazard rating in order to protect the reticulated water supply system from contamination flowing back through the property water service, metered standpipes, separate fire service or hydrants.
3. To outline Barwon Water's requirements to install and test backflow prevention devices on properties rated as medium and high hazards.
4. To outline Barwon Water's requirements for properties rated as a low hazard to ensure they have appropriate non-testable backflow prevention.
5. To identify backflow prevention and containment requirements for customers with multiple reticulated water supplies.
6. To identify backflow prevention and containment requirements on fire services.

4 Definitions

- **AS/NZS 2845.1** Australian/New Zealand Standard for Water Supply – Backflow Prevention Devices.
- **AS/NZS 3500.1** Australian/New Zealand Standard for Plumbing and Drainage Part 1: Water Services.
- **AS/NZS 4020** Australian/New Zealand Standard for Testing of products for use in contact with drinking water.
- **Backflow:** The unplanned reverse flow of water or mixtures of water and contaminants into the reticulated water supply system.
- **Backflow prevention device:** A device to prevent the reverse flow of water from a potentially contaminated source into Barwon Water's reticulated water supply system.
- **Cross-connection:** Any connection or arrangements between the system, connected to the water main or any fixture that may enable non-drinking water or other contamination to enter the system.
- **Double check valve AS/NZS 3500.1** A medium hazard testable device in accordance with AS/NZS 2845.1.
- **Drinking water:** Water that is suitable for human consumption, food preparation, utensil washing and oral hygiene (see AS/NZS 4020). Compliance with Australian Drinking Water Guidelines 2004 (and as amended) is required.

- **Dual check valve:** Low hazard non-testable device in accordance with AS/NZS 2845.1.
- **Fire service:** services comprising water pipes, fire hydrants, fire hose reels and fittings, and including water storage or pumping facilities, which are installed solely for fire-fighting and extinguishing purposes in and around the building or property.
- **Grey/black water treatment system:** A system that provides a localised water treatment system owned and operated by Barwon Water and/or private operator.
- **High hazard rating AS/NZS 3500.1** Any condition, device, or practice, which in connection with the system has the potential to cause death.
- **Individual protection:** Installing a backflow prevention device at the point where the water pipes connect to a fixture or appliance.
- **Low hazard rating AS/NZS 3500.1** Any condition, device, or practice, which in connection with the system, is a nuisance but does not endanger health or cause injury.
- **Medium hazard rating AS/NZS 3500.1** Any condition, device, or practice, which in connection with the system, could endanger health.
- **Mixed development:** A property with both commercial and residential classifications onsite.
- **New properties:** Any new or existing property, undergoing construction or redevelopment that must submit a development application.
- **Reduced pressure zone device AS/NZS 3500.1** A high hazard testable device in accordance with AS/NZS 2845.1.
- **Registered air gap:** A device or system installed for backflow prevention registered by or on behalf of Barwon Water.
Air gap for water supply system is specifically defined as the unobstructed vertical distance through the free atmosphere between the lowest opening of a water service pipe (or fixed outlet) supplying water to a fixture or receptacle and the highest possible water level of that fixture or receptacle.
Installation of a registered air gap will be applied to sites rated as a high hazard backflow risk.
- **Registered break tank:** A tank system specifically designed for backflow prevention registered by or on behalf of Barwon Water.
Installation of a registered break tank will be applied to sites rated as a high hazard backflow risk and be inspected and maintained in accordance with this policy/guidelines.
- **Reticulated water supply system:** The supply system into which Barwon Water delivers drinking and/or non-drinking water.
- **Single check valve testable:** Low hazard testable device in accordance with AS/NZS 2845.1. Suitable for fire service installations.
- **Suitably qualified person – backflow testing:** A plumber registered and/or licensed in backflow prevention with the Victorian Building Authority (VBA).

- **Plumbing Code of Australia (PCA)** the National Construction Code Series: Volume Three.
- **Zone protection:** Installing a backflow prevention device at the connection point of specified sections of a plumbing system within a building or facility.

5 Legislation and Standards

The following are the principal Acts, Regulations and Standards relevant to backflow prevention. Any reference to the Acts and Regulations specified below refers to the latest version as amended. Any reference to the Standards specified below refers to the version as issued, published or remade. Any reference to the Plumbing Code of Australia refers to the version as adopted by Victoria.

Water Act 1989

The Act defines water entitlements and establishes the mechanisms for managing Victoria's water resources. **Section 8** provides for an individual's rights and **Section 9** sets out the rights of water corporations.

Water (Estimation, Supply and Sewerage) Regulations 2014

The Regulations provide generally for the management, protection and use of lands, waterways and works under the management and control of a water corporation. They allow Barwon Water to outline conditions which all property owners must comply with when connecting to the water supply.

Safe Drinking Water Act 2003

The purpose of this Act is to make provision for the supply of safe drinking water. This includes making specific directives to water supply authorities in managing water quality.

AS/NZS 2845.1: Water Supply – Backflow Prevention Devices

This standard specifies requirements for the design, performance and testing of backflow prevention devices used for the protection of the water supply.

AS/NZS 3500.1 Plumbing and Drainage Part 1: Water Services and Part 5: Housing Installations

In particular Part 1 (Section 4), which specifies the requirements and methods for the prevention of potential contamination of drinking water within the water service and the water main and provides for the selection and installation of backflow prevention devices.

Plumbing Code of Australia

The Plumbing Code of Australia is Volume Three of the National Construction Code Series and is adopted under the Victorian Plumbing Regulations 2008. It empowers the regulation

of certain aspects of plumbing and drainage installations, and contains the administrative provisions necessary to give effect to the legislation.

6 Operating Principles

In accordance with the Water (Estimation, Supply and Sewerage) Regulations 2014, all owners of a serviced property, when requested, shall arrange for a suitably qualified person to install a high/medium/low-rated backflow prevention device appropriate to the hazard rating of the property, as determined by Barwon Water, and the type of water service supplying the property.

The property owner is responsible for the purchase and installation costs of a backflow prevention device appropriate to the hazard rating of the development type as specified in AS/NZS 3500.1 Part 1 (Section 4) and the Plumbing Code of Australia. Or as per the conditions of connections issued under section 145 water act 1989.

The property owner is responsible for the maintenance and testing of the device – as detailed in AS/NZS 3500.1, the Plumbing Code of Australia, AS/NZS 2845.1 (Part 3) and the Water (Estimation, Supply and Sewerage) Regulations 2014 (Section 11 and 12) – by a suitably qualified person.

Barwon Water will:

- maintain a register of all installed testable backflow prevention devices and annual test reports
- conduct audits of installations from time-to-time to ensure ongoing compliance with AS/NZS 3500.1, the Plumbing Code of Australia and these Backflow Prevention and Containment Policy Guidelines.

If Barwon Water issues a notice that a backflow prevention device does not comply with the requirements of this policy, the property owner must engage a suitably qualified person to repair, maintain, test, replace or install the device as specified within the timeframe given in the notice.

If the property owner fails to comply with the notice issued by Barwon Water to repair, maintain, test, replace or install the backflow prevention device, Barwon Water, in accordance with the Water Act 1989, may remove or disconnect the reticulated water supply system to the property or carry out the required maintenance works and recover from the property owner all reasonable costs applicable.

A failure by a property owner of a serviced property to comply with a written notice from Barwon Water in respect to installation of a backflow prevention device or where there has been a failure to comply with the *Water Act 1989*, regulations, by-laws or any other requirement of Barwon Water as notified in writing, may constitute an offence and attract a penalty of up to 120 penalty units, depending on the offence.

If a change in internal business processes undertaken at the property affects the hazard rating, the property owner must engage a suitably qualified person to assess the site and provide a written assessment report to Barwon Water, which certifies any change in hazard level. Barwon Water may conduct a site audit to verify the revised hazard rating. If a change in device type occurs, a test report for the new device(s) must be submitted to Barwon Water.

7 Operating and administrative requirements

For all properties with a medium or high hazard risk, a testable backflow prevention device must be installed at or near the property boundary in accordance with AS/NZS 3500.1 and the Plumbing Code of Australia. No connections are to bypass the backflow prevention device.

The type of backflow prevention device installed is based on the risk assessment of the existing or proposed onsite water processes and/or the type of reticulated water supply system present. Risk assessments are in accordance with the Plumbing Code of Australia.

In the absence of a known hazard or business activity for any new non-residential development, or a development where the business type is likely to change, Barwon Water will automatically specify a high hazard device be installed. Note: Consent to connect will only be granted once relevant backflow documentation is completed and received by Barwon Water.

Where multiple processes occur on a site, the hazard rating of the backflow prevention device will be equal to or greater than that of the highest hazard required to protect the zone and or individual hazard.

The property owner or agent must complete a Registration of Backflow Prevention Device Installation/Agreement form agreeing to maintain and test the backflow prevention device/s at intervals of no more than 12 months from the date of the initial commissioning or as otherwise determined by Barwon Water. The application must be accompanied by a test report showing the successful commissioning of the device/s.

Class A recycled water supply properties

- Residential properties provided with reticulated Class A recycled water supply shall require a dual check valve on the Class A recycled water supply and drinking water supply, which provides a minimum low hazard control against cross-connection. In dual pipe areas, Barwon Water will install the dual check valve as a part of the meter assembly.

- Non-residential properties provided with reticulated Class A recycled water supply shall install an appropriate backflow prevention device in accordance with the hazard rating of the property. Where a testable device is required, a Registration of Backflow Prevention Device Installation/Agreement form must be completed.

The testable backflow prevention device/s manufactured to AS/NZS 2845.1 shall be installed, commissioned and tested annually by a suitably qualified person.

Results of annual testing of the device must be forwarded to Barwon Water within 30 days of the date of the annual reminder letter. Test reports must clearly show:

- the property address
- location of device
- test date
- device test results
- device type, make, serial number and size
- water meter number
- tester's name, licence/registration number, contact phone number and address
- test kit calibration date and serial number.

Note: The test report must be in accordance with the provisions of AS/NZS 2845.1 Water Supply – Backflow Prevention Devices (Part 3: Field testing and maintenance).

Owners of properties with high hazard ratings must install a reduced pressure zone device, or where approved by Barwon Water a registered break tank or registered air gap.

Owners of properties with a medium hazard rating must, as a minimum, install a testable double check valve.

Standpipes (portable and fixed for tankering/water carrying/temporary supply purposes) connected to the Barwon Water reticulated water supply system shall be rated as a high hazard.

Fire Service Containment Backflow Prevention:

All fire services require a low hazard device as a minimum. Fire hydrant and sprinkler type systems 80mm or greater in size require a single check valve testable as a minimum hazard device.

If a fire service is designed to use an alternative water source/chemical additive or have a boost connection point within 180m of an open water source (river or dam), a higher hazard level applies in this instance.

Where fire appliances are provided in a high hazard area, backflow prevention commensurate with the hazard level shall be provided.

Retrofitting backflow prevention devices – where an existing water service is being renewed from 'main to meter', altered or relocated, a backflow prevention device shall be installed appropriate to the property's hazard rating. The existing non-return valve (where installed) is deemed not adequate backflow protection. If the residential property has a domestic 20-25mm water meter incorporating a dual check valve, an additional backflow prevention device is not required.

8 Compliance

The property owner is responsible for arranging the installation, maintenance and annual testing (where applicable) of the backflow prevention containment device/s within their property by a suitably qualified person in accordance with AS/NZS 3500.1 and the Plumbing Code of Australia.

A plumber licensed in water supply by the Victorian Building Authority (VBA) may install the backflow prevention containment devices. Only a suitably qualified person may commission and test these devices.

A plumber licensed in water supply by the VBA may install registered break tanks and registered air gaps. Only a suitably qualified person may commission and test these devices.

The property owner is responsible for ensuring that the backflow test report is submitted to Barwon Water within 30 days of the date of their annual reminder notification.

Note: The property owner has a legal obligation to maintain the reticulated water supply system inside their property and, depending upon the plumbing system and hazard ratings of the internal business processes, to install additional individual/zone protection backflow prevention devices.

9 Non-compliance

As the aim of this policy is to protect Barwon Water's reticulated water supply system and therefore public health, it is vital that all parties comply with the relevant Acts, Regulations and Standards.

In the event of a property owner refusing to rectify a potential backflow hazard or cross-connection hazard, Barwon Water has the authority to disconnect the reticulated water supply system to the relevant property in order to protect the system and public health as per Section 141 of the *Water Act 1989*.

Examples where the system may be disconnected include:

- failure to install a backflow prevention containment device following request from Barwon Water
- failure to carry out tests or maintain a backflow prevention containment device in accordance with AS/NZS 3500.1 and AS/NZS 2845.1
- failure to replace or repair a backflow prevention containment device
- removing or bypassing a backflow prevention containment device without the authority of Barwon Water.

Barwon Water reserves the right to:

- install the appropriate device at the relevant property
- arrange for an overdue annual backflow prevention test to be undertaken by a licensed contractor
- take necessary action to recover all associated costs.

A failure by a property owner of a serviced property to comply with a written notice from Barwon Water in respect to installation of a backflow prevention device or where there has been a failure to comply with the *Water Act 1989*, regulations, by-laws or any other requirement of Barwon Water as notified in writing, may constitute an offence and attract a penalty of up to 120 penalty units, depending on the offence.

10 Where can I go for extra information?

If you have any questions or comments about any aspects of Barwon Water's Backflow Prevention and Containment Policy, or about applying for a Backflow Prevention Agreement, please [contact us](#).

11 References

11.1 Related Barwon Water Policies and documents

Title
Backflow Prevention & Containment Policy
Drinking Water Quality Policy
Customer Charter
Fees and Charges

11.2 Resources

Title
Water Act 1989 (Vic)

Water (Estimation, Supply and Sewerage) Regulations 2014
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Safe Drinking Water Act 2003
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AS/NZS 2845.1: Water Supply – Backflow Prevention Devices

AS/NZS 3500 Part 1 Water Services

Plumbing Code of Australia (PCA) the National Construction Code Series: Volume Three
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12 Review

In accordance with the Barwon Water document hierarchy, these Guidelines will be reviewed as required. However, any document may be reviewed at any time if required, including due to a change in legislation or as business operations change.